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**ABSTRACT BOOK**

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A study of pre- and post-perception comparisons and evaluation of satisfaction and influencing factors among physicians with pediatric and adolescent gynecology subspecialty training in China | ORAL

Peter Koliba MD.  
Juvenile cystic adenomyosis or accessory cavitated uterine mass (case report) | ORAL

Ljubica Matic  
The importance of vaginoscopy in premenarchal girls with vaginal bleeding- call for more PAG practitioners | POSTER

Hevra Ekin Ulusoy  
Prevalence of Bleeding Disorders in Postmenarchal Adolescents Presenting with Heavy Menstrual Bleeding and Acute Anemia Requiring Urgent Treatment | ORAL

Gao Huihui  
Clinical features and etiological analysis of 4644 cases of Vulvovaginitis among Children and Adolescents in China before and during COVID19 pandemic | ORAL

Lan Yu  
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Shuang Song  
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Ipek Evruke  
Hysteroscopic Management of Cervicovaginal Adhesions Presenting as Long-Term Sequelae of Vulvovaginal Graft-Versus-Host Disease | VIDEO

Yasmin Jayasinghe  
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Yasmin Jayasinghe  
Assessing providers' views and needs in paediatric fertility preservation surgery | VIDEO

Milan Lackovic

Abnormal postpartum uterine bleeding in adolescence associated with SARS-CoV-2 infection | POSTER

Vera Andreeva

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Vera Andreeva

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Nurkhairulnisa Abu Ishak

Profile of Turner syndrome in Malaysia and patient's quality of life | POSTER

Emilija Jeremić

The benefits of a multidisciplinary approach in the treatment of young women with polycystic ovary syndrome — combining medicine and psychology | POSTER

Dr. Susan Diane Akinyi Adongo

Catch Me Early, Treat Me Promptly: A Systematic Review On The Clinical Presentation Of Ovarian Masses In Pediatric And Adolescent Gynecology | ORAL

Akbota Yerlan

Iatrogenic abdominal wall endometriosis after Strassman's metroplasty in adolescent girl with congenital malformation - A case report | VIDEO

Maja Miličković

Adnexal masses surgery in prepubertal and adolescent girls during COVID-19 pandemic | ORAL

Andrius Čekuolis

23 years of experience in ultrasound of adolescent breasts | ORAL

Zoárd T. Krasznai

Successful surgical treatment of complete cervical agenesis with duplicate uterus associated with severe DIE | VIDEO

Jerilee Azhary

Indonesian jamu-induced hyperestrogenism with endometrial polyp as a cause of Dysfunctional Uterine Bleeding in Adolescence: A case report | ORAL

Jerilee Azhary

Uterine Transplant- Perspectives of Malaysian women with absolute uterine factor infertility : A questionnaire-based study | ORAL

Anis Cerovac

The role of tumor markers in the preoperative assessment of adnexal masses in pediatric and adolescent gynecology | ORAL

Silvia Alejandra Bonsergent

Clinical Features and decision making of congenital vaginal agenesis combined with cervical aplasia: Case report and literature reviews | ORAL

Maja Čehić

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Ivana Todić

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Viktorija Jovanovska

Knowledge gaps and knowledge acquisition of HPV infection and HPV vaccines among medical students in North Macedonia | ORAL

The background is a night-time aerial view of a city. A prominent cable-stayed bridge with many red cables is visible in the upper left. The city lights are visible in the lower right. Overlaid on the image is a large, semi-transparent blue square. A thick red diagonal line runs from the top left towards the bottom right, passing through the blue square. A thick grey diagonal line runs from the bottom left towards the top right, also passing through the blue square. The title text is centered within the blue square.

# **UNRAVELLING THE ADOLESCENT BRAIN**

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# THE NUMBER OF ADOLESCENT BIRTHS IN CHC ZEMUN IN THE LAST SIX YEARS

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Ivan Madić

Zemunska bolnica

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Ana M. Dević, Aleksandar P. Dević, Vesna Ljubić, Nikola Banjanin, Ivana Todić  
Zemunska bolnica

**Summary:** The aim of the research is to determine the number and manners of childbirth of adolescent girls in CHC Zemun in the last six years, their frequency in a relation to the total number of births, the manner of termination of childbirth, ethical affiliation, parity, marital status, age of adolescent girls and length of hospitalization.

**Material and methods:** Data were obtained through a retrospective analysis of birth protocols on adolescent female patients born in the Zemun Hospital in the period from 2016 to 2022. The data were presented and analyzed both by calendar year and by the total number of teenage girls who gave birth. The obtained results are presented using tables and graphs and are expressed numerically and in percentages.

**Results:** The conducted research shows a frequency of about 1% of adolescent births. The majority of adolescent girls, 115 (1.6%) gave birth vaginally, in relation to the total number of births, while 10 (0.1%) gave birth by caesarean section. Of the total number of teenage girls born, 58 (46.7%) were the Romani, 49 (39.5%) were the Serbs and 17 (13.7%) were from other ethnic groups. The number of births increases with the increasing age of the patient: at the age of 14 there were 3 births (2.4%), at the age of 15 there were 15 (12.1%), at the age of 16 there were 32 (25.8%), at the age of 17 there were 70 (56.4%), with 18 there were 3 (2.4%). The most represented were adolescent primiparous women, 114 (91.9%) deliveries. Out of the total number of teenage girls giving birth, 74 (59.7%) were unmarried or in cohabitation and 46 (37.1%) had a guardian. The average length of hospitalization was from 4 to 7 days.

**Conclusion:** Our research has shown that the number of adolescent girls giving birth is kept at around 1%. The largest number of births is in the age group of 17 years. The most represented were first-time mothers, unmarried, of the Romani ethnic origin, and vaginal delivery was the most common, and the average hospitalization of teenage girls who gave birth was significantly prolonged.

## **Key words:**

adolescent girls, childbirth, parity, marital status

## **References:**

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5. WHO. Adolescent pregnancy World Health Organization 2018 [cited 2018 9/10].

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# KNOWLEDGE AND ATTITUDES TOWARDS REPRODUCTIVE HEALTH AND METHODS OF CONTRACEPTION AMONG ADOLESCENT STUDENTS FROM NURSING SCHOOL

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Ivana Todić

Zemunska bolnica

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Ana M. Dević, Ivan Madić, Vesna Ljubić, Jelena Đurić, Tijana Stefanović

Zemunska bolnica

**Background:** The aim of this study was to determinate the awareness of reproductive health, general knowledge and use of different contraceptive methods among adolescents, their familiarity with HPV vaccine and their way of informing about the previously mentioned.

**Material and methods:** For data collection a questionnaire with 13 questions was used. The first part of questions referred to data about our respondents – sex, age, sexual intercourse, use of contraception, sexual transmitted disease. The second one was about their knowledge of different contraceptive methods, the role of contraception, their way of informing and whether they consider themselves enough educated about the types and way of use of various contraceptive methods. The last part of questionnaire was about HPV vaccine- have they heard about it and from who, were they vaccinated and if not, do they plan to do it. The questionnaire was distributed and filled in anonymously by the students from Nursing School “Pharmaceutical Physiotherapy School” in Belgrade.

**Results:** The results were collected from 125 respondents, who were predominantly women (72.8%). Mean age was 16.8 years. Majority of them (75.2%) did not have sexual intercourse. Among the respondents who had an intercourse almost all of them (96.15%) used a condom, only one girl used oral contraceptive pills and 5 respondents did not use any contraception. From all respondents only one girl had STDs. All the respondents have shown that they know at least one method of contraception, with 80% of them stating at least 3 different types. All of them known the condom, followed by oral contraceptive pills (80%) and morning after pill (71.2%). 64% of them think that they have enough information about types and use of contraceptive methods. Most of them get informed via Internet (64%), from friends (47.2%), family members (36%) and doctor (26.4%). Among respondents 83.2% of them knew about the HPV vaccine and they learned about it through friends (32.7%), via Internet (28.8%), from family members (25.9%) and school professors (21.15%). Only 4% of respondents was vaccinated with HPV vaccine. Of the unvaccinated ones 56.8% of them would like to be vaccinated in future.

**Conclusion:** The results of study showed a decent level of knowledge about contraceptive methods, but low awareness of importance and benefits of the HPV vaccine. The study also indicated the need of engaging doctors and school teachers more in the process of educating adolescents about reproductive health.

**Key words:**

adolescent,contraception, reproductive health

**References:**

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**OVARIAN/ADNEXAL  
MASSES**

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# ADNEXAL TORSION IN CHILDREN AND ADOLESCENTS

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Adnexal torsion is one of the most common medical emergencies in adolescent and pediatric gynecology. Unlike premenarchal girls, where in half of the cases torsion is not accompanied by the existence of a cyst or tumor, in postmenarchal patients the cause of ovarian torsion is most often a cyst or benign ovarian tumors - predominantly a dermoid cyst. Once this diagnosis is suspected, operative treatment of the ovaries is proceeded with immediately.

Case study: A 15-year-old patient calls on a surgeon due to sudden, severe pain in the left half of the abdomen with propagation to the minor pelvis, accompanied by nausea and vomiting. A physical examination revealed through palpitation a slightly tense abdomen, a positive McBurney sign, and an acute left iliac and adnexal tenderness. Patient was referred to a radiologist. Ultrasound examination has shown cystic formation 75 mm in diameter in the projection of left ovary, enlarged left ovary and a small amount of fluid in Douglas pouch; appendix could not be visualized. The patient was referred to the gynecological clinic. Laboratory analyses showed an elevated leukocyte count ( $18.6 \times 10^9/L$ ) and an elevated CRP of 34 mg/L. Laparoscopy was performed. Operative findings: left adnexal torsion 2.5 times, paraovarian cyst measuring 9x8 cm, ovary hemorrhagic, extremely livid, measuring 8x7 cm. Ovarian detorquation and cystectomy were performed, then removal of the hemorrhagic contents was performed. A regular echosonographic finding of the ovaries was confirmed by the control examination.

Ovarian torsion is an emergency in pediatric and adolescent gynecology that should always be considered in patients with lower abdominal pain. Laparoscopy is the gold standard. Even in the case of markedly altered discoloration and size of the ovary, detorquation and preservation of the ovary have an advantage over adnexectomy due to the need to preserve ovarian tissue and fertility in patients of that age.

## Key words:

ovarian torsion, adnexal mass, children, adolescents

## References:

Breech, Lesley L; Hillard, Paula J Adams. Adnexal torsion in pediatric and adolescent girls. Current Opinion in Obstetrics and Gynecology: October 2005 - Volume 17 - Issue 5 - p 483-489 doi: 10.1097/01.gco.0000179666.39548.78.  
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# A CASE REPORT OF A MUCINOUS BORDERLINE OVARIAN TUMOR IN A 14-YEAR OLD ADOLESCENT GIRL.

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**Background:** Ovarian cancers are extremely rare in children. Although usually asymptomatic, they sometimes present with abdominal pain, abdominal distension or palpable mass. This study aimed to describe a case of a mucinous borderline ovarian tumor diagnosed in a 14-year old girl.

**Case presentation:** We report the case of a 14-year-old patient who presented to the emergency department with severe abdominal pain, which started during physical activity. Transabdominal ultrasonography revealed a multilocular pelvic lesion 13,5x10x17cm and significant amount of free fluid in the abdominal cavity. An emergency surgery was decided, as the initial diagnosis was ruptured ovarian cyst. The patient underwent laparoscopic enucleation of the ovarian mass (intraoperative histopathology exam result: benign lesion). Tumor markers, obtained after surgery, were found elevated: Ca 125 – 128U/ml Ca 19.9 – 10000u/ml. The patient was referred for reoperation and underwent unilateral salpingo-oophorectomy. Final pathological examination confirmed the diagnosis of a mucinous borderline ovarian tumor. Regular follow-up of gynecological ultrasound and tumor markers did not indicate recurrence. The patient is free of disease after 18 months of follow-up.

**Conclusion:** Although rare, borderline ovarian tumors can be diagnosed in an adolescent patient. Complete and careful surgical resection provides satisfactory results; however, careful follow-up is required.

**Key words:**

mucinous borderline ovarian tumor, adolescent

**References:**

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# OVARIAN VOLUME IN PREMENARCHAL GIRLS - A REFERENCE GUIDE FOR ROUTINE PELVIC ULTRASONOGRAPHY

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Private practice Andjelic

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Ovarian volume is an easiest way to follow normal ovarian development in premenarchal girls. Sonographic measurement of ovarian volume was performed in 175 healthy girls aged 0-11 years. The aim of this study was to provide references for ovarian volume in healthy premenarchal girls that can be used to interpret ovarian volume based on age during a routine pelvic ultrasonography. Ovarian volume was estimated using a simplified formula for the volume of a prolate ellipsoid:  $V = 0.5 \times \text{length} \times \text{height} \times \text{width}$ . It was observed that ovarian volume increases gradually with age among these age groups, with average volume rising from 0.28ml in 0-1 group to 2.42ml in 10-11 age group, as well as that the volume of the right ovary is on average greater than the left, in most of the groups. We assume that the observed difference is due to asymmetry in vascular structures. A diagram is given presenting the results of the study.

## Key words:

ovarian volume, ultrasound, girls

## References:

Garel L, Dubois J, Grignon A, Filiatrault D, Van Vliet G. US of the pediatric female pelvis: a clinical perspective. *Radiographics*. 2001 Nov-Dec;21(6):1393-407. doi: 10.1148/radiographics.21.6.g01nv041393. PMID: 11706212. Kelsey TW, Dodwell SK, Wilkinson AG, Greve T, Andersen CY, Anderson RA, Wallace WH. Ovarian volume throughout life: a validated normative model. *PLoS One*. 2013 Sep 3;8(9):e71465. doi: 10.1371/journal.pone.0071465. PMID: 24019863; PMCID: PMC3760857. Orbak Z, Kantarci M, Yildirim ZK, Karaca L, Doneray H. Ovarian volume and uterine length in neonatal girls. *J Pediatr Endocrinol Metab*. 2007 Mar;20(3):397-403. doi: 10.1515/jpem.2007.20.3.397. PMID: 17451078. Haber HP, Mayer EI. Ultrasound evaluation of uterine and ovarian size from birth to puberty. *Pediatr Radiol*. 1994;24(1):11-3. doi: 10.1007/BF02017650. PMID: 8008485. Razzaghy-Azar M, Ghasemi F, Hallaji F, Ghasemi A, Ghasemi M. Sonographic measurement of uterus and ovaries in premenarcheal healthy girls between 6 and 13 years old: correlation with age and pubertal status. *J Clin Ultrasound*. 2011 Feb;39(2):64-73. doi: 10.1002/jcu.20723. PMID: 20572067. Herter LD, Golendziner E, Flores JA, Becker E Jr, Spritzer PM. Ovarian and uterine sonography in healthy girls between 1 and 13 years old: correlation of findings with age and pubertal status. *AJR Am J Roentgenol*. 2002 Jun;178(6):1531-6. doi: 10.2214/ajr.178.6.1781531. PMID: 12034633.

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# CASE REPORT: 13-YEAR-OLD GIRL WITH METASTATIC MALIGNANT GERM CELL TUMOR OF THE OVARY: CASE PRESENTATION

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A 13-year-old girl was referred as an emergency with a large intraabdominal mass. Sonography and MRI revealed a large, solid, polylobulated hypervascular mass from the left ovary. A dysgerminoma was suspected with left paraaortic lymphadenopathy. Surgical therapy and staging was performed via laparotomy with left salpingoovarectomy, biopsies, omentectomy and removal of the suspicious paraaortic lymphnode. Histologically, the dysgerminoma was confirmed. The TNM classification resulted in stage pT3a pN1 LIVOPnOR1, FIGO IIIAii. Four cycles of chemotherapy according to the MAKEI protocol were administrated. Before the start of chemotherapy, downregulation took place with leuprorelinacetate. One year post therapy no evidence of recurrence is seen.

## Discussion

Malignant ovarian tumors account for 1% of all malignant tumors in childhood, germ cell tumors make up 75% of all malignant tumors and in adolescence 55% of all ovarian tumors. The incidence of positive lymph nodes is 18% in malignant germ cell tumors and 28% in dysgerminoma. Here the malignancy of the ovarian mass was suspected before the operation has taken place. The operation could be performed while preserving fertility.

## Conclusion

A correct staging and removal of the imaging findings with still respecting fertility sparing is essential for treatment of the advanced staged dysgerminoma in adolescents.

## Key words:

malignant germ cell tumor

## References:

1) Breen JL et al. Ovarian tumors in children and adolescents. Clin Obstet Gynaecol 1977 ; 20(3) : 607-623 2) Lazar et al. Evaluation and management of pediatric solid ovarian tumors. Semin Pediatr Surg 1998 ; 7(1) : 29-34 3) Warner BW et al. Conservative management of large ovarian cysts in children : the value of serial pelvic ultrasonography. Sugery 1992 ; 112(4) : 749-755

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# OVARIAN TUMOR IN A 16-YEAR OLD PATIENT - DYSGERMINOMA - CASE REPORT

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Ovarian tumors represent 95% of carcinoma of reproductive organs in children. Dysgerminoma is a germ cell tumour, the most common non-epithelial malignancy representing 20-25% of malignancies in children. In its pure variant is not hormonally active and has a good prognosis. Oncomarkers: elevated LDH, less frequently HCG. The tumor is chemo- and radio-sensitive.

A 16-year-old girl was admitted to our clinic after she had observed abdominal enlargement for three weeks and experienced no significant pain. Immediately after the initial clinical examination we performed ultrasound and CT. These showed a solid tumor. Lymph node involvement could not be ruled out. Laboratory examinations showed elevation of LDH, HCG, Ca125 in oncomarkers. As prompt treatment is critical in these cases, we decided for immediate surgery. Adnexectomy and targeted lymphadenectomy were performed by laparotomy day after admission. Histology confirmed Dysgerminoma of the ovary with evidence in the draining lymph nodes of individual tumor cells, which did not form a solid metastasis. The patient underwent 4 cycles of BEP chemotherapy and 10 months after surgery is in the pediatric oncology care.

Malignant tumors in children and adolescents are relatively rare. Rapid treatment is critical for both the cure and preservation of fertility.

## Key words:

Ovarian tumor - Dysgerminoma

## References:

Sarnacki S., Surgery of ovarian tumors in children *Horm Res Paediatr*, 2011; 75(3):220-4. doi: 10.1159/000322829, Kilic C., Ovarian Dysgerminoma: A Tertiary Center Adolesc Young Adult Oncol. 2021 Jun; 10(3):303-308. doi: 10.1089/jayao.2020.0087

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# DEVELOPMENT OF OVARIAN GONADOBLASTOMA WITH DYSGERMINOMA IN AN ADOLESCENT WITH 46, XX PURE GONADAL DYSGENESIS

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**Background:** We describe a 17 year-old-girl with 46 XX gonadal dysgenesis who developed bilateral gonadoblastoma with focal dysgerminoma.

**Case:** A 17-years-old female presented with primary amenorrhea and progressively increased excessive hair growth. She had Tanner stage 4 spontaneous breast development and some evidence of virilization characterized by a significant degree of hirsutism and mild clitoromegaly (Figure 1). Pelvic ultrasound and MRI showed normally developed uterus and bilateral streak gonads without any adnexal mass. Laboratory investigations revealed highly elevated gonadotrophins with elevated testosterone levels. Chromosome analysis showed a 46,XX karyotype and absence of SRY gene expression. Serum tumour markers were normal. Since no clear etiology could be found to explain persistent high testosterone levels, diagnostic laparoscopy and bilateral gonadal biopsy were performed. After the histopathological examination of multiple gonadal biopsies showed bilateral gonadoblastoma, the patient underwent laparoscopic bilateral gonadectomy. Histopathologic examination of gonads revealed bilateral gonadoblastoma with focal dysgerminoma on the left.

**Conclusion:** This rare presentation of 46 XX gonadal dysgenesis reminds us the possibility of gonadal tumor development even when Y chromosome is not detected<sup>1,2</sup> and especially in the presence of laboratory and clinical findings of gonadal hormone production, surgical intervention without delay is of great importance

## **Key words:**

Amenorrhea; gonadoblastoma; 46, XX karyotype

## **References:**

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# THE PRESENCE OF NORMAL OVARIAN TISSUE IN SEX CORD-STOMAL TUMORS

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**Introduction:** To evaluate the role of the presence of normal ovarian tissue on ultrasonography or ovarian crescent sign (OCS) in hormonal active, sex cord-stromal tumors (SCS) and the possibility of ovarian preservation in young patients. This is a retrospective case study using clinical and ultrasound-collected data from patients surgically treated in the period from January 2006 to January 2022 in one PAG Department.

**Case series:** All 16 patients were under 19 years, with a median age of 11 years. There were 10 premenarchal girls of which 9 had signs of precocious puberty and 6 adolescents had menstrual dysfunction. Ovarian volume was measured from 30 to 7000 ml. The OCS was present only in two patients, one with fibroma-thecoma and one with juvenile granulosa cell tumor, and in both, the affected ovary was preserved. Histology in 7 patients was benign (4 sclerosing stromal tumors, 2 fibroma-thecoma, 1 Sertoli-Leydig), and in 9 were malignant. In 6 of 8 with juvenile granulosa cell serum level of inhibin-B was increased. Serum level of testosterone was increased in both patients with Sertoli-Leydig tumor including one with intermediate type with malignant potential.

**Summary:** The finding of OCS is infrequent in patients with SCS and even in benign tumors the rate of ovarian preservation remains low. Tumors with their hormonal activity created hormonal dysfunction in most patients.

**Key words:**

ovarian tumors, sex cord-stromal tumors, OCS, pediatric patients

**References:**

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# DETECTION EXPERIENCE OF GENE MUTATION FOR PATIENTS WITH MCCUNE-ALBRIGHT SYNDROME FROM CASES REPORTS

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Shiyu Yan | School of Public Health, Zhejiang University School of Medicine, Hangzhou, China  
Dingwen Wu | Genetics & Metabolism Department, The Children's Hospital, Zhejiang University School of Medicine, National Clinical Research Center for Child Health, Hangzhou, China  
Junfen Fu | Endocrinology Department, The Children's Hospital, Zhejiang University School of Medicine, National Clinical Research Center for Child Health, Hangzhou, China

**Background:** McCune-Albright syndrome (MAS) is a rare disease characterized by a broad spectrum of syndromes, including hyperfunctioning endocrinopathies, café-au-lait lesions, and multiple bone fibrous dysplasias [1]. The diagnosis of MAS is usually based on clinical symptoms. However, most of MAS patients may not display typical symptoms, which make the early diagnosis and treatment of MAS difficult [2].

**Case:** Patient 1, a 7-year and 4-month-old girl, developed vaginal bleeding with no apparent cause. A Café-au-lait macule patch could be seen on the right trunk. E2 was 914 pmol/L. FSH < 0.1 IU/L, Luteinizing hormone (LH) < 0.1 IU/L. There was a cystic mass in the left accessory area with ovarian echo. There were bone abnormalities in the long bones of the extremities. Patient 2, a girl aged 4 years and 9 months, has abnormal enlarged breasts with no obvious cause. There was a cystic mass in the left accessory area with ovarian echo. No apparent Café-au-lait macule hyperpigmented skin macule was seen. E2 is 800 pg/ml, FSH < 0.1 IU/L, LH is 0.2 IU/L. GNAS mutation were both positive in the cyst tissue but was negative in the peripheral blood.

**Conclusion:** Gene sequencing is the confirmable proof in diagnosis of MAS. Negative GNAS gene mutation results in the peripheral blood and skin cannot completely rule out the possibility of MAS.

## **Key words:**

McCune-Albright syndrome, gene mutation, detection

## **References:**

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# DISEASE SPECTRUM AND CLINICAL CHARACTERISTICS OF PEDIATRIC AND ADOLESCENT GYNECOLOGY IN PATIENTS: A SINGLE MEDICAL CENTER STUDY OF 538 CASES IN 12 YEARS

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**Objective:** To summarize the disease spectrum and clinical characteristics of pediatric and adolescent gynecology (PAG) inpatients and propose management suggestions. **Methods:** The clinical data of 538 under age female patients ( $\leq 18$  years old) who were hospitalized in the Department of Gynecology of Peking University First Hospital from January 2010 to May 2022 were enrolled and analyzed retrospectively. **Results:** Among the 538 patients, the most prevalent disease was adnexal mass (299/538, 55.57%), followed by 188 cases of unwanted pregnancy (188/538, 34.94%). Other diseases included abnormal uterine bleeding, genital tract trauma, inguinal and retroperitoneal mass, congenital uterine malformation, uterine tumor and vaginal foreign body. The median age of patients was 16 (13.75, 18) years old and adolescents were the main population. 95.17% (512/538) of the hospitalized patients underwent surgery. Adnexal mass was the most common reason for hospitalized surgical treatment, and the median age of patients was 15 (13, 17) years old. Ovarian germ cell tumor was the most common mass with a total of 114 cases (114/299, 38.13%), followed by 78 cases (78/114, 26.09%) of ovarian epithelial tumors and 75 cases (75/114, 25.08%) of para-ovarian cysts, while ovarian sex cord stromal tumors, endometriotic cysts, and corpus luteum cysts were rare. The incidence of overweight and obesity in patients with adnexal mass was as high as 40.47%, and the incidence in para-ovarian cyst patients was the highest, up to 58.67% (44 cases). The most common clinical symptom was abdominal pain; 17.73% (53 cases) of adnexal masses were torsion and adnexectomy were performed in 13 patients. Tumors with a size of 5-10cm had the highest torsion risk. The malignant rate of adnexal tumors was 4.68% (14/299), and there was no significant correlation between tumor size and malignant risk ( $P=0.37$ ,  $\chi^2=1.99$ ). **Conclusion:** The disease spectrum of PAG inpatients includes adnexal mass, unwanted pregnancy, abnormal uterine bleeding, genital tract trauma, inguinal and retroperitoneal mass, congenital uterine malformation, and uterine tumor. Most of the inpatients requires surgical treatment. The most prevalent disease was adnexal mass and its symptoms are mainly acute or chronic abdominal pain and menstrual disorder. Overweight and obesity are related to hospitalization and surgery. PAG is an important part of women's whole life cycle management. Medical colleagues and the whole society need to strengthen health education and provide regular gynecological examinations for under age women, so as to improve the life quality of young women as adults and ameliorate their reproductive prognosis.

## Key words:

pediatric and adolescent gynecology; disease spectrum; adnexal mass; clinical characteristic; management

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# UNDESCENDED OVARY COMPLICATED BY A CYST WITH CONTRALATERAL TUBO-OVARIAN AGENESIS

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An undescended ovary is an uncommon congenital condition characterized by the presence of the adnexa above the common iliac vessels, with an estimated incidence of 0,3-2,0%. Ovarian maldescent seems to be the result of a multifactorial polygenic process at the end of the 2nd gestational month.

A 6-week-old patient presented with a prenatally diagnosed left ovarian cyst. The girl was a normal-term baby without any ailments and no signs of precocious puberty. A transabdominal ultrasound confirmed a left sided solid-cystic mass (44x38 mm). During a scheduled laparotomy, we observed a normal uterus, no right adnexa and atypically located left adnexa with very long fallopian tube ending in a tumor. The left adnexa was removed and a histopathological examination revealed ovarian tissue with old necrosis, calcifications and hemorrhagic masses. The patient had a normal karyotype. An abdominal and small pelvis MRI didn't show any ovarian tissue. The girl required hormonal replacement therapy and has been receiving it since the age of 12.

An undescended ovary is mostly found in women during an infertility workup, whereas when complicated by a cyst in children. Although rare, we should bare it in mind, while having problems with finding an ovary during an ultrasound examination.

## Key words:

undescended ovary, ovarian maldescent, ovarian cyst

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# ULTRASOUND DIAGNOSIS AND MANAGEMENT OF OVARIAN TORSIONS IN GIRLS AND ADOLESCENTS

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**PURPOSE** To show the possibilities and share our experience of ultrasound (US) in diagnostics, treatment and follow-up of acute ovarian torsion (AOT) in girls, preserving the ovaries. In our hospital, we aim to preserve ovaries despite the preoperative US and intraoperative findings.

**BENEFITS** Ultrasound is capable to make a correct urgent diagnosis and differential diagnosis of acute ovarian torsion at the point of care and is a perfect tool for follow-up.

**METHODS** Retrospective literature review and our clinical experience of diagnosis and treatment of acute ovarian torsion, histological evaluation of removed ovaries and tumors.

**RESULTS** The clinical symptoms of AOT are nonspecific: abdominal pain 96 – 100%, vomiting 37 – 92%, and other – less than 21% of cases. The main US signs of AOT are increased ovarian volume, the shift of localization, cystic/solid elements in the stroma, impaired blood flow, and twisted ovarian cord. None of them is 100% specific alone, but the combination of 2 or more signs makes the specificity up to 100%. In Children's hospital from 1989 to 2022 103 ovaries (100 girls aged 0 – 17 years) were surgically treated. Intrauterine torsions and self-amputations were not included. Twenty-three (22.3%) ovaries were removed and examined, and in 80 ovaries (77.7%) detorsion was applied. The preoperative US performed in 88 cases with 85.4% sensitivity. From 2005 none of the ovaries were removed urgently, only detorsion was applied. In the follow-up, 10 ovarian tumors were removed with the ovarian sparing operation, and none of the ovaries were for necrosis. We had no significant complications after detorsion (vessel thrombosis, peritonitis, missed malignancy). On follow-up, the saved nontumorous ovaries appear to become normal and functional.

**CONCLUSIONS** It is safe to perform detorsion regardless of the level of ischemia, the volume of the affected ovary, or the duration of the symptoms. Ultrasound is an effective tool in the diagnostics of acute ovarian torsion. After detorsion, US is a reliable tool for evaluating the viability, blood flow, and residual lesions of ovaries, making the decision for further treatment.

## Key words:

ovarian torsion, children, management

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# ACCIDENTAL FOUND OF SEROUS CYSTADENOMA IN 17 YEARS OLD GIRL

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We present a case report of 17- years old girl with adnexal mass. The girl was asymptomatic, with no pain or other problem, with regular menstrual cycle, virgin. During visit at general practitioner was found resistance in lower abdomen and she was sent to gynecologist. At ultrasound was found unilocular anechogenic tumor with smooth surface 152x104x119mm. She was indicated to laparotomic unilateral adnexectomy. During operation we saw smooth cystic mass growing from left ovary, but with intact fallopian tube and at hilus was intact ovarian tissue. We decided to perform fertility sparing surgery and made resection of tumor. Tumor was excised without rupture, fallopian tube and part of ovary 1,5x2cm stayed intact. Inside tumour lining were multiple exofytic masses but histologically serous cystadenoma was found.

Differential diagnosis of adnexal mass during childhood and puberty is sometimes difficult. At one hand we should stay oncologically safe, but at the other hand we have to do surgery as less extended as possible to preserve future fertility, but close follow up is needed.

**Key words:**  
adnexal mass

**References:**  
Progression of Cystadenoma to Mucinous Borderline Ovarian Tumor in Young Females: Case Series and Literature Review Gabriela Beroukhim<sup>1</sup>, Doruk Ozgediz<sup>2</sup>, Paul J Cohen<sup>3</sup>, Pei Hui<sup>4</sup>, Raffaella Morotti<sup>4</sup>, Peter E Schwartz<sup>1</sup>, Yang-Hartwich<sup>5</sup>, Alla Vash-Margita<sup>6</sup> Affiliations expand PMID: 34843973 DOI: 10.1016/j.jpog.2021.11.003

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# SAVE THE OVARIES

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This review provides an overview on the surgical management of ovarian pathologies in childhood and adolescence with focus on avoidance of unnecessary oophorectomies.

We reviewed the current literature on the surgical management of ovarian torsion, neonatal ovarian cysts and benign cystic ovarian lesions in girls and adolescents.

The first part covers current diagnostic and therapeutic principles in ovarian torsion, which is a frequent cause of abdominal pain in girls and adolescents. We review the management options regarding surgical access and intraoperative detorsion with a focus on possible avoidance of oophorectomy.

In neonatal ovarian cysts, the literature is sparse and consists mostly of small case series. Neonatal ovarian cysts have been shown to have a good chance of spontaneous resolution. However, in the setting of persistence or large cyst size, the indications for possible cyst aspiration and surgical management are discussed.

Finally, we focus on the management of benign cystic ovarian lesions and the role of laparoscopic, ovary-sparing surgery in this setting.

In conclusion, the main goal of this review is to raise awareness on the possibilities and the current evidence for ovarian preservation in the setting of benign surgical ovarian pathologies in childhood and adolescence.

**Key words:**

ovarian cyst, ovarian mass, pediatric ovarian torsion, oophorectomy

**References:**

Provided in oral presentation

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# REVIEW OF ADNEXAL TORSION IN PEDIATRIC AND ADOLESCENT POPULATION DURING THE PERIOD OF 10 YEARS IN UNIVERSITY MEDICAL CENTRE LJUBLJANA

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Adnexal torsion occurs when the adnexal organs twist around their vascular pedicle resulting in disrupted blood supply to the ovary, the fallopian tube, or both. The clinical presentation of adnexal torsion is nonspecific and includes pelvic pain, nausea, and vomiting. Ultrasound is the first-line imaging modality to evaluate girls with suspected torsion because it is non-invasive, immediately available and easy to perform, but it has limitations and the reported findings have often been inconsistent. All cases of adnexal torsions operated on pediatric and adolescent population in Department of gynecology, University Medical Centre, between 2012 and 2022, were retrospectively reviewed. The cohort was composed of 43 patients with an operative diagnosis of adnexal mass located in the paraovarian area. Median age was 14 years. We mainly used laparoscopic approach in nearly 80 % of cases and performed adnexectomy in only 8.6 % of patients which is reassuring. Our aim in the future is to use the laparoscopic approach more often even in infants and younger children. There were no surgical complications and postoperative period was uneventful in all of the patients

## **Key words:**

ovarian torsion, children, ultrasonography, gynecologic surgical procedures

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# FEMALE ADOLESCENTS WITH LARGE ABDOMINAL MASSES – SAME PREOPERATIVE FINDINGS BUT DIFFERENT PROGNOSIS

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## Introduction

Most ovarian lesions in the pediatric population are benign ovarian cysts followed by ovarian teratomas. We present two adolescents with very large epithelial ovarian masses of different etiology.

## Case report

Both adolescents presented with an increase of abdominal circumference and abdominal pain. They reported regular menstrual cycles and denied sexual activity. MRI-Scans revealed large multi-loculated ovarian cysts.

Patient A (15 years): We performed a percutaneous drainage of the cyst (6l), with avoidance of intra-peritoneal spillage followed by laparoscopic cystectomy and retrieval of the cyst via mini-laparotomy at the umbilical port-site. Patho-cytological work-up revealed a mucinous cystadenoma. Post-operative follow-up showed normal appearing ovary on ultrasound without recurrence.

Patient B (14 years): Laparotomy with controlled cyst drainage (11l) was performed. Due to solid parts that could not be differentiated from ovarian tissue, an ovariectomy was performed. Histo-pathology revealed a mucinous borderline tumor. Postoperative staging was performed by whole-body MRI, laparoscopy with ipsilateral adnexectomy, omentectomy and appendectomy and showed no signs of metastatic disease. No genetic predisposition was found.

## Discussion:

Mucinous borderline ovarian tumors and mucinous cystadenomas cannot be differentiated on pre-operative imaging. Controlled drainage of these giant cysts with avoidance of spillage makes laparoscopic enucleation feasible in the absence of solid components.

## Key words:

Cystadenoma, Ovar, Borderline Tumor, Cyst

## References:

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# CASE OF RECCURENT OVARIAN MUCINOUS BORDERLINE TUMOR IN A 16-YEAR OLD PATIENT

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**Background:** Low malignant potential tumors, also known as borderline ovarian tumors stand for only 10-15% of all cases of epithelial ovarian cancers. They are most frequently found in patients around 40 years of age; but diagnosis and adequate treatment can be challenging for a number of reasons.

**Case:** We present a case of a 17 y/o patient that was first referred to a gynecologist 3 years prior to definitive diagnosis, for evaluation of pelvic pain and irregular cycles. Transabdominalsonography revealed large single cysts on both ovaries, with tumor markers slightly elevated; after what she underwent LPSC cystectomy, and never came up for a check up or pathohistological report. A year later, the symptoms recurred, sonography revealed a huge cyst on the right ovary, and after another laparoscopic surgery, the cyst was removed, and pathohistology report showed Cystadenoma mucinosumovarii. Six months later, on a check up exam, a cyst was found again on the right ovary, with her CA125 58, and she went another surgery; where a right adnexectomy was performed together with appendectomy, omentectomy and peritoneal drainage; and the pathology report showed Mucinous borderline ovarian tumor, with no pathologic findings on other organs. She was referred to oncology, is currently under observation with tumor markers within range, no specific oncologic treatment was indicated at the moment.

**Conclusion:** Although guidelines suggest bilateral adnexectomy as from the beginning, in cases of premenopausal women, it can be avoided in order to preserve fertility, especially in young patients; but does require more frequent check ups.

**Key words:**

ovarian cancer, laparoscopy, borderline, fertility

**References:**

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3528384/>

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# THE UNIQUE MANIFESTATION OF MEIGS SYNDROME IN AN ADOLESCENT GIRL

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The 16-year-old girl with recurrent right ovarian mass and ascites was admitted to the Department of Pediatric and Adolescent Gynecology.

Previously an ovarian tumor with a solid component (d=5.0 cm) was laparoscopically removed in a regional hospital. White ovarian body with hemosiderophages in the periphery pathomorphological was reported.

During 3 months after surgical treatment the girl noticed a persistent disproportionate increase in size the of abdomen, a low-calorie diet was ineffective.

A bulky solid heterogeneous tumor (d=7.0 cm) of the right ovary with hypoechogenic areas and moderate blood flow in the periphery, the ovarian crescent sign, 3-4 follicles d=3-4 mm was revealed by ultrasound (ORADS IV). A free fluid in the abdominal cavity reached the level of the liver.

The MRI revealed rapid hyperintense accumulation of contrast in the peripheral parts of degenerative tumor, massive ascites and bilateral hydrothorax. Other possible causes of high CA-125 level were not found.

During laparoscopic surgery the 4500 ml of light yellow ascitic fluid was aspirated and adhesiolysis was performed. The right ovary with tumor had irregular shapes, branched network of vessels and large areas of degenerative changes. The right-sided adnexectomy was performed.

The histological diagnosis was the sclerosing stromal tumor.

At subsequent examinations the patient's condition remained with positive dynamics, no pathology according to pelvic ultrasound, the menstrual cycle remained regular.

## **Key words:**

Meigs syndrome, hydrothorax, ascites, ovarian tumor, sclerosing stromal tumor

## **References:**

Case report

# THE PRESENCE OF NORMAL OVARIAN TISSUE IN SEX CORD-STROMAL TUMORS

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**Introduction:** To evaluate the role of the presence of normal ovarian tissue on ultrasonography or ovarian crescent sign (OCS) in hormonal active, sex cord-stromal tumors (SCS) and the possibility of ovarian preservation in young patients. This is a retrospective case study using clinical and ultrasound-collected data from patients surgically treated in the period from January 2006 to January 2022 in one PAG Department.

**Case series:** All 16 patients were under 19 years, with a median age of 11 years. There were 10 premenarchal girls of which 9 had signs of precocious puberty and 6 adolescents had menstrual dysfunction. Ovarian volume was measured from 30 to 7000 ml. The OCS was present only in two patients, one with fibroma-thecoma and one with juvenile granulosa cell tumor, and in both, the affected ovary was preserved. Histology in 7 patients was benign (4 sclerosing stromal tumors, 2 fibroma-thecoma, 1 Sertoli-Leydig), and in 9 were malignant. In 6 of 8 with juvenile granulosa cell serum level of inhibin-B was increased. Serum level of testosterone was increased in both patients with Sertoli-Leydig tumor including one with intermediate type with malignant potential.

**Summary:** The finding of OCS is infrequent in patients with SCS and even in benign tumors the rate of ovarian preservation remains low. Tumors with their hormonal activity created hormonal dysfunction in most patients.

**Key words:**

ovarian tumors, sex cord-stromal tumors, OCS, pediatric patients

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An aerial night photograph of a city, featuring a prominent cable-stayed bridge with numerous red cables. The image is overlaid with a dark blue rectangular area in the center, a large red diagonal band, and several light blue diagonal bands. A pattern of thin white lines is also visible across the image.

# **NUTRITION, OBESITY AND REPRODUCTIVE HEALTH**

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# CRP AS AN INFLAMMATORY MARKER IN ADOLESCENTS

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C-reactive protein (CRP) is a protein produced by the liver. This test is used to measure Systemic inflammation. CRP as oxidative stress marker. National and international literature consider it as oxidative stress marker. To subsequently compare it with other metabolic parameters the waist-to-height ratio (WtHR) as an anthropometric marker associated with insulin resistance and inflammation and using the diagnostic criteria for metabolic syndrome (MS) in adolescence according to the International Diabetes Federation (Zimmet P et al.) to under 16 years old Group and Modified Cook Consensus over 16 years old adolescents patients, and anthropometry such as BMI and waist circumference such as clinical and chemical parameters are of risk factors for developing cardiovascular disease and diabetes until the adult age. In this work, we measure CRP and its association with metabolic parameters (Triglycerides, HDL Cholesterol, Glycosylated Hemoglobin, Blood Glucose, BMI, Waist Index, etc..) of 349 patients of the Argentine-run state Hospital, Argerich Adolescence Health Service. We divided into two age groups: Under 16 (n:189) and over 16 years (n: 160). Regarding the data processing, a spreadsheet of the Google Sheet program version 2019 is used. For the epidemiological and statistical analysis, the EPIDAT 4.2 program developed by the General Directorate of Public Health of the Department of Health (Xunta de Galicia) was ensured with the support of the Pan American Health Organization (PAHO-WHO) and the CES University of Colombia. Elevated CRP has a strong association with altered metabolic parameters. Its use in adolescent patients gives us an idea of the imprint and endothelial impact in the adult stage and take into account at this stage a comprehensive look and early intervention as a preventive strategy.

## **Key words:**

Metabolic Syndrome, Obesity, Adolescents, CRP

## **References:**

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# LIPID PROFILE AND HYPERCHOLESTEROLAEMIA OF ADOLESCENT GIRLS WITH ANOREXIA NERVOSA

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**Introduction and aims of the study:** The aim of this study is to estimate the frequency and role of hypercholesterolaemia in female adolescents with Anorexia Nervosa (AN).

**Methods:** Prospective study of Plasma Lipoprotein (LP), such as low-density lipoprotein cholesterol (LDL) and high-density lipoprotein cholesterol (HDL), FT3, FT4, TSH and Total Cholesterol (TC), in 38 adolescents presented with AN and 56 non-AN controls, matched for age and anthropometric parameters (such as Body Mass Index).

**Results:** 38 AN adolescents with mean age  $17.23 \pm 0.89$  years, mean Body Mass Index  $16.67 \pm 2.46$  Kg/m<sup>2</sup>, mean Waist-Hip Ratio  $0.77 \pm 0.12$ , mean Waist circumference  $0.67 \pm 0.09$  m included in our study. 23% of AN girls had TC levels  $>290$  mg/dl, compared to 3% of non-AN adolescents ( $p < 0.01$ ). TC, LDL and HDL were statistically significant higher in AN adolescents compared to controls ( $p < 0.01$ ), while FT3 was statistically significant ( $P < 0.01$ ) positively correlated to BMI (low FT3 levels when BMI was very low).

**Conclusions:** In AN, high TC, HDL, and LDL levels were observed, while FT3 levels were positively correlated to BMI. Nutritional recovery of AN adolescents leads to normalization of the LP profile. A multidisciplinary approach of these girls is mandatory.

## **Key words:**

Anorexia Nervosa, Lipid Profile, Adolescence

## **References:**

Vasileios Karountzos, Irene Lambrinouadaki, Artemis Tsitsika, Efthymios Deligeoroglou. The role of total body fat mass and trunk fat mass, combined with other endocrine factors, in menstrual recovery and psychopathology of adolescents with Anorexia Nervosa. *Gynecol Endocrinol* . 2017 Oct;33(10):757-762.

# PSYCHOLOGICAL DISORDERS IN PATIENTS WITH PCOS AND THEIR POSSIBLE CORRELATION WITH OBESITY, INSULIN RESISTANCE, HEPATOKINES AND HYPERANDROGENISM.

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**Introduction:** Polycystic ovary syndrome (PCOS) is the most common endocrine disorder of women during the reproductive period. PCOS seems to affect the psychological status of patients, defined by excessive stress, depression and eating disorders. Negative body image and low self-esteem are major factors, but hormonal derangements also seem to be implicated. Nevertheless, the prevalence of psychological disorders in PCOS, as well as the underlying pathogenetic mechanism remain unclear and debatable. **Aim:** To investigate whether anxiety, depression, eating disorders and food cravings are more prevalent in patients with PCOS and to investigate their possible correlation with obesity, insulin resistance (IR), hepatokines and hyperandrogenism. **Methods:** Forty-nine women with PCOS and 32 age- and BMI- matched healthy controls were included. HOMA-2, AUC-GLU, AUC-INS, Fetuin-A, adiponectin, DHEAS, SHBG,  $\Delta 4A$  and testosterone were measured. Eating disorders, food cravings, anxiety and depression were evaluated by using the EAT-26, Yale Food Addiction-YFA, Hamilton Anxiety Scale-HAS and Beck Depression Inventory-BDI self-questionnaires respectively. Statistical analysis was performed by using SPSS 28. (Quantitative variables were compared with Mann-Whitney U test or Kruskal Wallis test with post-hoc analysis adjusted by the Bonferroni's correction as appropriate. Qualitative variables compared with corrected Chi-squared test or two-sided Fisher's exact test, as appropriate. Correlation between quantitative parameters was estimated by using Spearman's correlation coefficient).

**Results:** The median age was 27(20-35)years, median BMI was 25(19-35.2)kg/m<sup>2</sup> and median waist circumference was 94(60-125)cm. Between PCOS patients and controls, no significant differences were found regarding EAT-26, HAS and YFA test, while BDI was significantly higher in PCOS patients (48.5vs29.5;p=0.0001). According to BMI (<25kg/m<sup>2</sup>or≥25kg/m<sup>2</sup>), patients were subdivided in lean controls (n=14;17.3%), overweight controls (n=18;22.2%), lean PCOS (n=26;32.1%) and overweight PCOS (n=23;28.4%). Among the 4 groups, no significant differences were found regarding EAT-26 and HAS. Median YFA was significantly higher in overweight PCOS compared to lean PCOS patients (57.5vs23.3;p=0.0001) and in overweight controls compared to lean controls (50.5vs34.3;p=0.05). Median BDI was significantly higher in overweight PCOS compared to lean PCOS and overweight controls respectively (55.9vs41.9;p=0.037 and 55.9vs29.5;p=0.0001). EAT-26 was positively correlated with HOMA-2 (r=0.24,p=0.031) and waist circumference (r=0.22,p=0.048). HAS had a positive correlation with BMI (r=0.251,p=0.024) and Fetuin-A (r=0.217,p=0.05). YFA was positively correlated with BMI (r=0.593,p=0.0001), waist circumference (r=0.554,p=0.0001), HOMA-2 (r=0.328,p=0.003) and AUC INS (r=0.317,p=0.004), while it had a negative correlation with adiponectin (r=-0.267,p=0.016). BDI was positively correlated with DHEAS (r=0.305,p=0.006),  $\Delta 4A$  (r=0.259,p=0.02) and testosterone (r=0.328,p=0.003).

**Conclusions:** In patients with PCOS, anxiety, eating disorders and food cravings seem to be associated with obesity, IR and hepatokines' production and not with androgenetic hormonal derangements. On the contrary, hyperandrogenism is probably the most important factor correlated with depression.

## Key words:

PCOS, Stress, Depression, Eating Disorders, Self-Questionnaires, Obesity, Insulin Resistance, Hepatokines

## References:

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2. Lee I, Cooney LG, Saini S, et al. Increased risk of disordered eating in polycystic ovary syndrome. *FertilSteril*. 2017;107:796-802.
3. Lim SS, Norman RJ, Clifton PM, et al. Hyperandrogenemia, psychological distress, and food cravings in young women. *Physio Behav*. 2009;98:276-80.

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# OBESITY AS A CO-FACTOR OF ADOLESCENTS GYNECOLOGICAL PROBLEMS

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In the last quarter of the 20th century, less than 1% of children and adolescents aged 5 to 19 suffered from obesity. Currently, this number is as high as 6%. Tendency to depression and pathological eating behavior is noted. Therapies for gynecological pathology in such a population do not achieve an effect. In 2021, 1125 girls aged 12-18 turned to PAG. In general, obesity was noted in 2.13%. 58.3% had menstrual problems. A project was initiated to study the prevalence of obesity among adolescents with gynecological pathology, to clarify the frequency of the problem and to study the debut and triggers of obesity for prevention.

**Key words:**

prevalence of obesity, triggers, gynecological pathology

**References:**

Waters E, de Silva-Sanigorski A, Hall BJ, et al. Interventions for preventing obesity in children. Cochrane Database Syst Rev. 2011 Dec 7. 12:CD001871.

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# IMMUNO-ENDOCRINE DISORDERS IN THE GENESIS OF AMENORRHEA IN ADOLESCENTS WITH ANOREXIA NERVOSA

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**Abstract text:** The submitted study was approved by the local ethics committee (IRB of Rostov State Medical University, Minutes No. 16. Date 22/11/2018). Patients and their parents gave informed voluntary consent to participate in the study. The authors have no conflicts of interest to disclose

Amenorrhea is the constant feature of Anorexia Nervosa (AN), caused by sharp metabolism reduction of gonadotropines as compared with prepubertal level, but its exact mechanism is unknown [1]. Biochemical mediators, involved in this process, include cortisol, leptin, growth hormone (GH), insulin-like growth factor (IGF-1) and cytokines [1]. Experimental investigation that leptin, produced by fat cells, plays a role of the metabolic signal, which regulates hypothalamic – pituitary – ovarian function [2]. Functional activity of a reproductive axis depends on the adequacy of energy stocks. Leptin plays one of the most important role in the maintenance of energy homeostasis [2].

**Objective:** To investigate immuno-endocrine disorders in adolescent girls with AN to optimize the treatment tactics of this category of patients.

**Methods:** The investigation was carried out in 3 groups of adolescent girls: I - 59 AN diagnosed patients with BMI =15,34±1,04; II - 53 patients with amenorrhea and BMI=15.7±0,6, without AN; III - control - 20 healthy girls with BMI=20.3±1,4. Measure of serum concentration of Insulin, Leptin, Neuropeptide Y (NPY), Tumor necrosis factor-α (TNF-α), GH, IGF-1, Gonadotropins, Estradiol (E2), Cortisol, Thyroxin (T3), Triiodothyronine (T4) and Thyrotropin (TSH) by ELISA was carried out. Statistical treatment of the received results was performed with the use of Statistica 6.0 application program package.

**Results and discussion:** The highest TNF-α, GH, Cortisol levels, together with the minimum values of Insulin, Leptin, NPY, IGF1, gonadotropins, E2, T3, T4, TSH were revealed in the anorectic patients (I group) compared to the comparison (II group) and control (III) groups. Absolute hypoleptinaemia and low NPY levels in AN patients testifies to formation of resistance to a low leptin level [3]. The highest GH levels together with the minimum values of IGF-1 compared to comparison and control groups, denoted the formation of GH-resistance.

**Conclusion:** The presented results permit to characterize the neuro-endocrine-metabolic disorders of the reproductive function regulation at AN: absolute hypoleptinemia, resistance to the low leptin level [3], GH- resistance, hypoinsulinism as a consequence of starvation and sharp contrinsular effects of GH and TNF-α, hypogonadotropic hypogonadism and thyroid status disorder in the form of the secondary hypothyreosis, caused by dysfunction of hypothalamic- pituitary axis. Neuro-endocrine-metabolic disorders are associated with impaired production of cytokines and are damaging factors for the functional state of the hypothalamic-pituitary-ovarian axis.

## **Key words:**

Anorexia nervosa, amenorrhea, Insulin, Leptin, Neuropeptide Y , Tumor necrosis factor-α

## **References:**

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3. Andreeva V. Way of forecasting of restoration of menstrual function at patients with nervous anorexia. Patent for invention No. 2363002. Registered in the State Register of Inventions of the Russian Federation on 27.07. 2009. EDN: ZHLCHJ.



# **ADOLESCENT PCOS**

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# PROGNOSTIC VALUE OF HORMONAL EXAMINATION IN ADOLESCENT GIRLS WITH POLYCYSTIC OVARIAN SYNDROME

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## Relevance

PCOS is a multifactorial heterogeneous disease associated with endocrine, reproductive, and metabolic manifestations. The relevance of the PCOS problem is determined by its high prevalence worldwide among women of childbearing age (5 - 20%). It is worth noting that the main reproductive signs of PCOS appear in late prepubertal and pubertal periods.

The aim is to carry out a comparative analysis of hormonal indicators in PCOS

## Materials and Methods

A total of 120 adolescent girls were included in the study.

### Inclusion criteria:

- Age - 14 to 18 years old;
- Hormone therapy withdrawn 3 months prior to the study;
- Absence of taking hormonal drugs;
- absence of concomitant endocrine and severe extragenital pathology.

### Exclusion criteria:

- congenital hyperplasia of the adrenal cortex;
- Cushing's syndrome;
- androgen-producing ovarian tumors;
- thyroid dysfunction;
- primary central and peripheral ovarian lesions.

In addition to a general clinical examination, including a history, reproductive function, general and gynecological examination, and determination of hormonal balance were performed to perform the work.

The results obtained were statistically processed by determining the mean mathematical limit (M), standard deviation, mean error of mathematical limit (m). The results were considered statistically significant at  $p < 0.05$ . Statistical studies were performed using Microsoft Excel and Statistica 10.0 software.

## Results of discussion

The most typical manifestations of PCOS that appeared from the age of menarche were: menstrual cycle (86%), mostly by the type of oligomenorrhea (52%); hirsutism (81.2%).

Hormonal analysis revealed a wide variability in FSH in adolescent girls from 3.4 to 64.3 IU/l, and from 2.8 to 7.2 IU/l in the control group, which is associated primarily with insufficient hormonal function of the ovaries. The analysis of the LH content revealed rather high LH values in the blood serum of adolescent girls (13.3±1.6 IU/l). The LH/FSH ratio was 2.3±0.4 (normal-).

Thus, changes in the gonadotropin indices are already a precursor of functional disorders of the hypothalamic-pituitary system of menstrual function regulation.

In patients with polycystic ovary syndrome individual values of testosterone ranged from 1.8-3.9 (mean 3.1±1.2 nmol/l).

The serum AMH content in LPS patients ranged from 2.4 ng/ml to 18.0 ng/ml and averaged 7.6±0.8 ng/ml, which was significantly ( $p < 0.001$ ) higher than its content in healthy women (2.5±1.3 ng/ml). The volume of each ovary ranged from 11.3 to 16.0 cm<sup>3</sup> and was larger than that in women without PCOS. The mean number of antral follicles in the ovary was 8.8 ± 1.0 (11 to 12), which was also greater than in women without PCOS.

**CONCLUSIONS** In PCOS, there is an imbalance between the amount of androgens, antimüllerian hormone (AMH), LH and FSH, which results in the failure to select the "dominant" follicle despite relatively rapid and early follicle growth.

## Key words:

PCOS, adolescent



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# OVARIAN ULTRASOUND AND CIRCULATING ANDROGENS IN PCOS: NEW PERSPECTIVES WITH THE USE OF LIQUID CHROMATOGRAPHY COMBINED WITH MASS SPECTROMETRY (LC-MS/MS)

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Polycystic ovary syndrome (PCOS) is the most frequent endocrine disorder in the female population, affecting 10-15% of women of reproductive age. It is characterised by menstrual irregularity, hyperandrogenism and morphologically polycystic ovaries (PCOM) at ultrasound. In adolescence, accurate diagnosis can be difficult due to the heterogeneity of the clinical manifestations and the difficult interpretation of laboratory data that are not very specific and of low accuracy. The aim of the study is to evaluate a correlation between the ultrasound ovarian stroma examination and steroid hormone profile, dosed through combined liquid chromatography and mass spectrometry (LC-MS/MS) which allow greater precision and reliability in the dosage of androgens and other steroid hormones. We selected a sample of 50 patients affected by PCOS and with PCOM in accordance with the ESHRE/ARSM consensus criteria. The mean age is 19.21  $\pm$  5.25 years (range 14-34) with 7.57  $\pm$  5.12 (range 2-24) years of gynaecological life. Each patient underwent family and personal anamnesis with particular interest for menstrual period irregularities and evaluation of anthropometric parameters and clinical hyperandrogenism. On the same day each study subject underwent a venous blood sample in early follicular phase to analyse androgenic hormones through LC-MS/MS and an ultrasound evaluation. The ovarian volume was calculated using the ellipsoid formula. The ovarian area (OA) was obtained on the maximum section of the ovary by outlining the external surface of the ovary with a calliper, while the stromal area (SA) was calculated by highlighting the peripheral profile of the stroma with a calliper in the same scan. The ratio (SA/OA) was then obtained by dividing the stromal area by the ovarian area. A value greater than 0.34 was defined as stromal hypertrophy. Therefore, due to the presence or absence of stromal hypertrophy, the patients were divided into two categories. In our study LC-MS/MS is confirmed as an innovative method in the evaluation of the steroid profile of patients with PCOS, allowing a better characterization of the patient and a targeted study of her biochemical characteristics, in order to improve diagnosis and optimize therapeutic strategies. We found a positive correlation between SA/OA and androstenedione ( $r=0,45$   $p=0,001$ ), 17-hydroxyprogesterone ( $r=0,55$   $p=0,00003$ ) and total testosterone ( $r=0,49$   $p=0,0002$ ) levels sampled by LC-MS/MS. Therefore, the SA/OA ratio is confirmed as a reliable marker of biochemical hyperandrogenism and for this reason its use in clinical practice in the ultrasound diagnosis of PCOS is potentially useful and reliable.

## Key words:

Polycystic ovary syndrome PCOS, hyperandrogenism, morphologically polycystic ovaries (PCOM), menstrual irregularity, liquid chromatography and mass spectrometry (LC-MS/MS)

## References:

Catteau-Jonard S, Bancquart J, Poncelet E, et Al. Polycystic ovaries at ultrasound: normal variant or silent polycystic ovary syndrome? *Ultrasound Obstet Gynecol* 2012. 40: 223-9  
Fruzzetti F, Campagna AM, Perini D et Al. Ovarian volume in normal and hyperandrogenic adolescent women. *Fertility and Steril* 2015; vol 104 NO. 1: 196-9

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# DIET CHANGE, PHYSICAL ACTIVITY, AND SUPPLEMENTATION MAY HELP CONTROL BLOOD GLUCOSE AND INSULIN LEVEL IN FEMALE SCREENED FOR POLYCYSTIC OVARIAN SYNDROME – CASE REPORT

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## Introduction:

Various pollutants including “endocrine disrupting chemicals (EDCs)” may get into the body by different pathways. After being broken down, they form estrogen-like substances disrupting endocrine axis both in men and women inducing different health issues and may contribute to onset of polycystic ovarian syndrome (PCOs).

## Aim:

Aim of this abstract is to point out how the life-style change may help control of impaired metabolic parameters in patients screened for PCOs.

## Results and discussion:

Lab analysis of female patient (23-year old) screened for PCOs revealed blood glucose level at the upper border-line - 5,8mmol/l, normal insulin level - 12,7 uIU/mL (<29), and increased HOMA index - 3,3 (<2,7). Lady was advised to change her life style applying low carbs diet, detoxification of body, to supplement, and to maintain physical activity four to five times a week (fast walking). After one month her blood sugar level was normal - 5,5mmol/l, insulin level was cut down for more than double - 5,4 uIU/mL, and HOMA index was normal - 1,3. Aside lab parameters which brought back to normal, her mood, mental and physical energy were better and she was very satisfied with overall health status (self-assessment questionnaire was applied).

## Conclusion:

In order to improve condition induced by onset of PCOs, aside from prescription of blood glucose and insulin lowering agents, medical professionals are recommended to advise their patients to apply other measures which may help better control of metabolic parameters.

## Key words:

Polycystic ovarian syndrome, diet, physical activity, micronutrition

## References:

Farshchi H, Rane A, Love A, Kennedy RL. Diet and nutrition in polycystic ovary syndrome (PCOS): pointers for nutritional management. J ObstetGynaecol. 2007 Nov;27(8):762-73. doi: 10.1080/01443610701667338. PMID: 18097891. Barrea L, Arnone A, Annunziata G, Muscogiuri G, Laudisio D, Salzano C, Pugliese G, Colao A, Savastano S. Adherence to the Mediterranean Diet, Dietary Patterns and Body Composition in Women with Polycystic Ovary Syndrome (PCOS). Nutrients. 2019 Sep 23;11(10):2278. doi: 10.3390/nu11102278. PMID: 31547562; PMCID: PMC6836220. Shahid R, lahtisham-UI-Haq, Mahnoor, Awan KA, Iqbal MJ, Munir H, Saeed I. Diet and lifestyle modifications for effective management of polycystic ovarian syndrome (PCOS). J Food Biochem. 2022 Jul;46(7):e14117. doi: 10.1111/jfbc.14117. Epub 2022 Feb 24. PMID: 35199348. Alesi S, Ee C, Moran LJ, Rao V, Mousa A. Nutritional Supplements and Complementary Therapies in Polycystic Ovary Syndrome. Adv Nutr. 2022 Aug 1;13(4):1243-1266. doi: 10.1093/advances/nmab141. PMID: 349706

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# SUBSTANCES THAT HARM ENDOCRINE SYSTEM AND POLYCYSTIC OVARIAN SYNDROME – IS THERE CAUSAL RELATIONSHIP?

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## Introduction:

Today, there is an increasing number of compounds labeled as “endocrine disrupting chemicals (EDCs)”. The most common are: bisphenol A (BPA), phthalates and phenol, parabens, triclosans, anti-bacterial soaps, some toothpastes, pesticides (DDT), glyphosate, polychlorinated biphenyls, solvents in industry, cooling materials in transformers.

## Aim:

Aim of this abstract is to point out that treating patients facing PCOs with insulin and blood sugar lowering agents is not the best and all we can do for them and that we need to think how to apply other measures that may help prevention of onset and control of PCOs.

## Results and discussion:

EDCs are a large group of chemical compounds that, after ingestion, are broken down forming estrogen-like substances disrupting endocrine axis. In this way they disrupt the normal values of female sex hormones in the body of both women and men with various health issues. That is why there is an increasing number of researches that intensively study the influence of these substances on the development of PCOs and consequent fertility problem, but also other health problems such as impaired blood sugar metabolism and the appearance of insulin resistance, obesity, diseases of the heart and blood vessels, increased risk of prostate cancer in men and breast cancer in women, thyroid disease, etc. In my experience, aside of problems described above, vast majority of ladies having PCOs lack in volume of skeletal muscles.

## Conclusion:

In order to improve condition induced by PCOs, aside from prescription of blood glucose and insulin lowering agents, medical professionals are recommended to advise their patients to detoxify from pollutants applying proper diet, to reduce carbs in diet, to exercise regularly, to supplement under supervision of health-care professionals, and to build up muscles with proper nutrition which will further enable better control of blood glucose and insulin level consequently.

## Key words:

Polycystic ovarian syndrome, diet, physical activity, micronutrition

## References:

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# MYOINOSITOL OR D-CHIRO-INOSITOL FOR PCOS SYMPTOMS IN ADOLESCENTS: A SYSTEMATIC REVIEW

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Polycystic ovary syndrome (PCOS) is a common endocrine disorder affecting women of reproductive age with an overall prevalence ranging from 6-10%. Since PCOS is a lifelong disease, adolescent girls suffering from the condition often require long-term treatment. The current evidence base for the treatment options for PCOS in adolescents is of low quality and several of these have a broad side effect profile. The aim of this review was to collate the current available evidence on the use of myoinositol or D-chiro-inositol in the improvement of PCOS symptoms in symptomatic adolescents.

We performed a systematic review of all the available studies without any language restrictions to identify any key articles in the Cochrane Library, Medline, CINAHL and Embase from inception to November 2022. We included studies that assessed the effect of myoinositol on adolescent girls with or at-risk of PCOS. Our target population was all adolescent girls aged between 12 to 19 years old with PCOS or PCOS-like features. The intervention under consideration was myoinositol or D-chiro-inositol. The comparator was any treatment used for PCOS management such as the combined contraceptive pill, metformin, lifestyle interventions or no treatment. The outcome of interest was an improvement in symptoms or quality of life and any adverse effects.

A total of 123 articles were identified through the literature search with 2 additional articles identified through the grey literature. Two independent reviewers screened the titles and abstracts of all the articles to identify the relevant ones with any disagreements resolved by a third reviewer. A total of 8 studies were included in the final analysis. These included three case-control studies and five cohort studies. A meta-analysis could not be performed due to the heterogeneity of study designs, interventions and outcomes. The studies showed some evidence of improvements in some biochemical markers, metabolic parameters or clinical symptoms of PCOS but these were not reproducible across all studies. Additionally, a combination of treatments was used in some cases making it difficult to identify whether myoinositol has any definitive benefits.

Limited evidence was available in the use of myoinositol in adolescents with symptoms of PCOS even though the current evidence looks promising. This review has highlighted the need for further research in this area to provide more reliable information. This would be achieved by conducting an adequately powered randomised controlled trial to assess the efficacy of myoinositol or D-chiro-inositol over short- and medium-term follow-up.

## **Key words:**

myoinositol, adolescents, polycystic ovary syndrome, D-chiro-inositol, insulin resistance

## **References:**

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# TREATMENTS FOR ADOLESCENT PCOS AND OUTCOME MEASURES – SURVEY OF EUROPEAN PRACTICE

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**Aim:** To survey the views of clinicians on the practice of treatment of polycystic ovaries in adolescents and their views on important outcome measures for future research.

**Method:** chimp emails for survey monkey were sent by the British Society of Paediatric and Adolescent Gynaecology (BritSPAG) and the EURAPAG. Reminder emails were sent 2 weeks later.

**Results:** The survey received response from a wide range of practitioners of which 31% were gynaecologists, 27% were PAG specialists and 18% were endocrinologists. 58% worked at university, 21% worked at DGH and others worked at GP and private practices. The response rate was 48% and 80% practitioners (n=85) encountered 0-5 PCOS patients monthly.

Table 1 gives details about the commonly offered treatments for PCOS in teenagers.

Most important patient related outcome measures (PROMs) considered important to study were body and facial hair, emotions- mood, self esteem, body image and weight concerns. Validated patient symptom questionnaires assessing acne, hirsutism, body image at 1 year was considered as most important outcome by 35% followed by biochemistry at baseline and 6 months and patient rating of symptoms using patient global impression scale (PGI-I) by 20% each.

Out of the respondents, 87% practitioners expressed that they would be willing to recruit teenagers into a potential research study to study effectiveness of Myoinositol versus placebo or existent treatments like Metformin, combined pills etc.

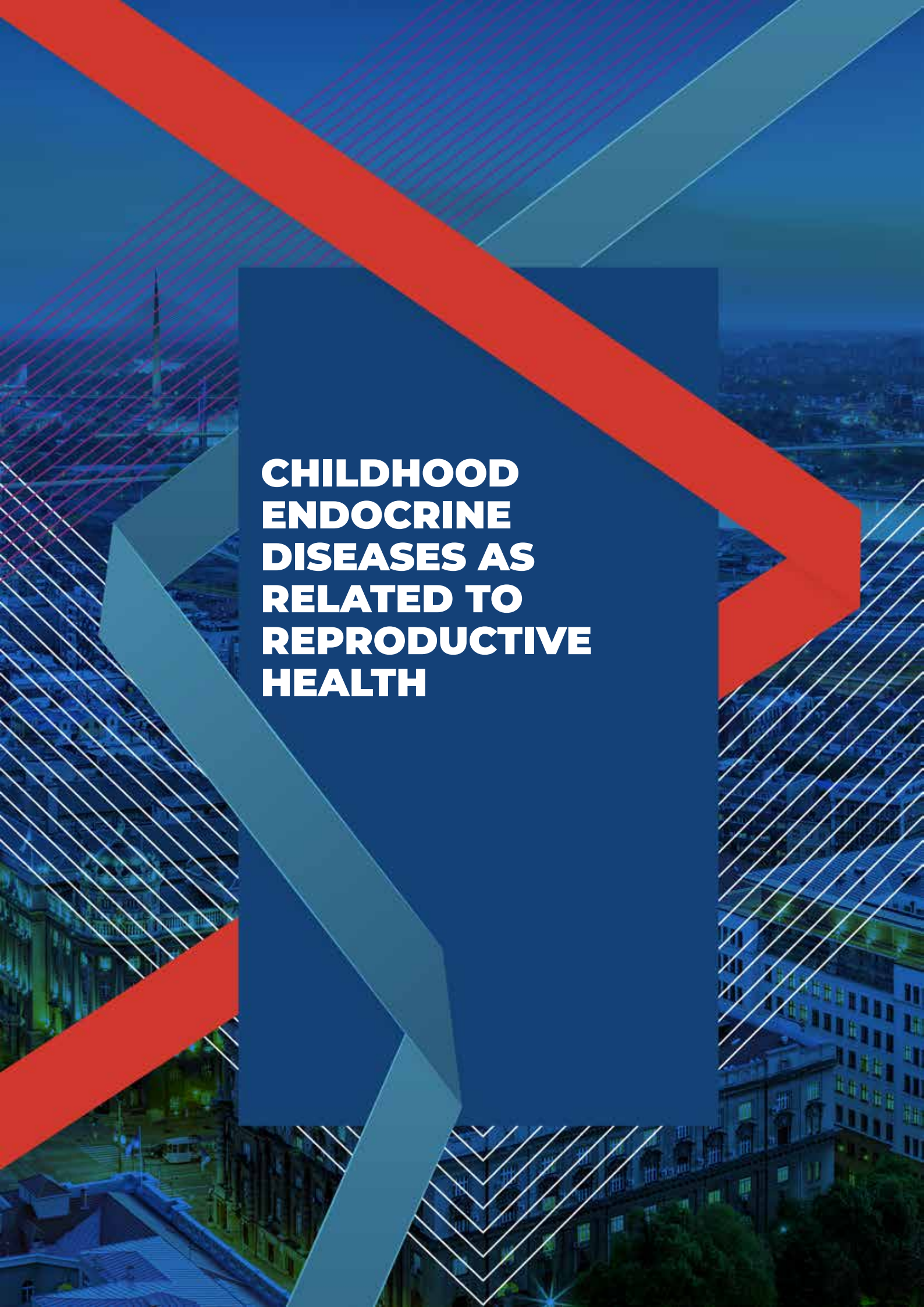
**Conclusion:** Considering the vivid strata of the practitioners that this study covered, important PROMs and treatment modalities vary between the practitioners. Further studies considering myoinositol vs placebo or other active treatments are feasible as there seems to be equipoise about its effectiveness.

## **Key words:**

Myoinositol, adolescents, PCOS, patient related outcome measures

## **References:**

Peña, A.S., Witchel, S.F., Hoeger, K.M. et al. Adolescent polycystic ovary syndrome according to the international evidence-based guideline. BMC Med 18, 72 (2020). <https://doi.org/10.1186/s12916-020-01516-x>

An aerial night view of a city, likely New York City, featuring a bridge with red suspension cables and a city skyline with illuminated buildings. The image is overlaid with a dark blue rectangular area containing white text, and several large, stylized geometric shapes in red and light blue. Diagonal white lines are also visible across the image.

# **CHILDHOOD ENDOCRINE DISEASES AS RELATED TO REPRODUCTIVE HEALTH**

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# PREPUBERTAL VAGINAL BLEEDING: AN INPATIENT SERIES FROM A SINGLE CENTER IN GREECE.

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**Objective:** The aim of this study was to investigate the etiology of prepubertal vaginal bleeding in a group of patients from a single referral center in Greece.

**Materials and method:** A retrospective analysis of prospectively collected data between 2012 and 2022 was performed. Physical examination, vaginal swabs, vaginoscopy, ultrasonography, Magnetic Resonance Imaging (MRI), X-rays, plasma gonadotrophins and luteinizing hormone-releasing hormone (LH-RH) test were used to investigate the etiology of prepubertal vaginal bleeding.

**Results:** The comprehensive search revealed 8 cases of interest. The median age at presentation was 6 years (range 6-8). Physical examination included height, weight and Tanner stages classification and was performed in pair with ultrasonography in all cases. All other investigations were used based on individualized indications. Bleeding duration ranged from 1 to 14 days with a median of 5 days. Three patients were diagnosed with precocious puberty, two with vaginal foreign bodies, one with vaginal hemangioma and in two patients diagnosis was not reached thus a follow-up in 3 months was planned, which yielded no additional significant findings. All patients were treated according to their different disease etiologies.

**Conclusions:** Prepubertal vaginal bleeding is caused by a variety of different conditions. In our study the most common cause was precocious puberty. Due to small numbers, the results should be interpreted with caution. Considering the different causes, different investigations should be used to establish a definitive diagnosis and a good prognosis.

**Key words:**

prepubertal vaginal bleeding

**References:**

Dwiggins M, Gomez-Lobo V. Current review of prepubertal vaginal bleeding. Curr Opin Obstet Gynecol. 2017;29:322-327 Soderstorm HF, Carlsson A, Bojesson A, Elfving M. Vaginal bleeding in prepubertal girls: etiology and clinical management. J Pediatr Adolesc Gynecol 2016;29:280-285

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# A CASE REPORT: AMBIGUOUS GENITALIA COMPLICATED WITH REFRACTORY HYPERTENSION

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Dandan Chen

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11 $\beta$ - Hydroxylase deficiency (11 $\beta$ - OHD) is a kind of congenital adrenal hyperplasia (CAH), accounting for 5-8% of the total patients. The disease is autosomal recessive inheritance caused by CYP11B1 gene mutation. Patients usually have clinical manifestations such as hypertension, hypokalemia, and premature bone age. Most of the patients were diagnosed late, they were diagnosed when severe hypertension complications occurred in adolescence or even adulthood. The patient was 4 years old her clinical manifestations were ambiguous genitalia complicated with refractory hypertension. Her CYP11B1 gene sequencing: both a heterozygous mutation of c1120C>T (R374W) and a heterozygous mutation of c1358G>A (R453Q). Treatment: low dose hydrocortisone maintenance treatment, enalapril, metoprolol and nifedipine were combined to reduce blood pressure, and Gn-RHa inhibited bone age progression. When pediatric patients have abnormal electrolyte (especially low potassium), high blood pressure and significantly advanced bone age. We need to consider the possibility of special CAH. If the early symptoms of atypical 11  $\beta$ -OHD are not obvious, or the biochemical indexes are not typical enough to be diagnosed, gene diagnosis can help make it clear.

## **Key words:**

refractory hypertension, hypokalemia, 11 $\beta$ - Hydroxylase deficiency, CYP11B1 gene congenital adrenal hyperplasia

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# RETROSPECTIVE REVIEW ON PRESENTATION AND CO-MORBIDITIES IN GIRLS AND WOMEN WITH TURNER SYNDROME AND TURNER MOSAICISM

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Turner syndrome has an association with a variety of medical and developmental problems at all stages of life (1). This study aims to review the incidence of co-morbidities in patients with Turner or Turner mosaicism.

**Methods:** Medical records for all patients who has a diagnosis of Turner Syndrome or Turner mosaicism who attended the gynaecology specialist clinic at a tertiary hospital from 2015-2019 were reviewed. Patient demographics, investigation results were reviewed.

**Results:** Total of 50 patients were identified, ranging from 15-49 years old, with a median age of 28 years old. The median age of presentation was 14 years old. Most of the patients were referred from paediatrics for transition care (72%), with other sources of referral including gynaecologist and general practitioner. The most common presenting complaint was short stature (55%), followed by primary amenorrhea (23%), delayed puberty (6%) and secondary amenorrhea (3%). 18 (36%) patients had a 45,X karyotype, 10 (20%) had a mosaic 45,X / 46,XX karyotype. 9 (18%) had a Y chromosome component, and 8 had gonadectomy done, and amongst them, 3 had gonadoblastoma (37.5%) and one had intratubular germ cell neoplasia. 30 girls (60%) required concomitant follow-up by other specialties. The most commonly noted medical problem amongst the whole group was essential hypertension (16%) and Hyperlipidemia (16%), followed by type 2 diabetes (8%), hyperthyroid (2%) and hypothyroidism (4%). 10% of patients had hearing impairment. Cardiac problems were also of a higher incidence compared to the normal population, amongst those that had cardiac imaging, with coarctation of aorta (6%), peri-membranous ventricular septal defect (2%) and bicuspid aortic valve (2%). There was no significant difference between the group with of girls with medical problem between the different karyotypes (78% in 45,X and 70% in 45,X / 46,XX; p=0.6). 44 (88%) patients were using hormone replacement therapy for ovarian insufficiency, with oral estradiol and dydrogesterone being the most common (38%), followed by combined oral contraceptive pill (22%). 17 patients had history of growth hormone use, and there was no recorded malignancies amongst them.

**Conclusion:** Turner syndrome is often associated with or have the potential to develop medical co-morbidities. It is important to emphasize on transition care from adolescent to adult and perform regular cardiovascular and endocrine screening.

## **Key words:**

Turner Syndrome, Turner Mosaicism

## **References:**

1. Gravholt, C. H., et al. (2017). "Clinical practice guidelines for the care of girls and women with Turner syndrome: proceedings from the 2016 Cincinnati International Turner Syndrome Meeting." *Eur J Endocrinol* 177(3): G1-G70.

# THE ROLE OF AUTOIMMUNITY IN THE PATHOGENESIS OF OVARIAN INSUFFICIENCY IN ADOLESCENT GIRLS

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The submitted study was approved by the local ethics committee (IRB of Rostov State Medical University, Minutes No. 16. Date 22/11/2018). Patients and their parents gave informed voluntary consent to participate in the study. The authors have no conflicts of interest to disclose.

Normogonadotropic ovarian insufficiency is the most typical cause of oligomenorrhea. Autoimmune oophoritis is the cause of normogonadotropic ovarian insufficiency in 31% of cases.

Experiments revealed the damaging effect of anti-ovarian antibodies on all functional elements of the ovary imitating an atretic process. In spite of performed studies of autoimmune oophoritis as a cause of infertility, the autoimmune mechanisms of normogonadotropic ovarian insufficiency, which takes the form of oligomenorrhea in adolescents, remain unexplored. The aim of our research was optimization of the treatment adolescents with oligomenorrhea on the basis of studying the role of autoimmune mechanisms of normogonadotropic ovarian insufficiency formation.

**Method.** The serum levels of anti-Mullerian hormone (AMH), inhibin B, anti-ovarian antibodies (AOAs), antinuclear and anti-ovarian antibodies (AOAs), antibodies to thyroxine-peroxidase (As TPO), neopterin, rheumatoid factor (RF), interferon- $\gamma$  (IFN- $\gamma$ ), tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ) in 2 groups of adolescent girls with secondary normogonadotropic oligomenorrhea were investigated by ELISA. Group I - 39 girls with elevated levels of circulating AOAs ( $\geq 11$  IU/ml). Group II - 49 girls with normal levels of AOAs ( $<11$  U/ml). The control group included 20 healthy girls with regular menstrual cycles and with normal levels of AOAs. The calculations were carried out in the environment of the Statistica 6.0 application package.

**Results.** The mean values of AMH of the patients of the I group were 2 times lower, than in the control. The indices of inhibin B were 6 times higher, than in the control, and 4 times higher, than in the II group. The AMH level in the 2nd group exceeded the norm that indicated large quantity of preantral follicles and could be one of criteria of diagnosing the PCOS.

Increased levels of RF and decreased of IFN- $\gamma$  were found in both groups. The highest levels of TNF- $\alpha$  and neopterin was revealed in the 2nd group. Neopterins level increases in case of autoimmune diseases and it is an earlier marker of autoimmune pathology than autoantibodies. When the anti-ovarian autoantibodies are present, the diagnosis is undoubtable, and when they are absent, it becomes difficult to make a diagnosis. Due to this fact we offer to determine the serum level of neopterin in order to enable early detection of autoimmune oophoritis in girls with oligomenorrhea, seronegative ones by anti-ovarian antibodies. By applying a dichotomic arborescent – we determined a diagnostic threshold of neopterin, which is equal to 9.86 nmol/l.

**Conclusions.** The increase of the levels of neopterin, TNF- $\alpha$ , AMH in the patients of the II group confirmed the participation of the given factors in the pathogenesis of oligomenorrhea.

Autoimmunity rates are characterized by increased serum RF, neopterin, titers of AOAs, and decreased levels of AMH, IFN- $\gamma$ , that demonstrates the diagnostic value of these parameters as markers of autoimmune origin of normogonadotropic secondary oligomenorrhea.

## Key words:

anti-Mullerian hormone, anti-ovarian antibodies, neopterin, interferon- $\gamma$ , tumor necrosis factor- $\alpha$

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# PELVIC PAIN, DIAGNOSTICS AND MRI, SURGICAL AND HISTOLOGICAL FEATURES OF ENDOMETRIOSIS IN ADOLESCENTS

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Early diagnosis of endometriosis is especially important in adolescence, since diagnostic delay reaches up to 8-10 years in average. Objective: To compare the clinics, instrumental diagnostics, surgical and histological peculiarities of peritoneal endometriosis in adolescents

Design: a case-control study.

Methods: The study included 90 adolescent girls (13 to 17 years old) diagnosed with laparoscopically confirmed peritoneal endometriosis. The comparison group consisted of 44 healthy girls of the same age with a regular menses. All participants underwent full clinical and hormonal examination. The patients with endometriosis were subjected to MRI of pelvic organs, laparoscopy, histological verification of lesions.

Results: The risk factors for endometriosis in adolescents were the family history of endometriosis (OR 4.85 CI = 1.58; 14.87,  $p=0.005$ ) and dysmenorrhea from menarche (OR 19.30 CI=7.19; 51.60,  $p<0.001$ ). Most of girls with endometriosis experienced the severe dysmenorrhea (60.0%), decreased daily activity (75%), associated with pelvic pain, gastrointestinal symptoms (44%), a third of patients (28%) noted blood spotting in the middle of the cycle and daily pain (23.3%). Comparing to the control group patients with endometriosis were characterized with higher luteinizing hormone ( $8.3\pm 6.7$  vs.  $4.1\pm 1.9$ ,  $p<0.001$ ), estradiol ( $335.2\pm 292.3$  vs.  $171.5\pm 73.9$ ,  $p=0.032$ ), prolactin ( $481.2\pm 312.4$  vs.  $237.8\pm 126.4$ ,  $p<0.001$ ),  $17\alpha$ -OH progesterone ( $5.8\pm 3.7$  vs.  $3.9\pm 1.8$ ,  $p=0.022$ ), androstenedione ( $10.8\pm 4.3$  vs.  $8.4\pm 2.5$ ,  $p=0.014$ ), Ca-125 ( $31.8\pm 56.1$  vs.  $19.0\pm 10.2$ ,  $p=0.006$ ) and CA19-9 ( $20.6\pm 29.9$  vs.  $6.52\pm 2.39$ ,  $p=0.007$ ) levels. MRI suggested the endometriosis in 78.7% of patients with confirmed peritoneal endometriosis. The most significant MRI signs of peritoneal endometriosis in adolescents were: the sacro-uterine ligaments thickening ( $p=0.022$ ), the heterogeneity of paraovarian, parametric or paracervical tissue ( $p<0.01$ ), especially in combination with adhesions ( $p=0.002$ ) or fluid in the Douglas space ( $p<0.01$ ). Endometrioid glands and stroma were detected in 67.2% of cases, in 32.8% visual foci of endometriosis consisted of fibrous, adipose, muscle tissue with areas of hemorrhage and lymphocyte infiltration. Red implants correlated with rASRM score, sheer implants with pain (VAS score) ( $\leq 0.05$ ).

Conclusion: Adolescents with persistent severe dysmenorrhea exhibit endometriosis during laparoscopy. Significant factors in the diagnosis were: the heredity for endometriosis ( $\chi^2=82.8$ ,  $p<0.001$ ), persistent dysmenorrhea ( $\chi^2=49.8$ ,  $p<0.001$ ), suspicion of endometriosis according to MRI ( $\chi^2=91.4$ ,  $p<0.001$ ). In the almost third of adolescents with persistent pelvic pain the peritoneal endometriosis was visually confirmed in the absence of MRI predictors and subsequent histological verification of endometrioid lesions, nevertheless, requiring the same principles for further management and treatment.

## Key words:

peritoneal endometriosis, dysmenorrhea, magnetic resonance imaging, histology, adolescents.

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# AMENORRHEA: TURNER SYNDROME WITH INCIDENTAL PITUITARY MICROADENOMA

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Turner syndrome is a genetic disorder in females caused by the partial or complete absence of one of the X chromosomes<sup>1</sup>. The condition affects approximately 1 in every 5000 female livebirths<sup>2</sup>. Patients with Turner Syndrome have hypergonadotropic hypogonadism and they can present with short stature and other medical conditions, such as endocrine disorders, autoimmune disease, and cardiovascular disease. Pituitary adenomas have rarely been identified in patients with Turner Syndrome and only a few cases have been reported in literature<sup>1</sup>.

A 16-year-old female with developmental delay and primary amenorrhea was diagnosed with Turner syndrome, based on karyotype 45, X. Physical examination revealed a patient with short stature. She had webbed neck, a broad chest and widely spaced nipples with Tanner Stage 1 breast and Tanner Stage 3 pubic hair. Transrectal sonography revealed an infantile uterus and gonads. Endocrinologic investigation showed hormone level deficiencies manifesting as hypergonadotropic hypogonadism with hypoestrogenism and high levels of follicular stimulating hormones and luteinizing hormones. Cranial Magnetic Resonance Imaging (MRI) of the pituitary gland revealed pituitary microadenoma measuring 4.9 x 3.8 mm.

There are two conditions coexisting in this case of primary amenorrhea. Initiation of puberty was planned with hormone replacement.

## Key words:

Primary amenorrhea, Turner syndrome, hypergonadotropic hypogonadism, pituitary microadenoma

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# A NOVEL APPROACH IN OVARIAN STIMULATION AND HIGH DOSE OF METHYLPREDNISOLONE IN WOMAN WITH AUTOIMMUNE POLYENDOCRINOPATHY-CANDIDIASIS-ECTODERMAL DYSTROPHY (APECED)

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**Background:** Autoimmune polyendocrinopathy-candidiasis-ectodermal dystrophy (APECED) is a rare juvenile monogenetic syndrome with an autosomal recessive transmission. AIRE mutations cause autoimmune tissue destruction in multiple organs. Numerous antibody types can be directed against gonadotropins and their receptors, most commonly, of the  $\beta$ -subunit of follicle stimulating hormone (FSH). Primary ovarian insufficiency (POI) is the third most common endocrine component of APECED.

**Case presentation:** A 18-year-old woman with APECED presented for fertility preservation. The diagnosis of APECED was established at the age of 11 years old and confirmed by genetic test. She presented Addison's disease, alopecia, hypoparathyroidism and Hashimoto's thyroiditis. She has regular cycles with ovarian reserve markers within normal ranges (AFC 25, AMH 4.5ng/ml). Ovarian stimulation with short GnRh-antagonist protocol was initiated with 300IU of hMG. As there was no ovarian response (with low estradiol level of 99pg/ml), stimulation was cancelled. A gradually increasing dose of Methylprednisolone was added (from 16 to 64 mg/day) and new ovarian stimulation has initiated. Oocyte Pick Up was carried out 36 hours after final triggering. Unfortunately, from 24 oocytes only 5 were MII.

**Conclusion:** Short term therapy with gradually increasing dose of methylprednisolone may result in improved ovarian response and multiple oocytes recruitment.

## **Key words:**

ovarian stimulation, methylprednisolone, Autoimmune polyendocrinopathy-candidiasis-ectodermal dystrophy, APECED

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# POSITION OF PHYSICIANS AND PATIENTS REGARDING INSTRUMENTS OF EARLY DETECTION OF TURNER SYNDROME

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**Introduction:** Turner syndrome (TS) is a complex illness with clinically very heterogeneous phenotype. While some patients suffer from typical symptoms, other patients are completely asymptomatic. While 50% of patients present a 45,X karyotype, other cases present with chromosomal mosaics or structural abnormalities of the second X chromosome. The complexity of the condition warrants an interdisciplinary treatment approach, reflected in the formation of Turner clinics in many countries.

Late diagnosis and associated missed opportunities for appropriate prevention and treatment is a well-known problem. Instruments for early detection could be prenatal screening or postnatal screening. Prenatal screening by cfDNA is now used in many countries. Giving the opportunity for early detection cfDNA screening is complex and PPV varies between 9-40%, mostly due to placental mosaicism and (unknown) maternal sex chromosome anomaly (SCA). On the other side, cfDNA screening has the potential to also detect affected fetuses with a mild phenotype, or no anomalies on prenatal ultrasound. Invasive genetic diagnosis is recommended after a positive test result for monosomy X and karyotype should be confirmed after birth. Counselling is complex and the rate of interruption of pregnancy is high.

To avoid the aforementioned drawbacks of the prenatal screenings and to provide patients with an early diagnosis in order to offer adequate treatment and surveillance, a postnatal screening could provide a possibility.

**Method:** We wanted to evaluate the position towards postnatal screening in physicians and patients. The department of Prenatal Medicine and Fetal Therapy in collaboration with the department of Child and Family Psychosomatics of the University Hospital Giessen has developed questionnaires for patients with TS and physicians of different specialties, involved in the pre- and postnatal care of patients with TS.

**Results:** The evaluation of the questionnaires is currently close to completion and the results will be presented for the first time at the WCPAG.

## **Key words:**

turner syndrome diagnosis childhood detection

## **References:**

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# TRIPLE X SYNDROME: A LOST CHANCE TO CONCEIVE

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## Introduction

47,XXX syndrome, also called trisomy X or triple X syndrome, is the most common sex chromosome abnormality in females. However, it is estimated that most individuals with 47,XXX are never diagnosed. It is associated with tall stature, learning difficulties, and other features such as developmental, psychological and behavioral abnormalities. Puberty and fertility are generally not affected, but some patients develop premature ovarian insufficiency (POI). Herein we describe the clinical features of three patients with triple X syndrome, two of whom presented with POI, who were referred to the PAG clinic of our hospital.

## Case 1

A 19 year old woman was referred to our clinic for ovarian tissue cryopreservation. She had been diagnosed with 47,XXX syndrome at the age of 6 by karyotype analysis, in the context of investigations for learning difficulties. At the time of presentation serum FSH levels were 8.1 mIU/mL while she had low levels of anti-Mullerian hormone (0.41 ng/mL), and thus we proceeded with consultation for cryopreservation.

## Case 2

A 16 year old girl was referred due to secondary amenorrhea. She had menarche at the age of 13. Serum FSH level was 70.7 mIU/mL, LH level was 29 mIU/mL, and E2 level was < 9 pg/mL. The girl was diagnosed with primary ovarian insufficiency. Subsequently, investigation with genetic testing was performed and revealed a 47,XXX karyotype. The girl initially received estradiol replacement, starting with a transdermal patch of 25mcg/24h which was gradually increased for 4 months. She was then administered a sequential combined transdermal preparation.

## Case 3

A 30 year old woman was referred to our clinic for investigation of infertility. The patient had failed to conceive during the last 4 years. She also mentioned irregular periods since her menarche. Laboratory testing revealed serum FSH levels of 72.0 mIU/mL and the diagnosis of primary ovarian insufficiency was established. As part of routine investigation for POI, she underwent a karyotype which revealed 47,XXX.

## Discussion

Primary ovarian insufficiency (POI) in 47,XXX carriers has been reported, but the prevalence is unknown. In most cases symptoms and abnormalities of triple X syndrome are mild and thus carriers never get diagnosed. When identified however, it should provide a chance for discussing cryopreservation, as a means for fertility preservation. Prompt diagnosis and management of POI is important, both for preventing estrogen deficiency symptoms and long term effects of hypogonadism.

## Key words:

triple X syndrome, fertility, Primary ovarian insufficiency

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# EXAMINING THE SIGNIFICANCE OF WHOLE EXOME SEQUENCING AMONG YOUTHS WITH PRIMARY OVARIAN INSUFFICIENCY

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**Introduction:** Primary ovarian insufficiency (POI) can be due to autoimmune, iatrogenic, metabolic, infectious, idiopathic, or genetic causes.

**Aims:** To investigate the genetic etiologies of idiopathic POI cases and identify new variations or new genes potentially associated with POI.

**Methods:** A prospective trial that included individuals with non-iatrogenic idiopathic POI who were referred to an endo-gynecologic fertility clinic in Sheba Medical Center and Shamir Medical Center. Demographic, clinical, laboratory, and imaging data were collected, and blood samples were drawn to extract DNA from peripheral blood leukocytes. Whole exome sequencing (WES) was performed, and wide bioinformatics analysis was conducted.

**Results:** A total of 22 individuals with a mean age of  $25.6 \pm 9.2$  years (7 adolescents), were recruited. Thirteen experienced menstrual problems (4 presented with primary amenorrhea, 4 with secondary amenorrhea, and 5 with oligomenorrhea), whereas 9 had normal menses with difficulty conceiving. Mean menarche was at  $13.1 \pm 1.6$  years, and 8 cases had familial POI. The mean FSH level was  $49 \pm 51$  IU/L, estradiol was  $152 \pm 96$  pmol/L and anti-müllerian hormone (AMH) was  $0.35 \pm 0.4$  ng/mL. We found a genetic variation in 7 (32%) of the cases that might explain POI. Two cases were classified as likely pathogenic (SYCE11 and a 1.36Mb deletion and a 1.59Mb duplication in the long arm of chromosome 22). The SYCE1 variant is a novel variant in one allele and a deletion in the other allele, a deletion that was not previously reported. While the deletion in the long arm of chromosome 22 is part of the 22q11.2 deletion syndrome and was observed in individuals with POI2, the specific deletion and duplication in this patient have not been previously reported. Four cases were classified as a variant of unknown significance (VUS) in genes reported in a few individuals with POI (EXO13, FANCA4, RREB1 & ATG9B5, BMP86). One of these changes included in the same patient a novel combination of a compound heterozygote variant in ATG9B and a homozygote variant in RREB1. Another variation in the gene GREB1 was classified as VUS and was not reported in humans with POI, but only in a mouse model, where GREB1-/- knock-out led to minute ovaries and decreased conceptions and pups7.

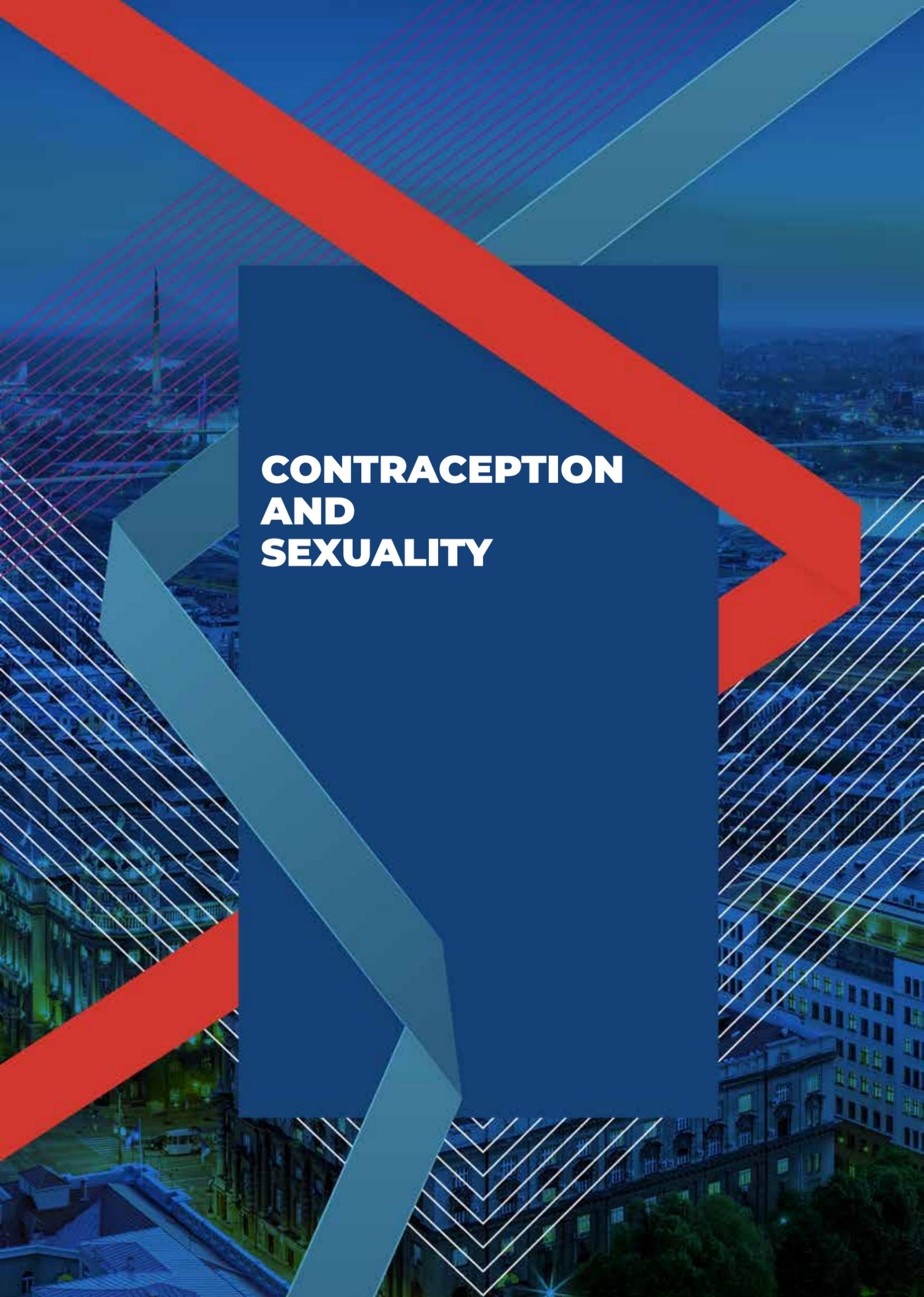
**Conclusions:** POI displays genetic heterogeneity, and the use of WES is an effective approach to identifying the genetic cause. Identifying the genetic etiology of POI enables personalized medicine, improves care and fertility preservation, and contributes to the understanding of this phenomenon.

## **Key words:**

Primary ovarian insufficiency; Reproduction; Infertility; Amenorrhea; Whole exome sequencing

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**CONTRACEPTION  
AND  
SEXUALITY**

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# ACCEPTABILITY OF IUD IN ADOLESCENTS

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## Study Objective

The purpose of this study is to evaluate the factors which motivate adolescent and young women to use IUD or discourage them from preferring IUD as a contraceptive method.

## Materials and Methods

This descriptive cross-sectional study is based on a questionnaire developed by the authors and approved by an ethics committee. The questionnaire was filled in anonymously by adolescents and young women aged 16 – 24 which attended a Pediatric and Adolescent Gynaecology clinic at a University Hospital in Ioannina, Greece. The questions included were related to contraceptive methods used. Perceptions and attitudes about potential advantages, disadvantages and doubts on each method were asked. Answers were statistically analyzed by parametric and non-parametric methods. T-test was used to assess independent samples and their effect on various factors on the continuous variables.

## Results

The questionnaire was filled in by 100 women and the mean age was 21: 3.1. No association was found between the choice of contraceptive method and of the examined variables (age, stable relationship, history of unwanted pregnancy). The results on whether the IUD was considered as a practical contraceptive method showed no difference among the age groups or regarding years since sexual activity initiation. One third of patients were not aware of the IUD, mean age of those aware was slightly higher (22 vs 20 years respectively) but neither relationship status or longer time since sex life initiation were different for the two groups. Surprisingly more women of younger age (20 vs 22 years) stated that they could choose it ( $p=0.018$ ). Most of the participants were worried about the procedure of IUD placement and complications associated with it.

## Discussion

The data that were derived from the answers of the survey are in accordance with other studies in Greece. Awareness on the existence of the IUD as a contraceptive method was 70% and mainly considered older age groups. Sexual experience and stable relationship status were not significantly correlated with knowledge of the method. Among the medical community there is still a reservation of advising IUDs for their younger patients but it appears that most scientific societies find it a safe and long lasting contraceptive method.

## Conclusions

In conclusion condom appears to be the main form of contraception among participants of the study and their attitudes to the IUD are generally positive although they would not prefer it, mainly because of the insertion procedure.

## Key words:

IUD, adolescents, contraception, LARCs, IUCD

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# BIRTH-WEIGHT IN ADOLESCENT PREGNANCY AND MODE OF DELIVERY: OUR EXPERIENCE

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**Background:** Adolescent pregnancy is a major health and social problem all over the world, and it is often associated with less favorable outcomes for both mother and child. Adolescence is defined chronologically by the World Health Organization as the period between 10 and 19 years of age. One of the most significant risks associated with adolescent pregnancy is low birth weight.

**Method:** We retrospectively reviewed 144 cases of singleton pregnancies divided into two groups as follows: Group A included women of maternal age less than 20 years old (n = 72), and Group B included women >20 years old (n = 72), serving as the control group. Our retrospective study concerned the period between 2015 and 2023.

**Results:** The mean age among adolescents in the “teenage” group was 18.2 years-old, while the mean age among women in the >20-year-old group was 29.7 years old. The average birth weight was 3200g for the adolescent group (A), significantly lower compared to the control group (B), where the mean birth weight was 3650g. Regarding the type of delivery, among the teenage pregnancies, 48% of them gave birth vaginally, while 47% delivered by cesarean section. Additionally, 11% of adolescents gave birth through instrumental delivery. Among women older than 20 years old, 31% delivered vaginally, 51% underwent a cesarean section, and 18% gave birth through instrumentally assisted delivery.

**Conclusion:** In accordance to the literature, adolescent mothers are more likely to have babies of low birth weight compared to adult mothers and less likely to deliver by cesarean section or instrumentally assisted vaginal birth.

## **Key words:**

Birth weight, adolescent pregnancy, delivery, cesarean section, vaginal birth

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# THE ASSOCIATION OF EDUCATIONAL LEVEL WITH CONTRACEPTION USE AMONG ADOLESCENTS AND YOUNG ADULTS IN A SOCIOECONOMICALLY DEPRIVED REGION OF GREECE

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**Study Objectives:** Unintended pregnancies account for 40% of all pregnancies worldwide, highlighting the unmet need for contraception (1). Low contraception use is associated with a lack of education and poverty (2). With regard to adolescents, repeat teenage pregnancy is more common among adolescents with lower educational attainment in the global north (3). The aim of this study was to assess whether and how educational level affects contraception use among adolescents and young adults in a population in Attica district, in Greece, that is socioeconomically deprived based on regional Human Poverty Index analyses (4).

**Materials and methods:** This is a cross-sectional study of 369 sexually active adolescents and young adults who visited the outpatient OB/GYN offices between 2017 and 2020 and provided a structured interview. Chi-squared test at a significance level of 0.05 was used to assess if contraception use and choice of type of contraception differed across six hierarchical educational levels. Namely, these were less than 9 years of education (n=23), 9 years of education (n=93), 12 years of education (n=86), postsecondary education (n=69), BSc (n=92), and MSc/PhD (n=2).

**Results:** Only 24 out of 369 study participants (6.5%) reported no use of contraception. Having a lower education level was associated with no use of contraception ( $p<0.01$ ). These women were also less likely to be vaccinated against HPV ( $p<0.01$ ) and more likely to already have children at time of interview ( $p<0.01$ ). With regard to type of contraception used among 345 users, higher educational level was associated with more frequent use of the male condom ( $p<0.01$ ) and less frequent use of the withdrawal method ( $p<0.01$ ). Use of oral contraceptives ( $p=0.20$ ), emergency hormonal contraception ( $p=0.62$ ), and intrauterine devices ( $p=0.16$ ) did not differ across educational levels.

**Conclusions:** In our study, a higher educational level was associated with contraception use among adolescents and young adults in a socioeconomically deprived area of the Attica district, in Greece. Male condom use, which provides concomitant protection against sexually transmitted diseases, was more popular among participants with a higher educational level. On the contrary, the withdrawal method, which is ineffective, was more popular among participants with lower educational level.

## Key words:

educational level, contraception, adolescents, young adults

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# AGE AT FIRST SEXUAL INTERCOURSE AND LEVEL OF EDUCATION AMONG WOMEN IN A SOCIOECONOMICALLY DEPRIVED POPULATION IN GREECE

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**Study objectives:** Adolescent reproductive health and sexual behavior in 21st century have become major topics of interest in both developed and developing countries. Poor family status, low socioeconomic and educational levels, as well as illicit substance abuse and coercion, may influence the age of initiation of sexual intercourse (1, 2). Good school attendance and participation are associated with a later age at sexarche and the lack of affordable or free education, especially in the developing world, plays a major role in determining female sexual behavior (1, 2). The aim of this study was to explore the association of educational level with age at sexual debut among women in a socioeconomically deprived population in Greece based on regional Human Poverty Index analyses (3).

**Materials and methods:** Self-reported age at sexual debut and educational level obtained from structured interviews of 2167 women that visited the outpatient OB/GYN offices between 2017 and 2020 were analyzed. The non-parametric Kruskal-Wallis Rank Sum Test was applied among six hierarchical educational levels, which were less than 9 years of education (n=105), 9 years of education (n=711), 12 years of education (n=654), postsecondary education (n=302), BSc (n=375), and MSc/PhD (n=20). Bonferroni correction was used for pairwise comparisons. Level of statistical significance was 0.05.

**Results:** Mean age at first sexual intercourse varied significantly across educational levels ( $p < 0.01$ ), ranging from 16.7 ( $\pm 3$ ) years among women that have not concluded the nine years of compulsory education in Greece to 18.7 ( $\pm 1.8$ ) years among women with postgraduate studies (MSc/PhD) (Table 1). Pairwise comparisons showed that the group of women who never completed compulsory education differed significantly from all other groups, and the women who attended nine years of school differed significantly from most other groups. No difference was detected among groups of women who attended any kind of vocational or academic education after high school.

**Conclusions:** In our study, educational level was significantly associated with age at first sexual intercourse. Interestingly, women who later on in their lives followed any form of tertiary education reported a similar age at sexual debut. In contrast, women who attended the formal educational system for less than nine years reported the earliest sexarche in comparison to all other educational groups, followed by women who attended the formal educational system for only nine years. These results collectively indicate the role of good school attendance and participation in sexarche among women in a socioeconomically deprived population in Greece.

## Key words:

Age, sexual, intercourse, education, adolescents, women

## References:

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# CONTRACEPTION USE AMONG ADOLESCENTS AND YOUNG ADULTS IN A SOCIOECONOMICALLY DEPRIVED REGION OF GREECE

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**Study objectives:** Adolescent reproductive health and sexual behavior in 21st century have become major topics of interest in both developed and developing countries. Poor family status, low socioeconomic and educational levels, as well as illicit substance abuse and coercion, may influence the age of initiation of sexual intercourse (1, 2). Good school attendance and participation are associated with a later age at sexarche and the lack of affordable or free education, especially in the developing world, plays a major role in determining female sexual behavior (1, 2). The aim of this study was to explore the association of educational level with age at sexual debut among women in a socioeconomically deprived population in Greece based on regional Human Poverty Index analyses (3).

**Materials and methods:** Self-reported age at sexual debut and educational level obtained from structured interviews of 2167 women that visited the outpatient OB/GYN offices between 2017 and 2020 were analyzed. The non-parametric Kruskal-Wallis Rank Sum Test was applied among six hierarchical educational levels, which were less than 9 years of education (n=105), 9 years of education (n=711), 12 years of education (n=654), postsecondary education (n=302), BSc (n=375), and MSc/PhD (n=20). Bonferroni correction was used for pairwise comparisons. Level of statistical significance was 0.05.

**Results:** Mean age at first sexual intercourse varied significantly across educational levels ( $p < 0.01$ ), ranging from 16.7 ( $\pm 3$ ) years among women that have not concluded the nine years of compulsory education in Greece to 18.7 ( $\pm 1.8$ ) years among women with postgraduate studies (MSc/PhD) (Table 1). Pairwise comparisons showed that the group of women who never completed compulsory education differed significantly from all other groups, and the women who attended nine years of school differed significantly from most other groups. No difference was detected among groups of women who attended any kind of vocational or academic education after high school.

**Conclusions:** In our study, educational level was significantly associated with age at first sexual intercourse. Interestingly, women who later on in their lives followed any form of tertiary education reported a similar age at sexual debut. In contrast, women who attended the formal educational system for less than nine years reported the earliest sexarche in comparison to all other educational groups, followed by women who attended the formal educational system for only nine years. These results collectively indicate the role of good school attendance and participation in sexarche among women in a socioeconomically deprived population in Greece.

## Key words:

Contraception, adolescents, young adults, socioeconomic, condom

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# THE TIME TREND OF AGE AT FIRST SEXUAL INTERCOURSE IN GREECE

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**Study objectives:** First sexual intercourse defines the beginning of sexual and reproductive life and usually happens during adolescence or early adulthood. A large number of sexual health studies conducted in Europe and also Australia and US have all reported a significant decrease in the median age at sexarche over the last approximately 50 years, especially among women (1-4). The aim of this study was to describe the time trend of age at first sexual intercourse among women in Greece. **Materials and methods:** This is a cross-sectional study conducted via structured interviews among women that visited the outpatient OB/GYN. To estimate the change in age at sexual debut with time, we used the non-parametric Spearman rank correlation coefficient ( $r_s$ ) at a significance level of 0.05. To estimate the magnitude of this change, we further calculated the mean age at first sexual intercourse per decade of birth. To minimize confounding due to cultural and psychosocial factors, sensitivity analyses were conducted in subgroups with sample sizes greater than 50, stratified by nationality.

**Results:** Complete data regarding age at first sexual intercourse and year of birth were available for 2173 out of 2586 participants. The  $r_s$  was -0.25 ( $p < 0.01$ ), indicating a decline with time. The mean age at sexual debut was 20.6 years among women born in 1930s and declined to 15.8 years in those born in the 2000s (Table 1). Among women with Greek nationality ( $n=1641$ ),  $r_s$  was -0.26 ( $p < 0.01$ ) and mean age at first sexual debut declined from 20.8 to 15.9 years (Table 1). Similarly,  $r_s$  was -0.28 ( $p < 0.01$ ) among women from former USSR countries ( $n=126$ ) (Table 1). Even more pronounced was this decline among women of Albanian nationality ( $r_s=-0.39$ ,  $p < 0.01$ ,  $n=248$ ) and women of Central and Eastern European nationalities ( $r_s=-0.38$ ,  $p < 0.01$ ,  $n=51$ ) (Table 1).

**Conclusions:** During the last century, the age at first sexual intercourse among women residing in Greece has declined with time. This time trend was observed for the total study population and across nationality strata. Interestingly, among women of Albanian, Central and Eastern European descent, the mean age at first sexual intercourse declined more steeply with time, indicating the role of socioeconomic and cultural determinants of sexarche.

## Key words:

time trend, age, sexual intercourse, sexarche

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# THE ASSOCIATION OF AGE AT MENARCHE WITH AGE AT FIRST SEXUAL INTERCOURSE IN GREECE, A HIGH-INCOME COUNTRY

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**Study objectives:** Previous research, especially in middle- and low-income countries, has indicated that age at menarche is positively associated with age at sexual debut and high risk sexual behavior (1-3). Psychosocial and cultural factors contribute to the aforementioned relationship, and a direct biological association between age at menarche and age at sexual debut can be hypothesized (1). Exposure to sexual hormones is regarded as a prerequisite of sexual desire, which determines to some extent the age at first consensual sexual intercourse (4). The aim of this study was to evaluate the association of age at menarche with age at first sexual intercourse in a high-income country (5). **Materials and methods:** This is a cross-sectional study based on data from structured interviews of 2586 women that visited the outpatient OB/GYN offices from 2017 to 2020. The non-parametric Spearman's correlation coefficient ( $r_s$ ) was calculated due to non-normal data. Sensitivity analysis was performed in subgroups with more than 50 participants stratified by nationality and decade of birth, ranging from the 1930s to the 2000s. Nationality groups were Greek ( $n=1655$ ), Albanian ( $n=254$ ), Central and Eastern European ( $n=51$ ), and (former USSR ( $n=128$ )). Level of statistical significance was 0.05.

**Results:** Among 2190 women with complete data, the mean age at menarche was 12.7 years, the age at sexual debut was 18.26 years, and  $r_s$  was 0.15 ( $p<0.01$ ) (Table 1). Positive  $r_s$  was observed in all nationality subgroups, although statistical significance was reached only for the subgroups of Greek and Albanian nationality that had a larger sample size (Table 1). Among women with Greek nationality, the mean age at menarche was 12.56 years, and the mean age at sexual debut was 18.09 years. Among women with Albanian nationality, the mean age at menarche was 13.27 years, and the mean age at sexual debut was 18.63 years. Similarly,  $r_s$  was positive in all subgroups based on decade of birth, although results were not significant among women born in the 1940s, 1980s, and 2000s (Table 1).

**Conclusions:** A consistent positive correlation, albeit very weak, was observed in our study. This association was reasonably stable across strata of nationality and decade of birth. Our results show that age at menarche is associated with age at first sexual intercourse in high-income countries as well. Given that psychosocial and cultural factors differ wildly between countries where relevant research has been performed, the stability of this association implies a biological link.

## Key words:

menarche, intercourse, sexual debut, age

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# GYNAECOLOGICAL AND SOCIAL OUTCOMES FOR TEENAGE PREGNANCIES FROM 2020 TO 2022 IN STOKE-ON-TRENT, THE FIFTH MOST DEPRIVED AREA IN THE UNITED KINGDOM.

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**Introduction:** Adolescent pregnancies are associated with negative outcomes of health, social and economic consequences for both the mother and child, including higher risks of eclampsia, puerperal endometritis, low birth weight and preterm birth. Although the conception rate of teenage pregnancies in the United Kingdom (UK) has been decreasing since 2007, its prevalence remains high in socially deprived areas, and the UK still has one of the highest numbers of teenage pregnancies per year in Western Europe. The North East of England has had the highest teenage conception rates of all English regions since 2003, averaging 19.5 conceptions per 1,000 women in 2021. Although the West Midlands of England averaged a teenage conception rate of 15 per 1,000 women in 2021, Stoke-on-Trent's rate was 22 conceptions per 1,000 women.

**Aim:** To determine the incidence of gynaecological complications and negative determinants of health affecting pregnant women less than 20 years old at the time of delivery in Stoke-on-Trent, with the goal of improving local trust guidelines and influencing government funding allocation towards primary prevention of teenage pregnancies.

**Method and Results:** Four hundred and eighty-two women met inclusion criteria for this single-centre quality improvement audit. Subjects had to be under the age of 20 years old at the time of delivery at Royal Stoke University Hospital from January 2020 to December 2022. Initial data analysis indicates a high percentage of second-degree perineal tears, intrauterine growth restriction and small for gestational age, and preterm induction of labour for reduced foetal movements. Negative social determinants of health included smoking, mental illness, requiring social care services, and low breastfeeding rates.

**Conclusion:** This single-centre audit at a large tertiary hospital has demonstrated that women under the age of 20 years old experience negative gynaecological and social outcomes from their pregnancies. Guidance should be made available to staff managing pregnant women under the age of 20 years old to improve the deleterious impacts on their recovery and prevent complications. The current funding allocation to prevent teenage pregnancies requires updates regarding improved education and access to contraception services, as well as mental health services.

## **Key words:**

Teenage pregnancy, negative social outcomes

## **References:**

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An aerial night photograph of a city, featuring a prominent cable-stayed bridge with numerous red cables. The image is overlaid with a dark blue rectangular area in the center, a thick red diagonal band, and a light blue diagonal band. A pattern of thin white diagonal lines is also visible across the image.

# **PUBLIC HEALTH ISSUES**

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# PREMATURE OVARIAN INSUFFICIENCY AND COVID-19 INFECTION. IS THERE A LINK?

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In this study we examined whether infection with COVID-19 virus or its vaccine could affect female fertility by causing premature ovarian insufficiency (POI). The pandemic peaked in our country from 2020 to 2021. We reviewed the cases of idiopathic POI that were diagnosed at our department during the years 2020-2022. The cases of POI that were diagnosed during the years 2017-2019 were used as the control group. We counted 12 patients in the control group and 7 patients in the experimental group. No relation was noted between neither COVID-19 infection and POI, nor between vaccination against the virus and POI. Further investigation is needed on the topic with larger population and methodology that will exclude co-infection with other respiratory viruses.

## Key words:

Premature ovarian failure/insufficiency, COVID-19/ SARS-CoV-2 infection, atypical manifestations

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# A HIGH-RISK PREGNANCY IN AN ADOLESCENT COMPLICATED BY COVID19 INFECTION

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Adolescent pregnancy, according to the WHO definition, includes pregnant girls between the ages of 10 and 19. Apart from emotional and psychological specificity, adolescent pregnancy is different from adult pregnancy due to the patient's physical immaturity, premature maturation, nutritional status, socioeconomic factors, and carries with it an increased risk of poor maternal, fetal and neonatal outcomes. Adolescent pregnant women are at a higher risk of eclampsia, endometritis, systemic infections, as well as worse neonatal outcomes than older women in labor (20-24 years old). Premature births, intrauterine growth restriction (IUGR), low birth weight and other neonatal conditions appears often. Hypertension affects about 10-20% of adolescent pregnant women and is associated with significant maternal and fetal morbidity.

As a result of hypertension, we can have a premature birth that occurred on the spectrum of placental ischemic disease. Chronic hypertension increases the risk for gestational hypertension and preeclampsia, while hypertension during pregnancy is associated with an increased risk of future cardiovascular disease for both the mother and her descendant.

Case report : Pregnant woman A.P. age 17, was admitted to the maternity hospital for childbirth in the 36th week of pregnancy. In past medical history only horizontal nystagmus since birth. She denies other chronic diseases, family disease history and previous operation. Blood type "A" RhD (+). During the first trimester, appeared severe hyperemesis and low blood pressure (90/60 mmHg), episodes of syncope occurred several times, for which she was examined neurologically. After prescribing symptomatic and rehydration therapy, the patient's general condition improves.

In 26wg. patient reports fever (up to 38.6C), exhaustion and cough. Tested positive for Sars Cov2 infection. She was then treated with antibiotic, symptomatic and multivitamin therapy. During the infection, there was no need for oxygen therapy. In the post-covid phase, in a patient who is usually hypotensive is noticed elevated blood pressure level and she registered with slightly impaired uteroplacental blood flow. Treatment continues with antihypertensive (Methyl-dopa 3x1, Nifelat 3x1) and antiplatelet therapy. In 36th wg, patient going into spontaneous preterm labor and delivers live female child, body weight 3000 gr and AP grade 9/10.

The postpartum course of this adolescent girl, with cardiological monitoring, is proceeding smoothly. Conclusion: With intensive perinatalogical supervision and an individual, multidisciplinary approach to the patient, even in adolescent pregnancies with additional high risk, a positive maternal and neonatal outcome can be achieved.

## Key words:

adolescent pregnancy complicated by covid19 infection

## References:

Leftwich HK, Alver MV. Adolescent Pregnancy. *Pediatr Clin North Am.* 2017 Apr ; 64(2):381-388

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# PREVALENCE OF ANXIETY AND DEPRESSION AND QUALITY OF LIFE IN WOMEN WITH MAYER ROKITANSKY KUSTER HAUSER (MRKH) SYNDROME IN MALAYSIA

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Adolescent pregnancy, according to the WHO definition, includes pregnant girls between the ages of 10 and 19. Apart from emotional and psychological specificity, adolescent pregnancy is different from adult pregnancy due to the patient's physical immaturity, premature maturation, nutritional status, socioeconomic factors, and carries with it an increased risk of poor maternal, fetal and neonatal outcomes. Adolescent pregnant women are at a higher risk of eclampsia, endometritis, systemic infections, as well as worse neonatal outcomes than older women in labor (20-24 years old). Premature births, intrauterine growth restriction (IUGR), low birth weight and other neonatal conditions appears often. Hypertension affects about 10-20% of adolescent pregnant women and is associated with significant maternal and fetal morbidity.

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The postpartum course of this adolescent girl, with cardiological monitoring, is proceeding smoothly.

Conclusion: With intensive perinatalogical supervision and an individual, multidisciplinary approach to the patient, even in adolescent pregnancies with additional high risk, a positive maternal and neonatal outcome can be achieved.

## Key words:

adolescent pregnancy complicated by covid19 infection

## References:

Leftwich HK, Alver MV. Adolescent Pregnancy. *Pediatr Clin North Am.* 2017 Apr ; 64(2):381-388

# ASSOCIATION BETWEEN CHLAMYDIA TRACHOMATIS, NEISSERIA GONORRHEA, MYCOPLASMA GENITALIUM, AND TRICHOMONAS VAGINALIS AND SECONDARY INFERTILITY IN CAMEROON: A CASE CONTROL STUDY

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**Objective:**Data on the prevalence and etiology of infertility in Africa are limited. Secondary infertility is particularly common, defined as the inability of a woman to conceive for at least one year following a full term pregnancy. We describe a prospective study conducted in Cameroon designed to test the hypothesis of an association between common treatable sexually transmitted infections (STI): Chlamydia trachomatis (CT), Neisseria gonorrhoeae (NG), Mycoplasma genitalium (MG), and Trichomonas vaginalis (TV) and secondary infertility in women.

**Methods:**In this case control study, we enrolled women in Fako Division, Cameroon between November 2017 and December 2018 with secondary infertility (cases) or current pregnancy (controls). We conducted a baseline survey to collect sociodemographic, and sexual and medical history information. Nucleic acid amplification testing using Aptima (Hologic, San Diego, CA, US) was performed on endocervical swabs for CT, NG, MG, and TV. Multivariable logistic regression was used to assess the relationship between active STI and secondary infertility.

**Results:**A total of 416 women were enrolled: 151 cases and 265 controls. Compared to controls, cases were older (median age 32 vs 27 years) and had more lifetime sexual partners (median 4 vs 3) ( $p < 0.001$ ). Cases were more likely to report dyspareunia, abnormal menses, prior miscarriage, and ectopic pregnancy (all  $p < 0.05$ ). STI positivity was not significantly different among cases and controls (2.7% vs 5.4% for CT, 1.3% vs 2.9% for NG, 6.0% vs 7.0% for MG, respectively), with the exception of TV which was more common in pregnant controls (0.7% vs 5%;  $p = 0.02$ ).

## Key words:

STI, secondary infertility, women

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# THE NEED FOR ACUTE TREATMENT OF HYMENAL ATRESIA IN THE NEWBORN

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## Introduction:

Gynatresias are defects of the permeability of the genital tract. They are the most common malformations of the genital tract. Suspicion of them should already be expressed in a newborn if there is no cervical mucus in the vulva. However, the definitive diagnosis and treatment are usually made at the time of puberty, when mucus retention (mucocolpos) and menstrual blood retention (hematocolpos) begin. We divide gynatresia according to the height of the obstruction, the most common is hymenal atresia with hematocolpos.

## Case report:

Our case report describes a case of gynatresia, which had to be treated acutely already in the early neonatal age. Little girl E.H. was delivered vaginally in the 39th week of pregnancy. Labor was induced because of polyhydramnion. A cystic mass in the small pelvis and dilatation of the calico-pelvic system of the left kidney were already present prenatally as part of ultrasound examinations. The somatic finding after delivery was dominated by a large cystic resistance of the small pelvis measuring 74x42x60 mm, which caused obstruction of the urinary tract with hydronephrosis on the left. This cystic formation of the small pelvis had prolapsed in the vaginal area. During the gynecological examination, a diagnosis of hymenal atresia with mucocolpos and a mucometra was suspected. Subsequently, a small resistance incision was made in the area of the external genitalia, from which a milky whitish content of 75 ml flowed out under pressure. In the following days, prophylactic antibiotic coverage was administered to newborn girl because of hydronephrosis on the left. During further checks, the incision was free, the uterus was small without dilatation. In the nephrology appointments after the procedure, the dilatation of the calico-pelvic system of the left kidney is corrected to normal size.

## Conclusion:

Definitive diagnosis and treatment of hymenal atresia with mucocolpos or hematocolpos should be left to the period of puberty. In the case of urinary tract obstruction due to mucocolpos/ mucometra in the newborn age, acute treatment of this developmental defect is necessary to prevent irreversible damage of the renal function.

## Key words:

Hymenal atresia, Mucocolpos, Mucometra, Newborn, Hydronephrosis

## References:

Child Gynaecology, Hořejší, Kosová a kol., second edition.

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# SIGNIFICANCE OF COLPOSCOPY FINDING IN DIAGNOSIS OF HPV INFECTIONS IN POPULATION OF WOMEN WITH NEGATIVE CYTOLOGICAL TEST

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Human papillomavirus is a sexually transmitted viral infection that is directly related to the occurrence of cervical intraepithelial neoplasia, and consequently cervical cancer.

Most of these infections are asymptomatic and can go away without treatment. Some of these infections if not treated can progress to cervical cancer.

The goal of preventive gynecological examinations is early detection and treatment of changes on the cervix that have the potential to progress to more severe dysplasia (CIN 1-3).

Cytological screening smear (PAP test) provides information on the appearance of squamous and cylindrical cells of the cervix, and can indirectly indicate the presence of HPV infection in the mentioned place.

Colposcopy, as a diagnostic method, provides information on the changes present in cervical mucus, but this examination can only be used to suspect infection with the HPV virus.

This work included 50 women who had a regular cytological smear (PAP test II gr), and colposcopically seen change in the sense of chronic cervicitis, ectopia or AW epithelium. They underwent HPV smear using the PCR method, and it was analyzed how many of them with a regular cytology had HPV infection with some of the high-risk types of viruses, which types of viruses were the most prevalent and which colposcopic images.

## Key words:

HPV infection, colposcopy, PAP test, dysplasia cervicis, cervical cancer

## References:

N. Radunović, Humana reprodukcija, Medicinski fakultet, Beograd 2. A.M. Jastreboff, T Cymet; Role of the human papilloma virus in the development of cervical intraepithelial neoplasia and malignancy; 3. Bzhalava, D; Eklund, C. Dillner, J. International standardization and classification of human papilloma virus types. Virology 2015.; 4. Della Fera, A. N; Persistent human papilloma virus infection.



# **CHILDHOOD (SEXUAL) ABUSE**

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# SEXUAL ABUSE PREVALENCE IN MEDICAL OFFICES FOR ADOLESCENTS. PROTOCOL APPLICATION EXPERIENCE IN SAN ROQUE MATERNITY AND CHILDREN'S HOSPITAL IN PARANÁ, PROVINCE OF ENTRE RÍOS, ARGENTINA.

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## Introduction

Sexual abuse affects girls and adolescents' comprehensive health.

## Objectives

- I. Estimate the sexual abuse prevalence in girls and adolescents who have attended to medical offices in San Roque Hospital in Paraná.
- II. Describe the studied population average age.

## Materials and methods

A descriptive research was performed.

## Methodology

Data was obtained from medical records from girls and adolescents who have had a consultation on demand between April 2010 and december 2022.

## Results

The data obtained was entered and tabulated in a Microsoft Excel form and the summary measures for quantitative variables and the frequencies of nominal variables were calculated. From 2500 medical reports studied, 100 cases of child and youth expressed sexual abuse were recorded. These cases represent 4.72% of all the consultations between April 2010 and December 2022. The average age of the patients who have had a consultation for expressed abuse was 11.68 from 2010 to june 2019; from june 2019 to december 2022 was 9,9 years old with an age range from 10 months to 19 years old. Two cases of abuse and human trade and one case with substance intoxication and suicide attempt were recorded. By assessing the medical reports, the scarce monitoring of the victims' comprehensive health was observed. Due to this, an observation design for the child and youth sexual abuse victims who have had a consultation was suggested.

## Key words:

Sexual Abuse, Protocol Aplicacion

## References:

<http://www.entrerios.gov.ar/copnaf/wp-content/uploads/2022/01/Protocolo-Interinstitucional-de-Actuacion-en-Casos-de-ASI-en-Entre-Rios.pdf>

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# FOREIGN BODY IN THE VAGINA IN AN EDUCATIONALLY NEGLECTED CHILD

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**Background:** Foreign body of the vagina causes various problems. A special case represents the foreign body of the vagina in children's age. Sometimes this occurs as a result of self-gratification. Increased self-gratification in children is the result of something that bothers them.

**Case report;** A 9-year-old girl accompanied by her father, reported to our institution for alleged placement of a foreign body in the vagina. From the anamnesis we learned that she is a child of divorced parents and lives with her father. Ultrasonically records two round anechogenic changes of about 8 mm. With a cystoscope under general anesthesia, we evidenced a plastic folded object. After removal, the patient was discharged from the ward in good condition. In further monitoring of the patient consulted psychologist and social worker. Conducted social and psychological assessment of the child. Elements of child neglect are recorded.

**Discussion:** A foreign body in the vagina in girls is special problem for a number of reasons. Pain, infection, damage reproductive system is the reason for the treatment of a gynecologist. Psychologist and a social worker play a major role in adequate treatment.

## **Key words:**

Foreign body, neglected child, vagina

## **References:**

1. Fatima M, Raman M. Developmental Stages of Social Emotional Development In Children, September 18, 2022; 2. Richard E. Behram, Robert M.K., Hal B.J. Nelson textbook of pediatrics; 17th ed, 3. Herman-Giddens ME. Vaginal foreign body and child sexual abuse. Arch Pediatr Adolesc Med. 1994;148:195–200.



**OBSTRUCTIVE  
(MULLERIAN)  
ANOMALIES**

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# VAGINOPLASTIC SURGERY IN RARE CASE OF CONGENITAL VAGINAL ATRESIA COMPLICATED WITH HEMATOCOLPOS – CASE REPORT

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**Background:** We report the uncommon case of a congenital vaginal atresia as a rare malformation classically and clinically pictured as a primary amenorrhea with chronic cyclic pelvic pain and importance of surgical treatment.

**Case:** 15-year-old girl with a primary amenorrhea associated to a cyclic pelvic pain, which examination objectified atresia of the lower third of the vagina complicated with hematocolpos. She has been diagnosed and treated only with incision in other institution a few months before but without establishment of regular menses. An atresia of approximately 2 cm was found on Ultrasound and MRI. Laboratory was in normal range. An urgent surgical treatment followed. Was performed transverse incision at the introital level and evacuated the blood collection. Then a “pull-through” vaginoplasty was done. The new introitus obtained was kept open by silicone vaginal probes lubricated with estrogen gel until re-epithelialization occurred.

**Summary and Conclusion:** Surgical treatment (vaginoplasty) aims to restore the integrity of the utero-vaginal tract, menstrual bleeding, satisfactory sex life and possibility of pregnancy for these patients.

## **Key words:**

vaginal atresia, vaginoplasty, hematocolpos

## **References:**

1. Pushkar P, Rawat SK, Chowdhary SK. Robotic approach to vaginal atresia repair in an adolescent girl. Urol Ann. 2015;7(3):396–8. [PMC free article] [PubMed] [Google Scholar]
2. Slaoui A, Benzina I, Talib S, Etber A, Zeraidi N, Lakhdar A, Kharbach A, Baydada A. Congenital vaginal atresia: about an uncommon case. Pan Afr Med J. 2020 Sep 17;37:69. doi: 10.11604/pamj.2020.37.69.21682. PMID: 33244332; PMCID: PMC7680234.
3. Callahan TL, Caughey AB. Philadelphia: Wolters Kluwer Health/Lippincott William & Wilkins; 2009. Blueprints obstetrics & gynecology. [Google Scholar]

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# DAVYDOV PROCEDURE FOR THE CREATION OF NEOVAGINA IN PATIENTS WITH MAYER-ROKITANSKY-KUSTER-HAUSER SYNDROME: ANALYSIS OF 17 CASES.

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The aim of this study is to report on anatomic outcomes following Davydov procedure for the creation of neovagina in patients with Mayer-Rokitansky-Kuster-Hauser (MRKH) Syndrome in a single referral center in Greece.

## Materials and Method

A retrospective analysis of prospectively collected data between 2012 and 2022 was performed. The anatomical outcomes were evaluated immediately postoperatively as well as 3,6,9,12,24 and 36 months after surgery.

## Results

The comprehensive search revealed 20 cases of interest with primary amenorrhea as the presenting symptom. The median patient age was 15 years (range 15-17) and 18 years (range 18-24) at presentation and at the time of surgery respectively. At presentation, the mean vaginal length was 1.5 cm. The use of dilators was recommended to all patients as the initial therapeutic approach instead of surgery. However, 17 patients (Group A) chose surgery and only 3 patients chose dilators (Group B). The median length of neovagina in Group A was 6.9 cm postoperatively (17 patients), 6.6 cm at 3 months (17 patients), 6.4 cm at 6 months (17 patients), 6.4 cm at 9 months (16 patients), 6.4 cm at 12 months (16 patients), 5.9 cm at 24 months (14 patients) and 6.3 cm at 36 months (7 patients). The median length of neovagina in Group B was 2 cm at 3 months (3 patients), 2.3 cm at 6 months (3 patients), 3.3 cm at 12 months (3 patients), 5.5 cm at 24 months (2 patients) and 6 cm at 36 months (1 patient). T-test demonstrated statistical significance at 3 months ( $P<0.0001$ ), at 6 months ( $P<0.0001$ ) and at 12 months ( $P<0.05$ ) postoperatively. Mean follow-up was 33 months for Group A and 36 months for Group B. No significant postoperative complications were recorded.

## Conclusions

Davydov procedure is an efficient method for the creation of neovagina in patients with MRKH Syndrome. It constitutes an alternative therapeutic approach in patients unwilling to use or unsatisfied from the use of dilators.

## Key words:

Davydov procedure, MRKH Syndrome, neovagina creation

## References:

Grimbizis GF, Gordts S, Di Spiezo Sardo A, Brucker S, De Angelis C, Gergolet M, Li TC, Tanos V, Brölmann H, Gianaroli L, Campo R. The ESHRE/ESGE consensus on the classification of female genital tract congenital anomalies. Hum Reproduction 2013 Aug;28(8):2032-44

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# SYMPTOMATIC UTERINE RUDIMENTS IN ADOLESCENTS WITH MAYER-ROKITANSKY-KÜSTER-HAUSER SYNDROME (MRKHS)

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**Introduction:** In clinical practice Mayer-Rokitansky-Küster-Hauser syndrome (MRKHS) is usually defined as a congenital absence of uterus and vagina (CAUV). However some patients can present with clinically relevant rudimentary uterine horns with functional endometrium.

**Subject:** The aim of the study was to report the clinical course of symptomatic uterine rudiments in adolescents with MRKHS.

**Materials and methods:** The study involved eight adolescents with MRKHS (four with MRKHS type 1, four with MRKHS type 2) that underwent surgery for symptomatic uterine horns between July 2012 and April 2022 in Division of Gynecology, University Hospital of Obstetrics and Gynecology, Poznan University of Medical Sciences, Poland. The records of the patients were retrospectively analyzed.

**Results:** All the patients sought for medical help due to recurrent abdominal pain. In four patients MRKHS was diagnosed in the course of diagnosis of recurrent pelvic pain at the age of 12.6-14.8 yrs. Six patients experienced bilateral pain, two had right-sided pain. The volume of the uterine horns and the volume of endometrial cavity within the horns, identified by imaging techniques (ultrasound, magnetic resonance imaging), ranged from 1.1 to 20.6 (mean 6.9) cm<sup>3</sup> and from 0.0 to 1.4 (mean 0.4) cm<sup>3</sup>, respectively. In one patient the right-sided horn was resected and the left-sided was preserved (the patient underwent vaginal dilation, surgical creation of proximal neovagina and herno-neovaginal anastomosis, that was successful and resulted in painless regular menstruation). In further seven patients uterine rudiments were resected bilaterally. In all patients resection was performed laparoscopically, one patient was diagnosed with endometriosis. The age at surgery ranged from 14.7 to 19.8 yrs. Histopathology confirmed the presence of endometrium in uterine rudiments on the side of the pain location in 71% of cases (10 of 14 symptomatic horns). Surgery resulted in complete pain relief.

**Conclusions:** In adolescents with MRKHS recurrent pelvic pain should prompt the diagnosis of functional uterine rudiments. Resection of symptomatic uterine horns in adolescence results in complete resolution of pelvic pain. In some patients, strongly desirous of menstruation, preservation of the uterine horn (horno-neovaginal anastomosis) can be cautiously attempted.

## Key words:

MRKH syndrome, mullerian anomalies, pelvic pain

## References:

Grimbizis GF, Mikos T, Papanikolaou A et al. Successful isthmo-neovagina anastomosis after Davydov's colpoptosis in Mayer-Rokitansky-Küster-Hauser syndrome patients with a functional rudimentary uterine horn. *J Minim Invasive Gynecol.* 2015;22:142-50. Marsh CA, Will MA, Smorgick N et al. Uterine remnants and pelvic pain in females with Mayer-Rokitansky-Küster-Hauser syndrome. *J Pediatr Adolesc Gynecol.* 2013;26:199-202. Rall K, Barresi G, Wallwiener D, Brucker SY, Staebler A. Uterine rudiments in patients with Mayer-Rokitansky-Küster-Hauser syndrome consist of typical uterine tissue types with predominantly basalis-like endometrium. *Fertil Steril.* 2013;99:1392-9.

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# OBSTRUCTED HEMIVAGINA IPSILATERAL RENAL AGENESIS (OHVIRA) SYNDROME – A RETROSPECTIVE COHORT ANALYSIS ON SABAH POPULATION

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OHVIRA (obstructed hemivagina and ipsilateral renal anomaly) is a rare condition which was first described in detail by Herlyn, Werner, and Wunderlich after whom it was initially named HWW syndrome. It is characterized by the triad of uterine didelphys, obstructed hemivagina, and ipsilateral renal anomaly. Patients usually present after menarche whereby they commonly presents with dysmenorrhea and some with lower abdominal pain, pelvic mass, urinary retention, frequent pelvic or urinary infection.

The incidence is unknown but quoted at 0.1%-3% and the etiology is poorly understood. In most OHVIRA cases, the septum is thick and limit the hemivagina to distend resulting in retrograde flow leading to endometriosis, pelvic collection and pain. Occasionally the septum may be thin and fenestrated resulting only partial obstruction and more vague to no symptoms which delay the diagnosis.

## Method and Analysis

We carried out a retrospective cohort analysis of all patients diagnosed with OHVIRA in our institution, Sabah Women and Children's Hospital (SWACH) which is the main tertiary center in the state of Sabah, Malaysia from year 2013 -2022. We collect data by reviewing patients' case notes. The study is registered under National Medical Research register, NMRR with the protocol ID of (RSCH ID-22-05033-WNM)

The objective of this study is to look into the demographic characteristics, main presenting complaints, timeliness of diagnosis and treatments given. We also look into the difference in adolescent group (age 10-19) compare to non-adolescent group (20 years old and more) in terms of their common symptoms, severity of symptoms and treatment required.

## Conclusion

The presenting age and presenting complaints commonly varies and some may mimic common gynaecological or surgical pathology which made diagnosis difficult and delayed. Some patients was incidentally diagnosed while being managed for other problems and it is not uncommon that patients underwent unnecessary surgery and referral to different field before correct diagnosis is made. Our data shows a statistically significant in adolescent group presenting with acute abdomen compare to non-adolescent group which implies the importance of early diagnosis to reduce morbidity.

Timely diagnosis and appropriate management will improve quality of life as well as preserve the fertility of these young ladies hence the importance of having awareness of this disease to avoid delay in diagnosis could not be emphasized further.

## Key words:

ohvira, obstructed hemivagina ipsilateral renal agenesis syndrome

## References:

1. Jha S, Abdi S. Diverse Presentations of OHVIRA Syndrome: A Case Series. [Online] 2021. <https://doi.org/10.1177/0009922820953582>.
2. Herlyn-Werner-Wunderlich syndrome: a rare cause of pelvic pain in adolescent girls. Aveiro AC, Miranda V, Cabral AJ, Nunes S, Paulo F, Freitas C. bcr0420114147, s.l. : BMJ Case Rep., 2011, Vol. 2011. 3. Obstructed Hemivagina with Ipsilateral Renal Anomaly. Santos XM, Dietrich JE. 29:7-10, s.l. : J Pediatr Adolesc Gynecol, Feb 2016. 4. Jang Hee Han, Yong Seung Lee, Young Jae Im, Sang Woon Kim, Mi-Jung Lee, Sang Won Han. Clinical Implications of Obstructed Hemivagina and Ipsilateral Renal Anomaly (OHVIRA) Syndrome in the Prepubertal Age Group. PLOS ONE. [Online] November 18, 2016. <https://doi.org/10.1371/journal.pone.0166776>

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# CHALLENGES IN THE MANAGEMENT OF CERVICOVAGINAL ATRESIA

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**Introduction:** Cervicovaginal atresia with functioning endometrium, typically presented with distressing cyclical pain with primary amenorrhea.

**Objective:** To describe challenges in management of three cases of cervicovaginal atresia presented in PAG Unit in a referral centre.

**Methodology:** Cases were identified from medical files in PAG Unit, HCTM UKM.

## Case reports:

Patients aged between 11 to 25 years old and diagnosed to have cervicovaginal atresia. All cases were presented with cyclical abdominal pain. An 11-year-old girl were given menstrual suppression with continuous progestogen for a year. Upon changing to combined oral contraceptive pills (COCP), started to have recurrent hematometra and underwent uterovaginal anastomosis for drainage. An intellectually challenged 13-year-old girl had continuous progestogen but developed rashes thus changed to COCP. Unfortunately, patient developed transaminitis and underwent hysterectomy. Lastly, a 25-year-old female was diagnosed when she was 13 and had drainage for intrauterine collection. Subsequently menses were suppressed with continuous progestogen followed by COCP. As she planned to get married and wanted to have vaginal intercourse in the future, we created a neovagina. She had monthly menses however she required weekly "intracervical" dilatation with the uterine sound to maintain patency.

## Conclusion:

Cervicovaginal atresia requires prompt intervention. Challenges in management require individualization and aim to improve quality of life.

## Key words:

cervicovaginal atresia;cervical agenesis;congenital malformation;obstructive Mullerian anomalies

## References:

Mikos T, Gordts S, Grimbizis GF. Current knowledge about the management of congenital cervical malformations: a literature review. *Fertility and Sterility* 2020;113(4):723-732. Mehta A, Zuckerman A, Davis AJ. Cervical Atresia: A Challenging Diagnosis. *Journal of Pediatric and Adolescent Gynaecology* 2006;19(2):155. Fujimoto VY, Miller JH, Klein NA, Soules MR. Congenital cervical atresia: report of seven cases and review of the literature. *Am J Obstet Gynecol*. 1997 Dec;177(6):1419-25. doi: 10.1016/s0002-9378(97)70085-1. Rock JA, Roberts CP, Jones HW Jr. Congenital anomalies of the uterine cervix: lessons from 30 cases managed clinically by a common protocol. *Fertil Steril*. 2010 Oct;94(5):1858-63. doi: 10.1016/j.fertnstert.2009.10.024.

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# THE INTRODUCTION OF MALECOT CATHETER AND MODIFIED CORRUGATED STENT INSERTION IN TRANSVERSE VAGINAL SEPTUM AND ITS OUTCOMES

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Case series of six case reports using laparoscopic assisted vaginoplasty in definitive surgery of transverse vaginal septum and vaginal atresia. This review is intended to set out the current alternative surgical approach in managing high septa, restenosis of transverse vaginal septum after primary surgery; young age girl who was not ready for self vaginal dilation. Laparoscopic assisted vaginoplasty is useful for resection of high septa and reduce the risk of bladder or rectum injury. Very thick septa and partial vaginal agenesis are managed in a similar approach in these cases. The introduction of Malecot catheter and modified corrugated stent in these cases helps in preventing vaginal restenosis. If daily vaginal dilation is not feasible at such young age; failed medical suppression prior to definitive surgery or high vaginal septum, malecot catheter insertion can be considered. Chronological events were described involving patients' first presentation, interventions prior to definitive surgery and the distress endured along the treatment. A successful pregnancy was reported in this review in whom was diagnosed to have incomplete transverse vaginal septum and primary subfertility for 7 years after laparoscopic assisted resection of the transverse vaginal septum and temporarily insertion of the modified corrugated stent.

## Key words:

Transverse Vaginal Septum, Vaginal Atresia, Laparoscopic Assisted Vaginoplasty, Obstructive Mullerian Anomaly

## References:

ASRM Mullerian anomalies classification 2021 Samantha M. Pfeifer, M.D., Marjan Attaran, M.D., Jessica Goldstein, R.N., Steven R. Lindheim, M.D., M.M.M., John C. Petrozza, M.D., Beth W. Rackow, M.D., Evan Siegelman, M.D., Robert Troiano, M.D., Thomas Winter, M.D., Andrea Zuckerman, M.D., and Sarah D. Ramaiah, M.S.Ed. Miller R, Breech L. Surgical correction of vaginal anomalies. Clin Obstet Gynecol. 2008;51(2):223-236.

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# VAGINOSCOPIC INCISION OF AN OBLIQUE VAGINAL SEPTUM BEFORE MENARCHE

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**Study objective:** Oblique vaginal septum syndrome (OVSS) is seen mainly in the postpubertal female population that presents with periodic abdominal pain and a mass secondary to hemi hematoocolpos[1]. There are many previous reports of surgery in patients with menstruation, but few reports in girls diagnosed before menarche. This study aims to demonstrate a “No-Touch” technique for vaginoscopic incision of the OVSS using a resectoscope in a girl before menarche, who has thinner oblique vaginal septum.

**Methods:** We successfully carried out a “No-Touch” technique for vaginoscopic incision of the oblique vaginal septum using a resectoscope in a girl before menarche. Surgical procedure has 4 key steps: 1. Diagnostic vaginoscopy and hysteroscopy: Using a 4.5 mm out sheath hysteroscope confirmed that the right vaginal wall was normal and the oblique vaginal septum on the left side of the vagina, at the same time the right cervix was viewed and the right uterine cavity was unicornous with a single fallopian tubal ostium. 2. Incision of the oblique vaginal septum using a resectoscope: The oblique vaginal septum was incised longitudinally, up to the right external cervical os and then down to the low edge of the septum. After partial incision, large amount of mucus flowed out of from the cavity behind the oblique septum and the left external cervical os was visualized. 3. Prevention of adhesion: After the complete incision of the septum, a 14-Fr Foley catheter was placed inside vagina and the balloon was inflated with 40 ml air to prevent adhesion between the wounds of the incised oblique vaginal septum, and the balloon was kept in situ for 2 days postoperatively[2]. 4. Following-up vaginoscopy was performed two months postoperatively to rule out any adhesion between wounds of the incised septum.

**Results:** The procedure was successfully carried out, and there was no tearing of immature vaginal wall and no postoperative pain. Preoperative symptom was disappeared postoperatively. Following-up vaginoscopy two months postoperatively verified that there was no adhesion between the wounds of the incised oblique vaginal septum. And her menarche started at 19 months after surgery.

**Conclusion:** Vaginoscopic incision of the oblique vaginal septum using “No-Touch” technique is safe, minimally invasive and effective in girls before menarche, which avoids injury to the immature vaginal walls and postoperative pain. This technique reminds us of thinking the possibility and advantages of treating OVSS before menarche.

## Key words:

oblique vaginal septum syndrome; vaginoscopic incision; No-Touch technique; OVSS before menarche.

## References:

[1] Johary J, Xue M, Xu B, et al. Use of hysteroscope for vaginoscopy or hysteroscopy in adolescents for the diagnosis and therapeutic management of gynecologic disorders: a systematic review. *J Pediatr Adolesc Gynecol.* 2015;28:29e37. [2] Cheng C, Subedi J, Zhang A, et al. Vaginoscopic incision of oblique vaginal septum in adolescents with OHVIRA syndrome. *Sci Rep.* 2019;9, 20042.

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# THE FERTILITY RESERVATION AND REPRODUCTIVE OUTCOMES OF CONGENITAL CERVICAL MALFORMATIONS

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## Objective

Congenital cervical malformations (CCMs) are the most challenging and complicated entity of female lower genital tract anomalies. They may cause troublesome symptoms in adolescent girls after puberty and have substantially negative impact on their reproductive potential. Accurate diagnosis and proper treatments are often delayed. The consistent retrograde menses may cause secondary endometriosis, which is a devastating factor affecting the patients' fertility reservation. The initial experiences of conservative surgeries for treating CCMs are not satisfactory and hysterectomy has been the standard treatment [1]. With the advancements in surgical techniques, conservative surgeries have been applied successfully [2]. Preserving the patients' fertility and enhancing reproductive come to be the new challenge in the recent years [3].

## Methods

In the present single-center, retrospective study, we enrolled 130 cases diagnosed of CCMs and surgically treated at Peking Union Medical College Hospital from January 1, 2008, and October 31, 2022. The concomitant anomalies, surgical outcomes, pelvic endometriosis (PEM) and reproductive outcomes were analyzed.

## Results

Firstly, 21.5%, 15.4% and 11.5% of CCMs cases are complicated with uterine, urinary and skeletal system malformations respectively. Since 2018, patients of younger age and shorter time lag were presented for treatment and significantly more conservative surgeries were conducted successfully. Among patients have uterus preserved, 74% were cervical obstruction, the patients were younger and earlier seeking for treatment and the severity of PEM was milder. Moderate to severe PEM were observed in 39% of our cases. The type and incidence of PEM differs in various CCM subtypes. Besides, the severity of PEM was milder in cervical obstructions and patients of younger age and earlier receiving surgery. CCM subtype is the only predictor of PEM, the risk of PEM is 7 and 4.5 times of cervical obstructions in the other two groups. 4 term, live newborns were delivered by our CCM patients, 3 of them are diagnosed of cervical obstruction, most of the cases received repeated surgery, and PEM was generally presented. Except for 1 spontaneous pregnancy 1 month after cervical dilation, the rest were all conceived with the help of artificial reproductive technologies. Cervical insufficiency was not present and all cases were delivered by Cesarean section.

## Conclusion

CCM subtype, PEM and early treatment are factors influencing the final preservation of uterus. With proper conservative surgical reconstruction, long term management of PEM, fertility reservation could be promoted nowadays

## Key words:

Congenital cervical malformations, cervical agenesis/ dysgenesis, conservative surgery, endometriosis, fertility reservation

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# VAGINAL DOUBLE CROSSPLASTY: STEP-BY-STEP

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Supervisor

**Introduction:** Transverse vaginal septum (TVS) is a rare condition which described as an obstruction of the vaginal canal as a result from failure of recanalisation of vaginal plate following fusion of müllerian duct and urogenital sinus. This condition causes obstruction which can be presented as acute abdomen or acute urinary retention in adolescent with primary amenorrhea. Presence of hematocolpos from transabdominal ultrasound without bluish discolouration of vaginal bulge differs TVS from imperforate hymen. Following its acute presentation, TVS will require emergency surgery for drainage of hematocolpos in which the recommended procedure is double crossplasty of the vaginal septum. This procedure has proven to be successful in preventing the restenosis of the repaired vaginal canal with minimal complications. In moderate and high septum, regular vaginal dilatation is helpful to ensure the patency of vaginal canal.

**Objective:** This video is intended to guide the clinicians especially those who are currently under Paediatric Adolescent Gynaecology (PAG) training all over the world.

**Case:** It was a case of a girl with low transverse vaginal septum who presented with acute urinary retention. The diagnosis was made following abdominal and perineal examinations as well as transabdominal ultrasonography. She required an emergency surgery; Vaginal Double Crossplasty. The procedure was successful and the girl eventually had her first menstruation one month later.

**Conclusion:** Due to the simplicity of the technique, we hope that this video may equip the gynaecologist in performing the surgery to help our girls with obstructive müllerian tract problems.

**Key words:**

double crossplasty transverse vaginal septum

**References:**

Management of a transverse vaginal septum complicated with hematocolpos in an adolescent girl: Case report, *Int J Surg Case Rep.* 2020; 77: 748–752. Published online 2020 Nov 20. doi: 10.1016/j.ijscr.2020.11.098; Double Cross Plasty for Management of Transverse Vaginal Septum: A 20-Year Retrospective Review of Our Experience, *J ObstetGynaecol India.* 2015 May; 65(3): 181–185. Published online 2014 Jun 27. doi: 10.1007/s13224-014-0542-3; Management of reformation of imperforate hymen following hymenectomy by double cross plasty surgery, MohdFairudziAfzanizam Salleh and Roziana Ramli, <http://dx.doi.org/10.1136/bcr-2021-247589>

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# SURGICAL TREATMENT OF RARE CASES OF GENITAL ABNORMALITIES IN ADOLESCENT GIRLS – OUR EXPERIENCE

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Congenital abnormalities of genitals in girls is one of the most complicated problems of child and adolescent gynecology. The incidence - 7% in females.

In the department of pediatric and adolescent gynecology we deal with various sex organ anomalies; the most complex ones often require additional means of evaluation and carefully planned surgical treatment and follow up.

Over the past 20 years we performed surgical treatment of 205 girls with congenital anomalies, 62,92% were complex uterovaginal anomalies.

Hemi-uterus with non-communicative functional horn – U4aC0V0 - is a rare pathology, only 5,85%. This malformation presents with severe dysmenorrhea from menarche and requires surgical treatment. Diagnostic methods -ultrasound, 3D ultrasound, MRI. Surgical treatment - removal of the rudimentary horn of the uterus laparoscopy. Histological samples of the removed part often show adenomiosis, thus a concern about endometriosis may occur.

Bicorporeal uterus with hemiocluded vagina (OHVIRA) – U3C2V2- not very rare case. We have 36,58% cases. We perform plastic of the obstructed vagina wall to provide blood flow without any difficulties.

Bicorporeal uterus may be accompanied by cervical atresia -U3C3V0, resulting in haematometra and haematocervix. We had 17,07% of cases.

The purpose of surgery is to create an external opening of the cervical canal - a difficult task with high risk of stricture and inflammatory complications.

In 71,4% of cases, we managed to do it from the vagina In 28,6% of cases, due to technical difficulties, the uterus was removed with an atretic cervix on one side. The normal uterus and cervix remained intact.

One of the most complicated matters is selecting a treatment strategy and conducting surgical intervention in girls with anorectal atresia, which may be accompanied by defects in development of the spine, kidneys as well as the internal and external sex organs. Girls with this pathology have already undergone 3 or 4 phase surgical interventions dealing with anorectal atresia prior to the onset of puberty, when such anomalies may begin presenting. All of them needs a multi-disciplinary approach including a surgeon, urologist and gynecologist to properly identify, select and conduct surgical intervention.

Conclusions:

- The treatment of patients with rare genital anomalies requires an experienced team.
- In cases with retrograde menstrual leakage endometriosis prevention measures must be taken.
- The evaluation of a patient with congenital genital anomaly should include a detailed medical history, physical examination, imaging, which helps to clear understanding of the anomaly, mobilization of appropriate surgical resources and sufficient surgical intervention.

## Key words:

congenital genital abnormalities, uterovaginal anomalies, dysmenorrhea

## References:

Müllerian agenesis: diagnosis, management, and treatment. ACOG Committee Opinion No. 728. American College of Obstetricians and Gynecologists. ObstetGynecol 2018;131:e35–42

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# INTERDISCIPLINARY APPROACH IN GIRLS AND ADOLESCENTS WITH UROGENITAL CONDITIONS IN A TERTIARY PEDIATRIC HOSPITAL IN SWITZERLAND – FIRST EXPERIENCES

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## Introduction

At the University Children's Hospital Zurich we treat about 600 girls with urogenital conditions yearly. Historically, our clinic is run by pediatric and adolescent gynecology (PAG) trained pediatricians. Generally, these pediatricians do not have any surgical training. In order to improve our expertise and quality of care for girls with congenital or acquired urogenital conditions, we established an interdisciplinary clinic involving a pediatric urologist and a PAG trained pediatrician.

## Methods and Results

Our interdisciplinary urogynecology clinic was established in 2019. The number of patients increased significantly each year, starting with 51 patients in 2020 and 125 patients in 2022. Last year, we mostly saw patients with ovarian cysts (28), followed by the hymenal variations (26), complex malformations (18) and ovarian teratomas (15). Common gynecological questions and potential interventions can be addressed in the same consultation. If an operation is necessary, the surgery and follow-up is conducted by members of the same team.

## Discussion

Interdisciplinary consultations allow an integral approach leading to more direct decisions and an optimal care for the patient. The pediatric urologist can fill the gap for surgical interventions and complete the treatment in the pediatric setting. This management is another step in optimizing PAG in pediatrics.

## Key words:

urogynecology, interdisciplinary approach, optimizing care in PAG

## References:

As the presentation emphasizes on the experience of a newly designed interdisciplinary clinic there are no specific references for the abstract

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# HERLYN-WERNER SYNDROME: A RARE OHVIRA VARIANT NOT TO BE FORGOTTEN. HERLYN-WERNER SYNDROME: A RARE OHVIRA VARIANT NOT TO BE FORGOTTEN.

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Firstly described in 1971 by U. Herlyn and H. Werner (Gottingen, Germany), Herlyn-Werner Syndrome is a rare variant of OHVIRA Syndrome with various uterine duplicities, unilateral renal agenesis and ipsilateral Gartner cyst, communicating with the vagina. Typical clinical picture shows solitary kidney, ipsilateral pelvic mass, that may be infected, and uterine duplicity. Early marsupialization of the cyst is the treatment of choice.

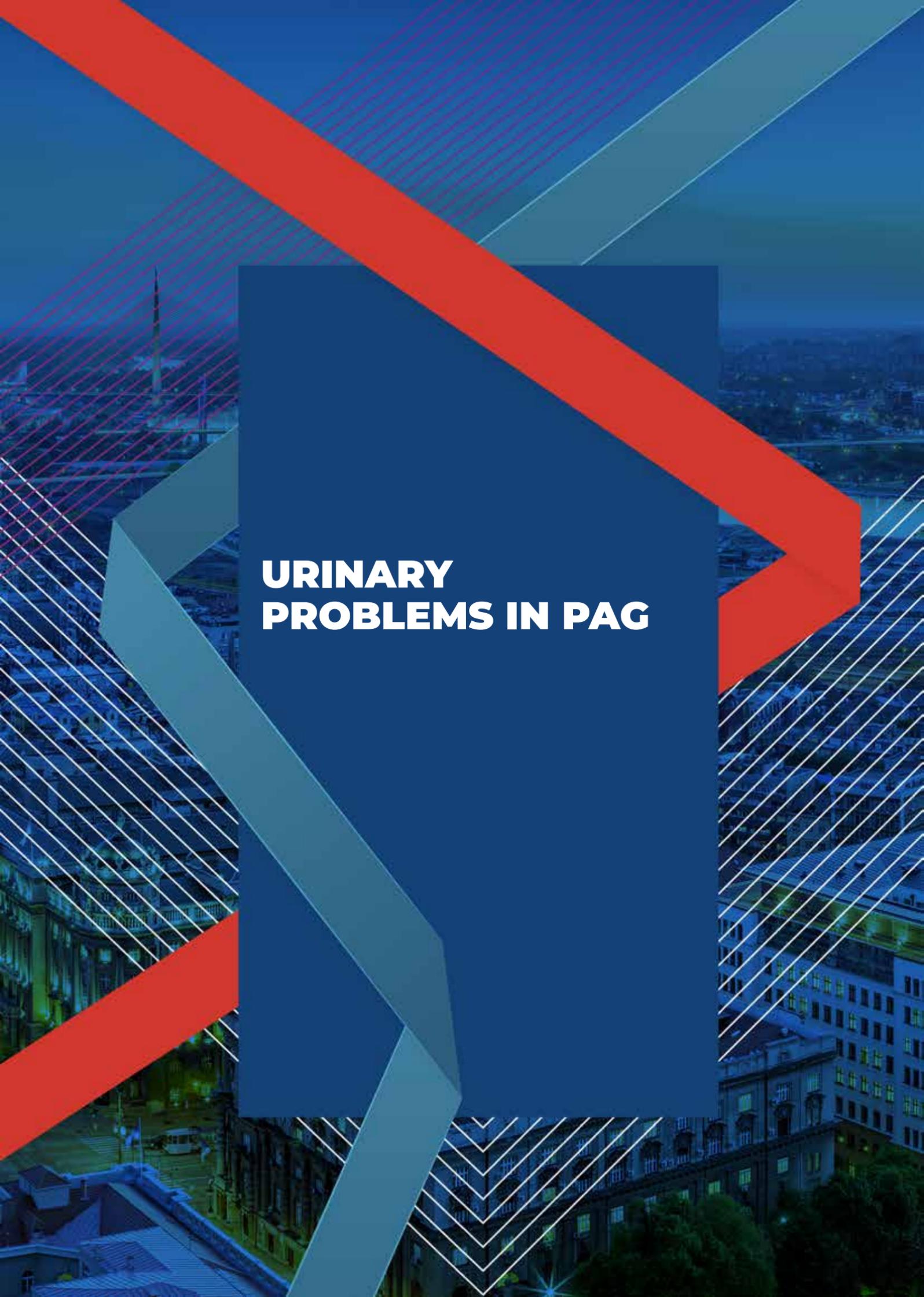
F.C. aged 46, 2 children and a well-known right renal agenesis on October 13th, 2022, was hospitalized in Santa Maria Nuova Hospital because of pelvic pains, acute abdomen and a right pelvic mass. Pelvic ultrasonography and computed axial tomography showed a multiloculated right pelvic mass with corpuscular content suggesting a pelvic abscess. Physical exam showed a right taut-elastic vaginal bulging. Taken to theatre, laparoscopy showed bicornuate uterus with, on its right till the Douglas pouch, a retroperitoneal pelvic mass. Incised and drained transvaginally, it yielded a big amount of mucopurulent fluid and disappeared at pelvic examination. Postoperative course was uneventful, with full relief of symptoms. Dismission from hospital occurred on postoperative day 2 and the patient was lost at follow up.

## Key words:

Herlyn-Werner syndrome, renal agenesis, mullerian anomalies

## References:

Herlyn U, Werner H: Simultaneous occurrence of an open Gartner-duct cyst, a homolateral aplasia of the kidney and a double uterus as a typical syndrome of abnormalities. *Geburtshilfe und Frauenheilkunde* 1971; 31(4):340-347



**URINARY  
PROBLEMS IN PAG**

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# HEMATOCOLPOS/HEMATOMETRA CAUSING URINARY RETENTION IN A 13-YEAR-OLD GIRL: A CASE REPORT

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**Background:** Human papillomaviruses (HPV) are one of the most frequent causes of cervical, Background: Imperforate hymen usually manifests during adolescence as hematocolpos and probably hematometra, which both result clinically in painful amenorrhea. The diagnosis is primarily clinical and can be confirmed through ultrasound or magnetic resonance. We present an unusual case of hematocolpos and hematometra in a healthy adolescent female, causing urinary retention.

**Case presentation:** A 13-year-old patient, without menarche, presented to our department complaining of lower abdominal pain and urinary retention. The patient was catheterized, and 400 mL of urine were collected with no signs of urinary tract infection. The examination of external genitalia revealed an imperforate hymen. Magnetic resonance imaging was performed, revealing a substantial distension of the entire vagina due to hematocolpos, dilation of the uterine cavity due to hematometra, as well as a low-grade dilatation of the left kidney pelvis. Opening of the hymen was performed, which led to remission of all symptoms and the onset of normal menstruation.

**Summary and Conclusion:** In patients with absence of menarche and cyclic menstrual pain, an appropriate examination should be performed to rule out the existence of imperforate hymen. Hematocolpos and hematometra could cause urinary symptomatology. This is very important since untreated urinary retention can lead to bladder or kidney damage

## Key words:

Keywords: abdominal pain; hematometra; hematocolpos; imperforate hymen; urinary retention

## References:

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The background is a night-time aerial view of a city. A prominent cable-stayed bridge with many red cables is visible in the upper left. The city lights are visible in the lower right. Overlaid on the image is a large, dark blue square. Inside this square, the words "GENDER ISSUES" are written in white, bold, sans-serif capital letters. The square is partially framed by a thick red diagonal band and a grey diagonal band.

# **GENDER ISSUES**

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# COMPLETE ANDROGEN INSENSITIVITY SYNDROME IN TWO SISTERS

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Complete androgen insensitivity syndrome (CAIS) is a disorder of sexual development (1). Instigated by a mutation in the androgen receptor gene, followed by deficient action of androgens and female phenotype (2). Patients with CAIS are phenotypically female, having 46, XY karyotype and testis (3). We report a case of two 46XY siblings with CAIS. A 17-year-old girl was admitted to the gynaecology clinic because of primary amenorrhea. She had two younger sisters, one aged 15 with regular menstrual cycles and the other aged 14 with primary amenorrhea.

The sisters with primary amenorrhea were phenotypically female, their external genitalia and breast development appeared as normal feminine structures. Nevertheless, their uterus, pubic and axillary hair were absent. They had presence of inguinal masses and high level of serum testosterone.

Gonadectomy was performed in both sisters; in the younger at the age of 16, when finished adequate feminization. Histopathology tests in both showed presence of fibrosis and Leydig cell hyperplasia which is consistent with CAIS. In one gonad of the younger sister, the large cell calcifying Sertoli cell tumour cells were revealed. Estradiol replacement therapy was prescribed in both of the patients.

## Key words:

Complete androgen insensitivity, siblings

## References:

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# SITUATION OF YOUNG TRANSGENDER PERSONS IN POLAND VS WORLD

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Every day transgender people, and in particular young transgender people, are exposed to less favorable treatment because of gender identity bias. The binding scheme of the binary system of perceiving gender and the scheme of roles commonly recognized as male and female created for them create an image and attitude in society towards people who do not fit into the dichotomous division of gender.

Understanding and acceptance for young people transgender in Poland in society manifests itself in numerous discrimination and hate crimes - transphobia. These situations are divisive, causing high levels of fear, anxiety, depression, stress, distrust and anger in the people who are at risk of experiencing them; this also affects their families and friends. It is unacceptable that transgender people choose to live in hiding to avoid violence. People must be able to live freely and securely regardless of how they express their gender or whether they are perceived as transgender. The conducted research shows the degree of transphobia compared to other countries, low quality of life and a high rate of depression or suicide attempts in Polish young transgender people.

Poland is one of the most homophobic and transphobic countries in the EU. We need to talk about LGBT mental health. The health of young people is one of the key aspects of the proper functioning of society.

## **Key words:**

young people, transgender, LGBT, quality of life

## **References:**

Grabski B, Mijas M, Dora M, Iniewicz G. Dysforia i niezgodność płciowa. PZWL Wydawnictwo Lekarskie, Warszawa 2020. Winter S, Diamond M, Green J, Karasic D, Reed T, Whittle S, Wylie K. Transgender people: health at the margins of society. [www.thelancet.com](http://dx.doi.org/10.1016/S0140-6736(16)00683-8) Published online June 17, 2016 [http://dx.doi.org/10.1016/S0140-6736\(16\)00683-8](http://dx.doi.org/10.1016/S0140-6736(16)00683-8).

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# COMPARISON OF CASES OF INTERSEX CONDITION AND GENDER DYSPHORIA DIAGNOSED DURING ADOLESCENCE

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Intersex conditions or gender atypicalities are terms used for children who are born with physical sex characteristics that are either female and male at the same time, or neither male nor female, or are partially male or female. These conditions can manifest through primary sex characteristics (such as internal and external sex organs and chromosomal and hormonal structure) and/or secondary characteristics. There are over 40 types of intersex variation, with different causes ranging from genetic, chromosomal, anatomical and hormonal. It is less known that intersex conditions can be diagnosed for the first time in adolescence or adulthood. Psychiatric psychological support in these conditions is extremely important both for interventions in overcoming the “diagnosis crisis” for the adolescent and family (shock, anxiety and uncertainty), and for support during medical procedures. Although these adolescents do not primarily have a problem with gender identity, the situation is further complicated by the possibility of gender conversion in the future in some cases. In this case, we present our work with an adolescent girl with androgen insensitivity syndrome (AIS), which was first diagnosed in adolescence. As a comparison, we present an adolescent girl with the problem of gender dysphoria and discuss the differences in the approach to interventions in these two different conditions.

## Key words:

intersex condition, gender dysphoria, adolescence

## References:

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# **MINIMAL ACCESS SURGERY**

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# A PECULIAR CASE OF ENDOCERVICAL POLYP IN ADOLESCENT

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Leek Mei

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Ministry Of Health Malaysia

15years old girl virgo intacta with no prior medical problems presented at a remote hospital with mass per vagina for 5 months associated with blood-stained, foul smelling vaginal discharge. She attained menarche at the age of 11, with normal menses. No family history of malignancy. As she was from a remote area, she was only seen by a Paediatric & Adolescent Gynaecologist (PAG) a week later whereby the mass was not visible at perineum during assessment.

She underwent vaginoscopy under anaesthesia which reveals an irregular mass 6x3cm arising from endocervix. No contact bleed or necrotic areas seen. Hysteroscopic endocervical polypectomy performed and the histopathology shows embryonal rhabdomyosarcoma. MRI post operative-ly suggestive of residual local disease. Family was counselled and they opted for fertility sparing management. Following that, transcervical resection of endocervix and cone biopsy was done and fortunately no residual malignancy seen. She then received chemotherapy for 8 cycles, with close radio-imaging surveillance.

Conclusion, polyp are rather odd in adolescent and if presence, malignancy should be suspected. Minimally access surgery is possible in managing such cases to improve outcome.

## Key words:

Polyp, Adolescent, embryonal rhabdomyosarcoma, PAG

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# MINIMALLY INVASIVE TREATMENT OF OHVIRA IN ADOLESCENT GIRLS

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OHVIRA- acronym of rare anomaly: uterus didelphys, unilateral obstructed hemivagina, and ipsilateral renal agenesis. Patients with this anomaly usually present after menarche with pelvic pain. The timely treatment increases the chances of prevent the complications in the future

Objective: to estimate the effectiveness of vaginoscopic treatment in adolescent girls with obstructed hemivagina

Methods: anamnestic, clinical, instrumental (ultrasound and or MRI) and standard pre- and postoperative data Patients: The study included 80 girls aged 11 to 17 years with a confirmed diagnosis of OHVIRA syndrome who underwent surgical treatment at the FGBU NMRC OG and P from June 2021 to December 2022. The results were processed by statistical methods.

Intervention: Vaginoresectoscopic treatment of obstructed hemivagina under ultrasound intraoperative navigation versus standard treatment. Main Outcome Measure(s) blood loss, operation duration, complaints. Result(s) It was found that the duration of resectoscopic vaginal resection with plasty averaged  $39 \pm 8$  min versus  $98 \pm 7$  min in the control group; All patients of the main group, according to the results of postoperative pain assessment according to the Visual analogue scale, noted the absence of pain syndrome already on the 1st day after surgical treatment.

Conclusions: Minimally invasive treatment in OHVIRA by vaginoscopy is effective and safe method which allows to minimize the risk of blood loss and in some cases maintain the integrity of the hymen.

## **Key words:**

OHVIRA, vaginoscopy, intraoperative US-navigation

## **References:**

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# EFFICACY OF BALLOON STENT OR ORAL ESTROGEN FOR ADHESION PREVENTION IN SEPTATE UTERUS: MULTICENTER, RANDOMISED CONTROLLED TRIAL IN CHINESE POPULATION

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**Background** Transcervical resection of septum (TCRS) was widely performed in patients with septate uterus. High-level evidence is in need to support or oppose the primary adhesion prevention after TCRS. We investigated the efficacy of intrauterine balloon stents and oral estrogen in preventing the occurrence of de novo IUAs post-TCRS.

**Methods** This multicenter, randomised controlled trial was undertaken in ten hospitals in China. 253 nulliparous young women with regular menstrual cycles diagnosed with septate uterus were enrolled from May 1, 2020 to Apr 30, 2022. Eligible women were randomised into three groups: surgery-only group (A), intrauterine balloon stent group (B) (retention for one week), and estrogen group (C) (oral estradiol valerate, 2 mg BID, for two periods after TCRS). The unblocked randomisation sequence was computer generated. The primary outcome was the incidence of de novo IUAs diagnosed by second-look hysteroscopy performed after two months. This trial was registered at the Chinese Clinical Trial Registry (ChiCTR2000032061).

**Results** The IUA incidence did not differ significantly among the three groups ( $P=0.462$ ). Compared with that in the surgery-only group (9.3%), there was no significant decrease in IUA occurrence in the COOK balloon group (7.7%; relative risk [RR], 0.82; 95% confidence interval [CI], 0.30 to 2.24;  $P=0.705$ ) or the estrogen group (13.2%; RR, 1.42; 95% confidence interval [CI], 0.58 to 3.47;  $P=0.439$ ). There was also no significant difference in the incidence of residual septum. No operation-related complications or adverse events were reported in any of the groups. **Conclusion** The postoperative IUA incidence did not differ significantly in patients receiving balloon stents or estrogen as primary prevention after TCRS compared with no preventive intervention. It is unnecessary to use oral estrogen or intrauterine balloons for primary prevention in terms of de novo IUAs after TCRS.

## Key words:

septate uterus; intrauterine adhesion; estrogen; balloon stent

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# PELVIC PAIN, DEPRESSION AND QUALITY OF LIFE IN ADOLESCENTS WITH ENDOMETRIOSIS AFTER SURGERY AND ONE-YEAR TREATMENT WITH PROGESTOGENS

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**Relevance:** Endometriosis is the most common cause of secondary dysmenorrhea and chronic pelvic pain in adults, with significant impact on quality of life and emotional well-being. Such researches are limited in adolescents, though endometriosis often manifests with menarche.

The aim of the study was to compare the clinical picture, psycho-emotional status and pain syndrome in adolescents with endometriosis during one-year therapy with progestogens.

**Methods:** A retrospective longitudinal study included 32 girls aged 13 to 17 years with a confirmed diagnosis of peritoneal endometriosis (in 21 (65,2%) patients in combination with adenomyosis). The clinical picture, severity of pain syndrome (according to visual analog pain rating scale (VAS) and the Short Form of McGill Pain questionnaire), anxiety and depression level (Beck Depression Scale (BDI), Hospital Anxiety and Depression Scale (HADS), Spielberger State-Trait Anxiety Inventory (STAI)), quality of life parameters (SF-36 questionnaire), biochemical, hormonal and instrumental examination were analyzed before and after one year treatment with progestogens.

**Results.** After a year treatment with progestogens the adolescents registered the decrease in severity of dysmenorrhea according to VAS ( $p < 0.001$ ), as well as chronic pelvic pain ( $p < 0.001$ ), limitation of daily activity ( $p < 0.001$ ), gastrointestinal (such as nausea, diarrhea, pain during defecation ( $p < 0.001$ )) and urinary ( $p < 0.001$ ) symptoms, related to endometriosis. Patients during the one-year therapy showed the decrease of depressive and anxiety symptoms (according to BDI, HADS, reactive and personal anxiety STAI ( $p < 0.001$  for all indicators)) and quality of life indicators improvement (physical and psychological components, average index of quality of life ( $p < 0.001$  for all indicators)). The blood levels of hormonal parameters (LH, FSH, prolactin, estradiol, cortisol, testosterone ( $p < 0.005$  for all indicators)) and inflammatory markers (the ratio of neutrophils to leukocytes and CA-125 ( $p < 0.001$ )) decreased after one-year treatment, nonetheless, remained within the reference intervals. Low BMI in adolescents was associated with higher VAS scores ( $p = 0.009$ ). The level of estradiol was the factor for higher levels of affective symptoms in adolescents with genital endometriosis (significant factor for reactive anxiety ( $p = 0.046$ ), HADS anxiety ( $p = 0.004$ ) and HADS depression ( $p = 0.033$ )).

**Conclusion:** Chronic pelvic pain and severe dysmenorrhea, associated with endometriosis, significantly affect quality of life and cause anxiety and depression development already in adolescence. The one-year treatment of genital endometriosis with progestogens shows significant improvement in quality of life and relieve in pain symptoms along with good tolerability and compliancy of adolescent patients.

## **Key words:**

endometriosis, pelvic pain, quality of life, depression, progestogens

## **References:**

**Funding:** The work was carried out with the financial support of the state assignment of Ministry of Health "The role of energy metabolism and immune defense disorders in the development of various forms of endometriosis, the development of personalized therapy and the forecast of its effectiveness in the early reproductive period (from menarche to 18 years)" 18-A21.

# DIAGNOSTICS, SURGICAL AND HISTOLOGICAL FEATURES OF ENDOMETRIOSIS IN ADOLESCENTS

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**Relevance:** Early diagnosis of endometriosis in adolescents is not developed, the clinics is polymorphic, instrumental methods are difficult in evaluation, causing diagnostic delay up to 8-10 years in average.

**Objective:** To characterize the pivotal clinical, instrumental, surgical and histological peculiarities of peritoneal endometriosis in adolescents to improve early diagnosis.

**Design:** a case-control study.

**Methods:** The study included 90 adolescent girls (13 to 17 years old) diagnosed with laparoscopically confirmed peritoneal endometriosis (PE). The comparison group consisted of 44 healthy girls of the same age with regular menses. Participants underwent clinical, hormonal, instrumental examination. In patients with PE the laparoscopic and histological picture were analyzed.

**Results:** The risk factors for endometriosis were the family history of endometriosis and dysmenorrhea from menarche ( $\leq 0.005$ ). Patients with PE compared to the controls were characterized with persistent dysmenorrhea, decreased daily activity, gastrointestinal symptoms, higher LH, estradiol, prolactin and CA-125 levels ( $\leq 0.05$  for each criterion). Detection by ultrasound of PE was 3.3%, MRI - 78.9%. Multivariate analysis of all MRI signs in PE in adolescents revealed as the most essential: the heterogeneity of paraovarian or parametrial tissue, the sacro-uterine ligaments thickening or nodular irregularity, heterogeneity of the tissue of the pouch of Douglas ( $\leq 0.05$  for each criterion). Diagnostic MRI accuracy of PE reaches 74.7% ( $F=34.0$ ,  $p<0.001$ ) using any of the described positive signs for ligament's or/and heterogeneity of the tissue. However, MRI data of accurate localization of foci in mild stages matched with laparoscopic picture for uterosacral ligaments and pouch of Douglas less than in half of the cases ( $<0.005$ ). Adolescents with PE mostly exhibit initial rASRM stages (I and II stage in 92.2%), predominantly clear vesical (57.8%), red (43.3%) foci. Red implants correlated with a higher score rASRM ( $\leq 0.05$ ), sheer implants were associated with pain (VAS score) ( $\leq 0.01$ ). Endometriotic tissue was detected in 67.8% of cases, in 32.2% visual foci consisted with fibrous, adipose, muscle tissue; black lesions were more likely to be histologically verified ( $=0.001$ ).

**Conclusion:** Such indicators as family history for endometriosis, persistent dysmenorrhea from menarche, suspicion according to MRI applying detected parameters, could be suggested for use in the PE diagnostics in adolescents with a high relevance. Adolescents exhibit mild (I-II) stages of endometriosis with active implants, associated with greater pain. In third of adolescents with persistent dysmenorrhea the PE was visually confirmed in the absence of MRI predictors and histological improvement, justifying the significance of diagnostic laparoscopy.

## Key words:

peritoneal endometriosis, adenomyosis, dysmenorrhea, pelvic pain, magnetic resonance imaging, histological examination, laparoscopy, CA-125, adolescents

## References:

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# ULTRASOUND AND MRI IN DIAGNOSTICS OF ADENOMYOSIS IN ADOLESCENTS

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**Background:** Early diagnosis of adenomyosis in adolescents is a challenge. The aim of the study was to compare ultrasound and MRI data to identify the main signs of the disease. **Methods:** A total of 45 girls (from menarche to 17 years old) were included in the case-control study with adenomyosis according to hysteroscopy. **Results:** Adenomyosis was suspected (ADM) in 27% of girls (12/45) according to ultrasound and MRI imaging revealed internal endometriosis in 65% of cases (29/45). The comparison of imaging results with ultrasound and MRI revealed the following key signs of the adenomyosis like myometrial heterogeneity (27%, 12/45 and 58%, 26/45,  $p = 0,0029$ ), uterine wall thickness unevenness (9%, 4/45 and 47%, 21/45,  $p = 0,0001$ ), endometrial heterogeneity (9%, 4/45 and 54%, 29/45,  $p = 0$ ), varicose veins of the arcuate plexus (18%, 8/45 and 44%, 20/45,  $p = 0,0077$ ). Additional ultrasound markers of the adenomyosis were: hypoechogenic rim of the endometrium (9%, 4/45), change in the position of the uterus (11%, 5/45), pear-shaped of the uterus (13%, 6/45). MRI allows to describe the transition zone, for the adenomyosis pathognomonic changes were the uneven contours (47%, 21/45) of the transition zone, heterogeneous structure (47%, 21/45), uneven thickening (36%, 16/45), as well as a decrease in zonal differentiation of the uterus (24%, 11/45). **Solutions:** ultrasound allows mostly to detect the changes in the myometrium (31%) in third of the patients with the adenomyosis. MRI detailed the transition zone and the characteristics of the endometrium in 65% of the cases.

## **Key words:**

Adenomyosis, adolescents, ultrasound, MRI

## **References:**

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# LAPAROSCOPY AND MRI IN THE DIAGNOSTICS OF THE PERITONEAL ENDOMETRIOSIS IN EARLY REPRODUCTIVE AGE

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Early non-invasive diagnostics of the endometriosis in adolescents presents great difficulties. The purpose of this study is to compare MRI with laparoscopy. Methods: A total of 60 girls (from menarche to 17 years old) were included in the case-control study. Results: Two groups were identified according to the MRI, in one of them endometriosis was accurately verified (n=15) and in other indirect signs of this process were revealed (n=27). The following signs were highlighted to accurately verifying the diagnosis: compaction of the ovarian capsule (53%, 8/15), thickening of the sacro-uterine ligament (47%, 7/15), hypointensive foci in the pelvic fat (40%, 6/15), heterogeneity of the parametric tissue (47%, 7/15), paraovarian tissue (27%, 4/15), endometrioid lesion of the uterine serous cover (47%, 7/15), heterogeneous signal from ovarian stroma (33%, 5/15), hypointensive foci in the Douglas space (13%, 2/15), heterogeneity of the paracervical fat (13%, 2/15). A concomitant lesion of the sacro-uterine ligaments and pelvic fat was found in 67% (10/15). MRI and laparoscopy imaging results were almost consistent for the foci of the parametric fat and retrocervical region (47%, 7/15 and 47%, 7/15), paraovarian fat and peritoneum of the ovarian fossa (27%, 4/15 and 47%, 7/15), paracervical fat and peritoneum of the cervix (13%, 2/15 and 7%, 1/15). In contrast false positive results were more likely for the ovarian capsule (8 cases out of 2), pelvic peritoneum (6 cases out of 3) according to MRI. Indirect signs were described in most cases, when endometrioid lesion was suspected, they include heterogeneity of the sacro-uterine ligaments (56%, 13/27), pelvic peritoneum (44%, 12/27), paraovarian fat (56%, 13/27), parametric fat (63%, 17/27), serous uterine cover (19%, 5/27), paracervical fat (11%, 3/27), heterogeneous signal from the ovaries stroma (37%, 10/27), Douglas space (15%, 4/27). Concomitant heterogeneity of the pelvic peritoneum and sacro-uterine ligaments was found in 85% (22/27) of patients. MRI and laparoscopy imaging results were virtually identical for the paraovarian fat and ovarian fossa peritoneum (56%, 13/27 and 44%, 12/27), concomitant sacro-uterine ligaments lesions and pelvic peritoneum (85%, 23/27 and 85%, 23/27). False positive results were more specific to the ovarian stroma (10 cases out of 3), parametric fat (17 cases out of 3) according to MRI. Conclusion: 25% of patients (15/60) were accurately diagnosed with PE, 45% (27/60) had indirect signs of the pathological process and in 30% (18/60) MRI cases did not reveal endometrioid lesion of the peritoneum.

## Key words:

Adolescence, peritoneal endometriosis, laparoscopy, MRI

## References:

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# **ACCESS TO HEALTH SERVICES**

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# ANALYSIS OF ADOLESCENT BIRTHS AT GENERAL HOSPITAL NOVI PAZAR

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**Introduction.** Pregnancies during adolescence have serious health, psychosocial and economic consequences. In the world, two million girls become mothers before the age of 15.

The aim of the work is to analyze the frequency of adolescent births in the Novi Pazar General Hospital in the period from January 2018 to June 2022.

**Material and methods.** The frequency of adolescent births, gestational age, mode of delivery, parity, Apgar score and body mass of the newborn were retrospectively analyzed. Data were obtained from delivery protocols, maternal medical history, neonatal protocols, newborn records, and operating protocols.

**Results.** In the estimated period there were 8453 births, of which 40 (0.47%) were adolescent births. Out of the 40 pregnant women, 19 (47.5%) were aged 18-19, 16 (40%) aged 16-17, and 5 (12.5%) were aged 15 and under. There were 33/40(82.5%) primiparas and 7 (17.5%) secundiparas. In 5 (12.5%) pregnancies ended before 30 weeks of gestation (GW), and in 8 (20%), between 30-33 GW. Out of 40, 12 (30%) were completed by Caesarean section (CS) and 28 by natural means. Syntocinon was required in 11/40 (27.5%) cases, while manual assistance according to Bracht was used in 2/40(5%). Indications for CS were fetal asphyxia in 2/12 16.7%) cases, breech presentation in 2/12(16.7%), disproportion in 2/12 (16.7%), placental abruption in 1/12 (8, 3%), conditions after previous CS were 1/12(8.3%), abruption was 1 (8.3%), transverse position was diagnosed in 1 (8.3%) case, while placenta praevia was diagnosed in 1 (8.3%) case. Out of 40 newborns, 12(30%) newborns had a body weight (BM) of less than 2500 grams. One newborn had a body weight of less than 1000g. There were no stillborn children. Twenty percent (20%) of newborns had an Apgar score of 7 or less. Out of 28 vaginal deliveries, 26 parturients had an episiotomy, which is 92.8%, manual revision of the uterine cavity was performed in 4(14.3%) patients, instrumental revision in 2 (7.14%). Five 5 (17.8%) parturients had first-degree rupture.

**Conclusion.** Our results indicate that antepartum care, intensive supervision of adolescent pregnant women during childbirth ensured good conditions to prevent stillbirths. Bearing in mind that the number of adolescent pregnancies is increasing, it is necessary to improve the preventive protection of adolescent reproductive health through continuous education, free access to information adapted for adolescents, including family planning, contraception, prevention and treatment of sexually transmitted diseases, preconception care, health services for mothers and newborns.

## Key words:

adolescent, newborns, premature, pregnancy

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# BREAST LESIONS IN ADOLESCENT GIRLS: A RETROSPECTIVE STUDY AND EXPERIENCE OF OUR UNIVERSITY HOSPITAL

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## Introduction

Breast lesions in adolescents are rare and different from adult breast disease in several respects. First, breast disease in children and adolescents includes mainly benign lesions related to normal development of the breast and benign tumors. Second, malignancies in children and adolescents are very rare. Breast cancers in adolescents account for 0.1% of all breast cancers and less than 1% of all pediatric cancers. The aim of our study was to assess the incidence and varying clinical presentations of breast lesions in a tertiary care university hospital.

## Methods

We retrospectively reviewed the files of our breast unit department during the last 5 years. All adolescent age group female patients visiting the breast outpatient department with complaints of breast discomfort were enrolled into the study. Triple assessment comprising of clinical examination along with imaging and, if necessary, core biopsy was used for diagnosis and identification of every breast lesion.

## Results

Medical files from 2017 up to 2022 recorded a total number of 12 female adolescent patients aged 14 to 17 years old, that presented with complaints of breast discomfort. The most common symptom, as reported in 8 patients, was a painless lump of the breast. Of these, 6 patients (75%) were subsequently diagnosed with a fibroadenoma and 2 patients (25%) with an enlarged cyst. Remaining cases concerned mastodynia associated with the period before menstruation.

## Conclusions

Breast lesions in female adolescents are uncommon, and if present, most are benign or associated with breast development, suggesting a need for conservative treatment.

However, even if extremely rare, cases of malignancy, including phyllodes tumors, ductal adenocarcinomas, and metastatic lesions, have been documented. Therefore, malignancy should be always considered in the diagnosis of a breast mass until formally ruled out.

The approach used to address breast lesions in this subgroup of patients differs from that in adults in many ways. Knowledge of the normal imaging features at various stages of development and the characteristics of breast disease in this population can help physicians to make confident diagnoses and manage patients appropriately. 1,2

## Key words:

breast cancer, breast lesion, fibroadenoma, adolescence

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# OBSTETRICAL COMPLICATIONS OF FEMALE GENITAL MUTILATION IN MALIAN RURAL ENVIRONMENT

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Tionkani Thera

SOMAGO

Obstetrical complications of female genital mutilation in Malian rural environment  
Objective. — To describe maternal and fetal complications during delivery of mutilated women.  
Materials and Methods. — It was a case study, witnesses with matching going from February 1st, 2008 till January 31st, 2009 which took place in Mopti's region. We compared maternal and fetal complications of mutilated and non-mutilated women. Using statistical tests were  $\chi^2$  ( $P = 30$  mm (RC = 8.27 [4.66—14.76],  $P < 0.001$ ); simple perineal lacerations (RC = 14.54 [4.79—49.56],  $P < 0.001$ ) and full perineal lacerations (RC = 8.90 [1.91—57.23],  $P < 0.001$ ) in the two groups. The scores of morbid Apgar (RC = 9.70 [4.35—22.29],  $P < 0.001$ ) were more important in groups of cases. Moreover, we recorded 3 neonatal deaths and 4 complicated perineal lacerations in the group of cases only.  
Conclusion. — Maternal and fetal complications are significantly more important for the excised woman's than for the not excised women.

**Key words:**

Female genital mutilation -obstetrical complication

**References:**

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# THE MOST COMMON REASONS FOR COMING TO EXAM AND OBSTACLES IN WORKING WITH CHILDREN AND ADOLESCENT PATIENTS

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The motive for writing this exposition is the impression gained through daily trials, that there is not enough experience in working with children and adolescents, and that this leads to correct diagnosis and errors in treatment.

**OBJECTIVE:** is to discover the most frequent reasons for coming to the exam and attempt to identify and remove obstacles in work in order to establish a timely and accurate diagnosis and adequate treatment

The data obtained during two years of work were processed, there is 54 patients, aged 1-20 years were examined, of which 5 were children and 49 were adolescents.

The following is a short description of individual cases with the aim of explaining the motive for the work

- a 1-year-old girl - control, because perinatal ultrasound showed an anechoic cystic change in the area of the right adnexa, which persisted even after birth, and tumor markers were performed, which were within the reference values.

The problem appeared at the follow-up, after one year, where persistent changes were observed, and tumor markers were repeated, where the Ca 125 values were in the gray zone. The patient was forwarded to the pediatric examination, and after several attempts to have this examination, patient faced with restraints of pediatric doctors.

At the last examination, it was said that tumor colored markers are not used for children aged 1 year. The patient accepted the opinion that corresponds to her, the latter one, and she did not return for control.

- a girl aged 1.5 years. was referred for vomiting and tension of the abdominal wall. USG showed a mixed prolapsed left iliac crest, torqued. The girl was sent on further examinations, to Belgrade, where ovariectomy was performed.

**PROBLEM:** In the case of a girl with a cystic change on the ovary, given to her age, the question arose as to whom exactly it belongs to, how many pediatricians and gynecologists are familiar with the problem at this age, and who is the person whose opinions will decide on further follow-up and treatment.

From the perspective of the gynecologists, with gained experience, I would repeat tumor colored markers whenever tumor changes existed, with open question what to do when the values are high.

The next problem is superficiality in performing the clinical examination and analyzing the anamnestic data.

Both adolescent girls with primary amenorrhea (diagnosis: Sy Mayer-Rokitansky-Kuster-Hauser sy) underwent several ultrasound examinations of the pelvis, where the orderly appearance of the organs was described, with the fact that one of them was treated by an endocrinologist under diagnosis Sy PCO at the same time as the examinations, and in several on occasion coritilla progeterone in order to induce a cycle, which there was no response.

The average time for an examination in adolescence, regardless of the type of examination, is 6 months or more, partly due to the parents' failure to notice the existing problem, and partly due to the failure to refer them to a gynecologist, dermatologist, family medicine doctor or pediatrician. The patients were treated by a dermatologist for several months with treatments or antibiotic therapy, without referral to a gynecologist, endocrinologist, and treatment of hormonal status.

**CONCLUSION:** The logical conclusion of all the above is that in everyday practice there is a lack of knowledge, experience and a certain degree of superficiality in the appearance of problems in the mentioned ages, which results in late diagnosis, often even after a long period and the application of inadequate therapy.

Continuous education, following the guidelines and reminding the doctor about the importance of a properly performed examination is necessary to avoid all of the above.



# **STRATEGIES IN EDUCATION IN PAG**

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# BRITSPAG ONLINE MULTI-DISCIPLINARY TEAM CASE-BASED DISCUSSION (BRITSPAG MDT CBD) SESSIONS; A NOVEL EDUCATIONAL APPROACH IN PAEDIATRIC AND ADOLESCENT GYNAECOLOGY (PAG)

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## Introduction:

In October 2022 BritSPAG hosted their first online MDT CBD session. This is a novel educational approach in PAG that is being offered monthly, free of cost, to a multi-disciplinary audience. We would like to share our experiences of developing and running the sessions, as well as presenting the feedback from the first 6 months.

## Aims:

Our aims were to:

- Provide accessible education for all healthcare professionals caring for PAG patients (or interested in PAG)
- Demonstrate the MDT approach required for many PAG patients, and demonstrate the benefits of an effective working-MDT
- Demonstrate patient-centred care
- Influence clinical practice and help to standardise the specialist care of patients across the UK by the sharing of expertise
- Provide networking opportunities

## Methods:

the team consists of four core-organisers. The sessions run monthly on Zoom and last for 1 hour, with different hospitals across the UK hosting each session. Patient details are anonymised before presentation. The MDT members recruited for each session are all specialists in their field and have had experience working within a PAG MDT. To help standardise the format of the sessions we used a PowerPoint template and the organisers guided the hosts with planning their session. Delegates are encouraged to network and ask questions through the chat function during the session. The chair of the session directs questions to the relevant MDT panel member. The sessions were advertised on the BritSPAG website, social media and via creation of a growing mailing list of interested individuals. Specialist societies linked to endocrinology, psychology, paediatrics and radiology were invited to disseminate flyers for sessions inviting their members to attend. A central email address was created for use by the organisers to manage communications.

## Feedback:

Feedback was collected via an online form and their completion was a pre-condition for receiving a certificate of attendance. We collected demographic data (profession, primary specialty, location), as well as questions pertaining to the aims of the project. The feedback was reviewed after every session and changes made to the organisational and educational aspects of the sessions in response.

## Reflections:

We will present our reflections on our first 6 months of running these sessions, including the feedback we have received, the progress made toward our aims and the educational reach in terms of professions, speciality and location

## Key words:

education, training, multi-disciplinary

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# INTEGRATION OF PAG INTO UNDERGRADUATE OBSTETRICS AND GYNECOLOGY CURRICULUM USING A COMBINATION OF SIMULATION-BASED AND WORK-PLACE TEACHING.

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Being a narrow and rare specialty pediatric and adolescent gynecology (PAG) encompasses clinical problems encountered by many healthcare professionals including family medicine, pediatrics, pediatric surgery, pediatric urology, hematology and emergency medicine specialists. In majority, undergraduate curricula do not cover PAG related diseases and do not prepare graduates to meet the needs of patients in this field of medicine.

To address that issues certain topics relating to PAG were chosen and incorporated into Medical University of Lublin curriculum, in which gynecology and obstetrics is taught through years 4 to 6, with the 6th year being devoted solely to preparation for clinical practice. The block on "Pediatric and Adolescent Gynecology" encompasses 12 academic hours and is delivered in groups of 6, to approximately 450 hundred 6-year medical students each academic year. The block consists various educational methods including high fidelity simulation scenarios, clinical reasoning seminar, and work-place based teaching conducted in PAG Out-Patient Clinic of the University Children's Hospital.

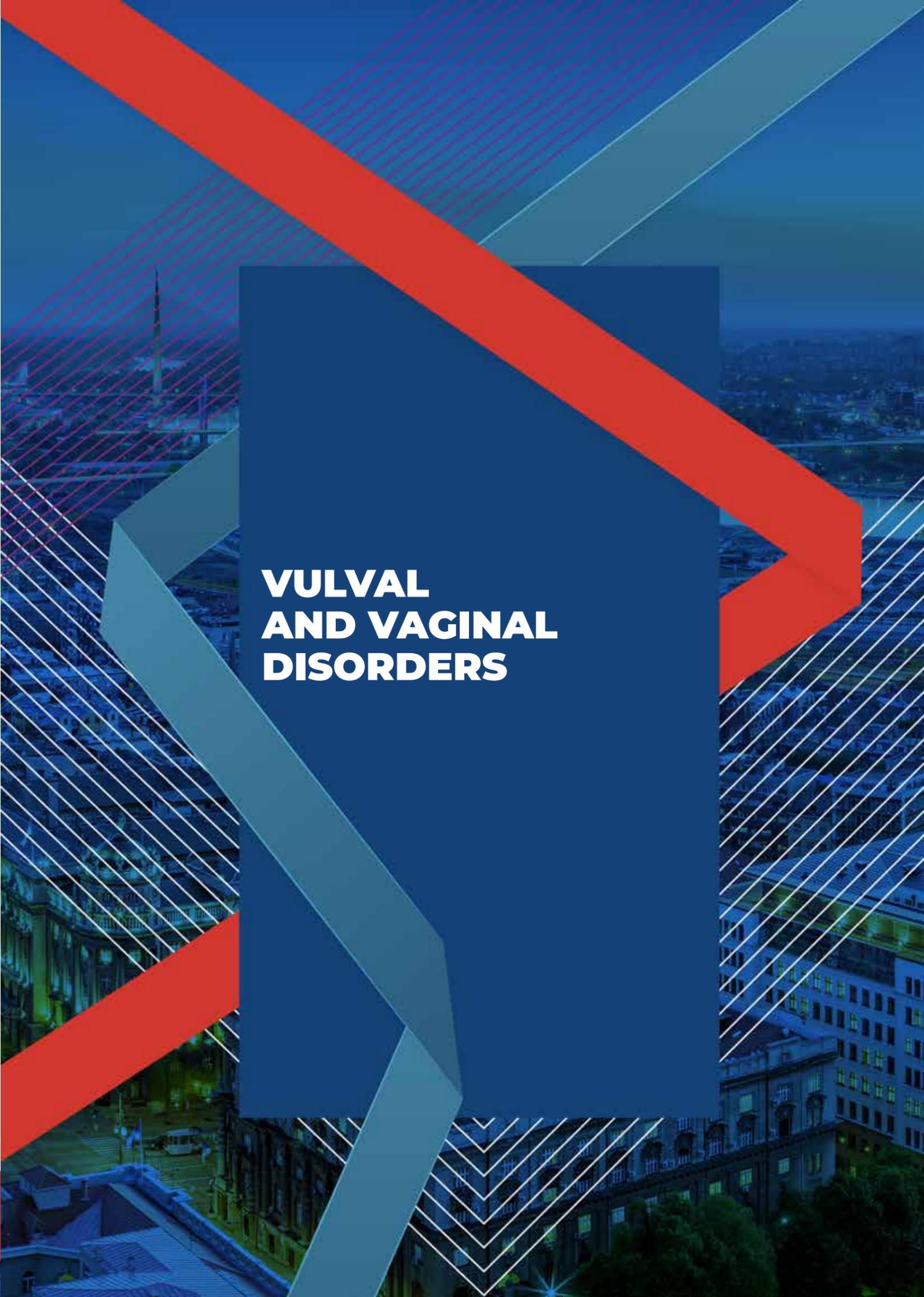
The presentation describes project implementation, description of educational methods used, including simulation scenarios with rationale for cases selections. It also addresses technical and logistical issues of implementation as well as faculty training, facilitators and barriers.

## **Key words:**

education; undergraduate; pediatric and adolescent gynecology;simulation

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**VULVAL  
AND VAGINAL  
DISORDERS**

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# LABIAL FUSION IN ADOLESCENT

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Labial fusion is the joining of two flaps on either side of the labia minora or majora. Most common in prepubertal age. It barely present at birth and acquired later in infancy. Some patients present with vaginal discharge from vulvar atrial or vaginal collection of urine. It is caused by insufficient estrogen exposure. Mostly they are asymptomatic and are discovered by parents or during routine physical examinations. An 16-year-old virgin, pubertal girl went into urinary retention during periods. On her physical examination, labia were Completely fused, including around the urethra. On her genital examination, she had secondary sexual characteristics, including axial pubic hair and Tanner stage 4 breast development. surgical. Treatment was performed using a manual isolation technique under general anesthesia. After surgery, topical steroids were prescribed. Topical estrogen, topical steroids, oral estrogen treatment, manual isolation, anesthesia or no anesthesia, sharp or blunt incision under anesthesia are substitute treatments.

**Key words:**  
labial fusion

**References:**

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# VAGINOPLASTY IN A 18-YEAR-OLD WITH CLOACA

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Cloacal anomalies present with a variety of anatomical aberrations of the rectum, vagina and urethra affecting approximately 1 in 50.000 live births. The majority are treated during infancy/childhood but may require revisiting surgery in adolescence or adulthood to the vagina and introitus. We present a case of an 18-year-old female patient with a history of persistent cloacal malformation and tracheoesophageal fistula. She had undergone corrective surgery for tracheoesophageal fistula and posterior sagittal anorectoplasty during infancy but no prior surgery to the urogenital sinus (UGS).

Examination under anaesthesia and vaginoscopy/cystoscopy, revealed a UGS of 2cm, a separate urethra above this with a normal urethral sphincter, a normal vagina, with two cervixes, separated by a thin septum of one cm. An MRI, with gel instillation within the UGS, confirmed these findings, and the absence of a rectal fistula on the perineum.

Subsequently, she underwent Fortunoff flap vaginoplasty. She recovered well and is currently using vaginal dilators.

Only few patients with Cloacal anomalies undergo their first introital/vaginal operation in adulthood. For a short UGS, a flap vaginoplasty, may be preferable than a UGS mobilization in this age group. However, due to the rarity of the conditions, it is difficult to draw safe conclusions.

## **Key words:**

Cloaca; Urogenital sinus; Vaginoplasty

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# DIAGNOSIS AND TREATMENT OF 46 PATIENTS WITH OBLIQUE VAGINAL SEPTUM SYNDROME

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**Objective:** To improve the understanding of different types of oblique vaginal septum syndrome and to discuss their treatment. **Methods:** The types, clinical manifestations, and treatment methods and efficacies of 46 patients with OVSS who were treated in our hospital were retrospectively analyzed. **Results:** Patients with types I or IV had dysmenorrhea or abdominal pain as the chief complaint. However, the presence of an oblique vaginal septum in patients with type IV was usually difficult to detect, resulting in misdiagnosis. In patients with type II or III, vaginal drainage and menstrual abnormalities were the chief complaints. Among the 46 patients, there were 6 (13.0%) cases of atypical oblique vaginal septum syndrome with a complete uterine septum and 27 (58.7%) cases combined with spinal deformities. These deformities were spina bifida occulta in 6 (22.2%), scoliosis in 16 (59.3%), scoliosis combined with spina bifida occulta in 3 (11.1%), and scoliosis combined with hemivertebrae or butterfly vertebrae in 2 (7.4%). Surgery is an effective treatment. Pregnancy was planned after surgery in 26 patients, 17 (65.4%) of which were successful with a total of 22 pregnancies. There were 6 miscarriages, 12 full-term cesarean deliveries, 3 spontaneous deliveries, and 1 preterm delivery. **Conclusion:** OVSS often has atypical manifestations of a complete uterine septum and is combined with spinal deformities. This syndrome also has many different types and complex manifestations, which can lead to misdiagnosis. Hysteroscopic resection of the vaginal septum is the most minimally invasive, simple, and effective surgical procedure after a definitive diagnosis.

## Key words:

Diagnosis; oblique vaginal; septum syndrome; reproductive system; malformation; symptoms; treatment

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# FEATURES OF VAGINAL MICROBIOCENOSIS IN GIRLS WITH LICHEN SCLEROSUS

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Vulvar lichen sclerosis - chronic disease with poorly studied etiology and pathogenesis, manifested in the form of pronounced focal atrophy of the skin and mucous membranes of the genitals.

Objective: to analyze the composition of the vaginal microbiota in girls with vulva LS

Material and methods: 105 girls aged 3 to 8 years with a confirmed diagnosis of vulval ulcer were examined on the basis of the V.I.Kulakov FSBI NMIC AGP. Group I included 75 girls with a confirmed diagnosis of vulval CF, group II consisted of healthy girls (n=30).

Results of the study: During the bacteriological examination of the contents of the vagina, 123 microorganisms were isolated from 105 patients.

Among facultative anaerobic microorganisms, the leading positions were statistically significantly more often ( $p=0.0002$ ) in the SL group were occupied by microorganisms of the genus *Streptococcus* (92.6% of cases), mainly streptococci with which infectious and inflammatory diseases of the urogenital tract are associated (*S. anginosus* - 57.3%, *S. agalactiae* - 12%, *S. pyogenes* - 1.3%). The second position among facultative anaerobic UPM was occupied mainly by coagulase-negative staphylococci (44.7% and 30.6%, respectively). It is noteworthy that *Staphylococcus aureus*, which has large pathogenic potentials, was found only in the group of patients with vulvar SL - 9.3% ( $p=0.018$ ). The proportion of enterobacteria in both groups was 40% and 43%, respectively. Bacteria of the genus *Actinomyces* (*A. urogenitalis*, *A. radingae*, *A. turicensis*) were more than twice as often found in girls with vulvar SL - 29.2% and 13.3% - in the comparison group.

Among obligate - anaerobic microorganisms, microorganisms of the genus *Propionimicrobium* (*P. limphophilum*, *P. propionicum*, *P. avidum*) were statistically significantly more often ( $p=0.006$ ) - 34.6% in group I, versus 6.6% in group II. *Fusobacterium naviforme* was found in 12% and 0%, respectively ( $p=0.056$ ), *Anaerococcus* (*A. vaginalis*, *A. murdochii*, *A. lactolyticus*, *A. tetradius*) 34.6% and 3.3%, respectively ( $p<0.001$ ), *Fingoldia magna* 33.3% and 3.3%, respectively ( $p=0.001$ ), *Peptostreptococcus anaerobium* 20% and 1%, respectively ( $p=0.017$ ), *Prevotella* (*P. melaninogenica*, *P. bivia*, *P. bergensis*, *P. temonensis*, *P. buccalis*) 28% and 0%, respectively ( $p=0.001$ ). *Gardnerella vaginalis* was isolated rarely 1% only in group I.

Conclusion: Thus, the results of the microbiological study have shown that such a vast diversity of species composition of representatives of opportunistic microflora requires timely and complete examination for more effective treatment and prevention of relapses of the disease.

## Key words:

lichen sclerosis, vulva, girls

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# ORAL MUCOSAL REPLACEMENT VAGINOPLASTY

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**Abstract:** Oral mucosal replacement vaginoplasty can be used for the surgical treatment of a variety of malformations of the lower genital tract. For example: MRKH syndrome, vaginal atresia, etc. The procedure is performed using autologous oral mucosa grafts. The main processes are: 1. Take the oral mucosa and conduct microfinization; 2. Cavitation in the vaginal depression; 3. Transplantation. (The process is shown in a video). The patient's oral mucosa recovered well and the transplanted vaginal mucosa grew well. Satisfactory sex life after operation. Our hospital has completed more than 200 cases of this operation, the effect is good, the complications are low, and the cost of hospitalization is low, the clinical worth promoting.

**Key words:**

reproductive malformation, oral mucosa, vaginoplasty

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# RIME (REACTIVE INFECTIOUS MUCOCUTANEOUS ERUPTION): A RARE CAUSE OF GENITAL EROSIONS AND ULCERATIONS

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## Introduction:

RIME is an umbrella term for diverse parainfectious eruptions replacing Mycoplasma Pneumoniae Induced Rash and Mucositis(MIRM).We report 3 girls with RIME.

## Case report

Patient A (15y) reported recurrent episodes of cough,severe oral mucositis, genital erosions and conjunctivitis every 3-4 months since 2.5years.

Patient B (13y) had a flu-like episode followed by oral and genital mucositis,conjunctivitis and a few bullous skin lesions.

Patient C (4y) suffered from a febrile illness before she developed a conjunctivitis,oral and anogenital mucositis.

All had extensive oral erosions with haemorrhagic crusted lips, conjunctivitis and (ano-)genital erosions. Patient A revealed a bronchiolitis obliterans in the CT-Scan and esophagitis during the gastroscopy.

Treatment consisted of in-hospital supportive care, analgesia, Skin-directed care and intravenous corticosteroids. Genital erosions healed without sequelae unless in 1 patient labial synechiae was treated successfully by topical corticosteroids. For the recurrent episodes of patient A, TNF-alpha-Inhibitor therapy with etanercept was initiated.

## Discussion

RIME is a rare condition with parainfectious mucositis of the oral, genital and ocular mucosa with minimal or absent skin reactions. Few children suffer from extensive mucosal inflammation (bronchiolitis obliterans, esophagitis) and/or recurrent RIME-episodes. Ocularcomplications are the most serious sequelae. Genital lesions heal without scarring but synechiae should be treated promptly.

## Key words:

RIME, mucositis, parainfectious eruptions, genital erosions

## References:

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# GENITAL AND ORAL ULCERATION IN AN ADOLESCENT- A CASE OF INCOMPLETE BEHÇET DISEASE

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Ulcerative lesions of the vulva in children and non-sexually active adolescents are uncommon. Important causes of vulvar ulcers include: herpes simplex virus (HSV), acute genital ulceration (Lip-schütz ulcer), syphilis, Crohn disease and Behçet disease. We present a case of a 13-year-old girl who was referred to University Medical Centre Ljubljana because of recurrent vulvar and oral ulcerations. The smears and serology for infectious pathogens, pemphigus and pemphigoid antibodies were negative. Laboratory blood results, urine and stool cultures were normal. Behçet disease was suspected. Two out of six clinical classification criteria were met, so the patient was diagnosed with incomplete Behçet. HLA-B51 was negative. The whole exome sequencing was performed for a panel of 24 autoinflammatory genes. Nucleotide change NM\_000243 c.726C>G was found in exon 2 of MEFV gene. This substitution changes amino acid serine with arginine at codon 242 (p.Ser242Arg). This variant has been described in patients with neutrophilic dermatosis. However, the clinical picture of our patient is different. The patient responded well to local anti-inflammatory therapy with triamcinolone. Colchicine was prescribed to reduce the number of attacks. This case illustrates that Behçet disease should be considered as a possible differential diagnosis also in children and adolescent girls with vulvar ulceration who live in the areas where Behçet disease is rare.

## Key words:

female genital ulcer, oral ulcer, Behçet disease, pediatrics

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# LIPSCHÜTZ ULCER IN A YOUNG WOMAN WITH INFECTIOUS MONONUCLEOSIS: α RARE CASE REPORT

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**Background:** Acute genital ulceration, or “Lipschütz ulcer”, is an uncommon, non-sexually transmitted, self-restricted condition characterized by the rapid appearance of painful ulcers of the genitalia. It mainly affects sexually inactive young women (nearly 90% are under 20 years old). Typically, it is preceded by influenza-like or mononucleosis-like symptoms.

**Case Presentation:** A sexually inactive 17-year-old female presented complaining of acute pain in her external genitalia for the last 48 hours, a high fever for the last 8 days, a sore throat, and malaise. During physical examination, a wide (>1 cm) and deep ulcer was found on the right labia minora, with a red-violaceous border and a necrotic base covered with a grayish exudate. From the evaluation of other systems, cervical lymphadenopathy and pharyngitis were discovered. The hematologic tests identified lymphocytosis, with atypical lymphocytes representing more than 10 percent of the total count. Furthermore, a threefold elevation of her liver enzymes was revealed. Specific serologic testing indicated infectious mononucleosis, which has been correlated with the manifestation of the ulcer. Apart from oral analgesics, no further specific treatment was needed.

**Conclusions:** Lipschütz ulcer and acute Epstein-Barr Virus infection or other viral/bacterial infections should be included in the differential diagnosis of genital ulcers.

## **Key words:**

genital ulceration, Lipschütz ulcer, genitalia, Infectious mononucleosis, adolescent female.

## **References:**

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# DO YOU REMEMBER THE LIPSCHÜTZ ULCER ?

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Lipschutz ulcer, also known as acute genital ulcer or *ulcus vulvae acutum*, is a rare condition that affects primarily adolescent women. The condition is characterized by the sudden onset of one or more painful ulcers on the vulva or inside the vagina, which can cause significant discomfort and distress.

The cause of Lipschutz ulcer is not entirely clear, but it is believed to be related to a viral or bacterial infection. Some cases have been associated with HSV, Epstein-Barr virus, cytomegalovirus, or mycoplasma. Other possible triggers include autoimmune disorders, trauma, or hormonal changes.

We present a case of a previously healthy 15 year old girl . She presented with strong constant burning pain in the perineal area that started 2 days prior to the examination.

Examination revealed a 2 cm wide ulcerous lesion with thick white debris in the projection of right Bartholin gland and a smaller kissing lesion on the contralateral side. Gynecological examination showed normally developed external genitalia of a virgin adolescent girl . She reported a respiratory infection 7 days prior to developing current genital symptoms. Microbiology and labwork was performed showing no abnormalities. We concluded it was a case of Lipschutz ulcer. Epidemiology and management will be presented.

## Key words:

Lipschutz ulcer; *ulcus vulvae*, vulvar ulcer, ulcerous disease, adolescent vulvar pain

## References:

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# THE IMPORTANCE OF VAGINOSCOPY IN PREMENARCHAL GIRLS WITH VAGINAL BLEEDING- CALL FOR MORE PAG PRACTITIONERS

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The importance of vaginoscopy in premenarchal girls with vaginal bleeding- call for more PAG practitioners

Introduction: Prepubertal vaginal bleeding outside the neonatal period is always abnormal and is very alarming to both parents and physicians. The variable etiologies of vulvovaginitis are the most common causes of vaginal bleeding during the prepubertal period.

We report a series of three cases observed during „covid“ period of 2020-2022.

Case report: two patients 8 and 9 year -old girls, were referred to pediatric secondary center due to of external vaginal bleeding. Hormonal levels were pre-pubertal and bone age was not advanced. Both girls were hospitalized and sellar X-ray and pelvic MRI were done during further course, not revealing the etiology of bleeding.

Six months after the first bleeding, they were referred to a pediatric gynecologist where foreign bodies (grass seed) were found during vaginoscopy.

Third patient, a 3-year- old girl, was examined by her pediatrician because of heavy bleeding. Hormonal analysis and bone age were not suggestive of precocious puberty. Additional analyses revealed elevated alpha fetoprotein level ( $>5000$  IU/L), which led to the diagnosis of yolk sac tumor in vagina wall, which was then confirmed by vagionoscopy and biopsy.

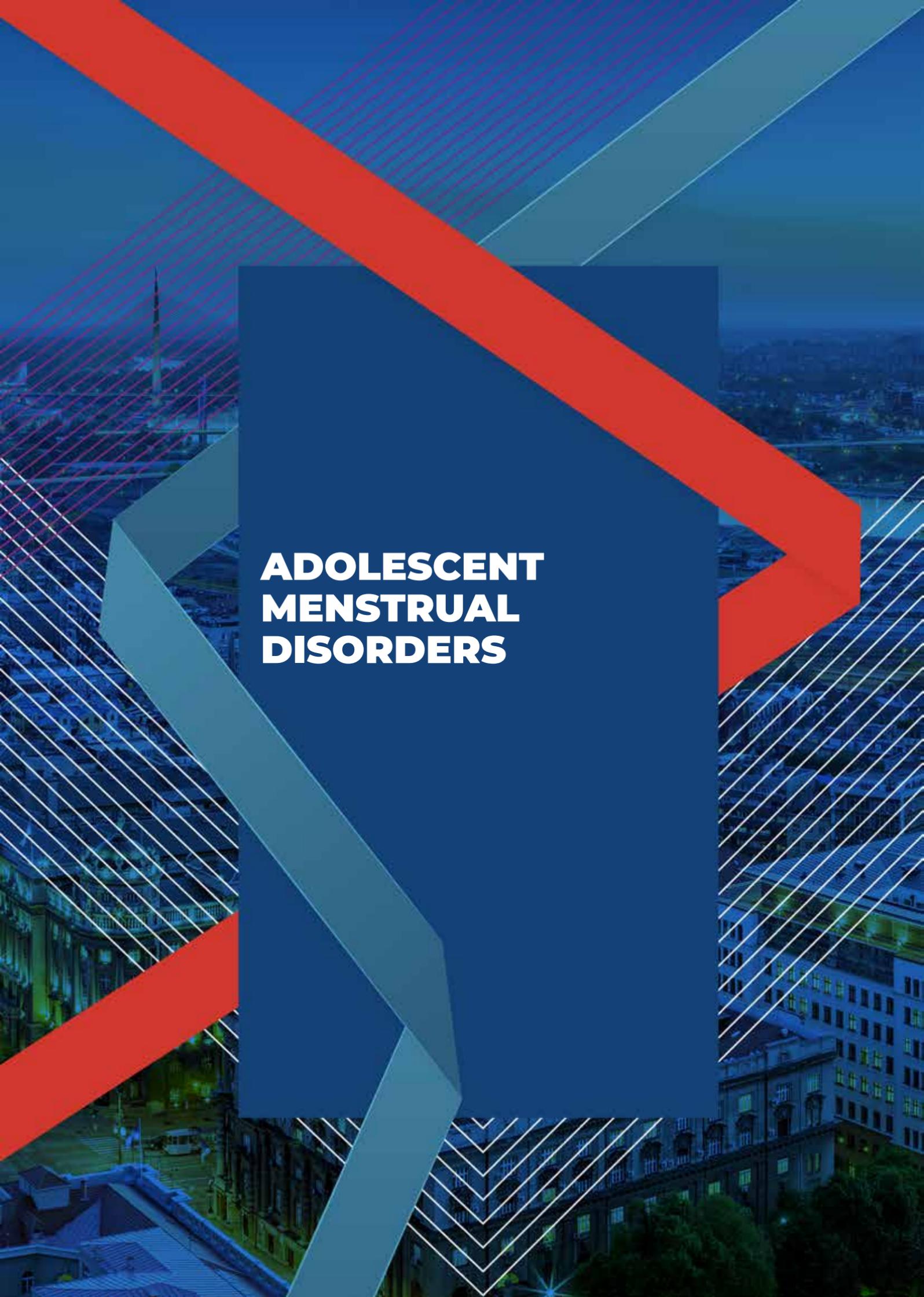
Summary: it is important to perform vaginoscopy in premenarchal girls with repeated vaginal bleeding because in patients older than five years, a common reason for vaginal bleeding is foreign body but in younger patients, the primary goal is to exclude a malignant tumor.

## Key words:

vaginal bleeding, premenarchal girls, vaginoscopy

## References:

Vaginal Bleeding in Pre-pubertal Females, Journal of Pediatric and Adolescent Gynecology, Vol. 33 Issue 4p339–342, Published online: February 6, 2020 Sze M. Ng, Louise J. Apperley, Swathi Upradrasta, Anuja Natarajan



**ADOLESCENT  
MENSTRUAL  
DISORDERS**

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# HIGH-DOSE PROGESTIN THERAPY FOR HEAVY MENSTRUAL BLEEDING IN THE SETTING OF SEVERE FACTOR VII DEFICIENCY

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We present a patient with severe Factor VII deficiency complicated by the development of a Factor VII inhibitor, an acquired antibody. She presented to pediatric and adolescent gynecology at age 13 with heavy menstrual bleeding at menarche and hemoglobin 5.1g/dL. Menstrual suppression selection focused on progestins due to a history of deep vein thrombosis. Direct factor replacement was ineffective due to her inhibitor status [1], so she required treatment with anti-inhibitor coagulant complex, along with pretreatment and graded challenge due to previous anaphylaxis to these therapies. Despite factor support, tranexamic acid and trials of medroxyprogesterone and high-dose norethindrone acetate, her vaginal bleeding continued, lasting two months and requiring repeat blood transfusions. Two attempts at intrauterine device placement resulted in expulsion. MRI of the pelvis ruled out structural causes. Subcutaneous depot medroxyprogesterone (DMPA; chosen over intramuscular DMPA to decrease risk of intramuscular hematoma) was started, in addition to oral medroxyprogesterone tapered from 20mg twice daily to 10mg daily. This high-dose progestin regimen with subcutaneous DMPA, which has not been previously described, achieved amenorrhea without significant side effects. This case presents clinical considerations for menstrual suppression in severe Factor VII deficiency and highlights the importance of collaborative care between hematology and gynecology providers.

## Key words:

Bleeding disorders, heavy menstrual bleeding, menstrual suppression, hematology, abnormal uterine bleeding

## References:

[1] Ramezanzpour, N., Zaker, F., Biswas, A., & Dorgalaleh, A. (2021). Inhibitor in Congenital Factor VII Deficiency; a Rare but Serious Therapeutic Challenge—A Systematic Literature Review. *Journal of Clinical Medicine*, 10(2), 211. <https://doi.org/10.3390/jcm10020211>

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# DEVELOPMENT OF AN ADOLESCENT HEAVY MENSTRUAL BLEEDING CLINIC IN A TERTIARY REFERRAL CENTRE FOR PAG IN THE UK

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## Introduction:

Adolescent menorrhagia is a common condition which can impact significantly on educational attendance. A local audit of outpatient appointments revealed heavy menstrual bleeding as the most common reason for adolescent girls to be seen in our general PAG clinic. In July 2022 the UK Government published its Women's Health Strategy for England (1). The strategy takes a life-course approach, and menstrual health is identified as one of the four key areas of need for adolescents and young adults to the ages of 24. Currently girls in our clinic are seen for an initial appointment, offered a scan on a subsequent date, then seen again for follow-up, comprising three separate hospital attendances.

## Aims:

To streamline the care of adolescents with heavy menstrual bleeding, in order to minimise missed attendances at school.

## Methods:

All referrals made to PAG were triaged to identify patients suitable to attend the clinic. Patients were sent a date for a face-to-face appointment, along with a letter explaining the nature of the clinic and an instruction to attend with a comfortably full bladder to enable a transabdominal pelvic ultrasound as part of the assessment. Patients completed a symptom questionnaire upon arrival and were then seen by a PAG-trained clinician to explore the history further. The symptom questionnaire helped identify those patients who required a clotting disorder screen and potential onward referral. A transabdominal pelvic ultrasound was performed during the first appointment. Patients were managed as per BritSPAG guidelines and offered a telephone follow-up appointment in 3 or 6 months, after the school day had ended, meaning that patients only have to miss school once to attend our one-stop clinic.

## Feedback:

Patients were invited to complete a feedback questionnaire. Although a low pick-up rate was expected for pathology, patients and parents found the ultrasound scan non-invasive, reassuring and avoided a further hospital visit. The clinic has been audited for the first 8 months and findings will be presented.

## Conclusions:

Heavy menstrual bleeding is a common condition which frequently impacts at times which are highly significant for girls education. Any process which can streamline diagnosis and management is likely to offer benefit and minimise disruption due to missed schooling.

## Key words:

menorrhagia, one-stop, ultrasound, outpatients

## References:

1. <https://www.gov.uk/government/publications/womens-health-strategy-for-england>

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# COMPARISON BETWEEN FACIAL PAIN SCALE, VERBAL RATING SCALE, VISUAL ANALOG SCALE AND NUMERIC RATING SCALE ON PAIN INTENSITY OF DYSMENORRHEA

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Comparison between facial pain scale, verbal rating scale, visual analog scale and numeric rating scale on pain intensity of dysmenorrhea

**Introduction:** Dysmenorrhea is defined as painful cramps originating from the uterus that occur during menstruation. According to the World Health Organization (WHO), more than 50% of women in every country suffer from dysmenorrhea and in Indonesia, the incidence of dysmenorrhea is around 60-70%. Currently, there are multiple pain measuring instruments such as, Facial Pain Scale (FPS), Verbal Rating Scale (VRS), Numeric Rating Scale (NRS), and Visual Analog Scale (VAS) to measure pain intensity. Pain score is crucial to detect progression of secondary dysmenorrhea

**Objective:** to compare between various pain score instruments for girls with dysmenorrhea.

**Methods and materials:** This is a cross sectional study on 116 respondents who suffered from dysmenorrhea, they were in their menstrual period and did not use any contraceptives. The pain intensity was measured using Visual Analog Scale (VAS), Numeric Rating Scale (NRS), Facial Pain Scale (FPS), Verbal Rating Scale (VRS) using online questionnaires between January to March 2021. The results were analyzed using kappa test in Statistic Package for Social Sciences (SPSS)

**Results:** Among 116 respondents, 20 (17.3%) had irregular menstrual cycles, then 6 (5.2%) smoked, 46 (39.7%) had a family history of dysmenorrhea and 20 (17.2%) respondents took pain relievers. Based on the coefficient value of Cohen's kappa test on the interpreted data, it was found that VAS (0.848), FPS (0.756), VRS (0.786) had a significant association with the pain intensity of dysmenorrhea with  $p$  value  $\leq 0.001$ .

**Keywords:** Dysmenorrhea, Pain, Visual Analog Scale, VAS, Numeric Rating Scale, NRS, Facial Pain Scale, FPS, Verbal Rating Scale, VRS

## Key words:

Dysmenorrhea, Visual Analog Scale, Numeric Rating Scale, Facial Pain Scale, Verbal Rating Scale

## References:

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# INDUCTION OF PUBERTY- AN AUDIT OF ADHERENCE TO THE NEW EUROPEAN SOCIETY GUIDELINES

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## Introduction

There are variations in the practice of puberty induction between different regions or different physicians. However, European Society for Pediatric Endocrinology, the European Society for Endocrinology and the European Academy of Andrology have recently published guidelines for puberty induction in individuals with congenital pituitary or gonadal hormone deficiency. According to this, transdermal estradiol is preferred to oral, small doses ranging from 6.25 mcg twice weekly are proposed, which are gradually increased to reach adult doses in 2-3 years after onset.

## Objectives

Our aim is to present the experience of a tertiary hospital in puberty induction in girls and evaluate the agreement of the process with the newly developed guidelines.

## Methods

We performed retrospective notes review of all cases that required puberty induction from September 2008 to date, within the 1st Department of Obstetrics and Gynaecology, "Alexandra" Hospital.

## Results

We identified 25 patients with delay of puberty. 10 girls were diagnosed with idiopathic hypogonadotrophic hypogonadism (IHH), 5 with premature ovarian insufficiency (POI), 5 with Swyer syndrome, 3 with classic Galactosemia and 2 with Turner syndrome. The median age at diagnosis of delayed puberty was 16.5 years old (range 12-18.5). All girls were started promptly on treatment with transdermal estradiol and a starting dose ranging from 6.25 – 25 mcg twice weekly. Estradiol was increased at 2 to 6 months intervals, depending on the age of the girl, until breakthrough vaginal bleeding occurred. This was at a median of 14 months (1-50 months) after onset of induction. Shortly after this, all girls received a cyclical combined hormonal preparation. All patients responded effectively on estradiol, with 68% having adequate breast development (Tanner stage of at least 4). Lower Tanner Breast stage at completion was correlated with an older age at onset of induction.

## Conclusion

We describe our approach to puberty induction in girls, which proved to be in concordance with the recent European recommendations. Only a few patients presented timely for investigation of delayed puberty, which led to a later onset of treatment. This may have impacted their final breast development.

## Key words:

delay of puberty, induction of puberty, breast development, transdermal estradiol

## References:

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# CLINICAL AND LABORATORY CHARACTERISTIC FEATURES IN YOUNG ADOLESCENT PATIENTS HOSPITALIZED WITH HEAVY MENSTRUAL BLEEDING

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Clinical and laboratory characteristic features in young adolescent patients hospitalized with heavy menstrual bleeding

Study Objective: to analyze the characteristic features of the menstrual cycle, ultrasound and laboratory parameters that led to a hospitalization.

Design: Retrospective analysis of data obtained from the medical histories of our patients

Setting: University Clinic for Obstetrics and Gynecology, Skopje, Republic of North Macedonia

Participants: Medical histories of 28 adolescent girls presenting with heavy menstrual bleeding which required hospitalization during the period of one year

Main Outcome Measures: menstrual cycle as a vital sign, endometrial thickness, laboratory parameters and hemostasis in young adolescent girls which required hospital treatment

Results: in 25% the bleeding was menarchal, 42% had regular cycle pattern and 32% with irregular cycles. Mean BMI was 23.43 with minimum at 15.2 and maximum at 45.9. Mean endometrial thickness was 10.1mm. Mean hemoglobin level was 85.1g/L and HCT 0.25. Thyroid function was measured by TSH and T4. Two out of 26 had elevated TSH (6.6 and 6.3) but had normal levels of T4. High 72% of patients had thrombopathy with hypoaggregation of platelets with ADP, collagen and ristocetin. Low vWF Ris Co activity was found in 14%, and only one patient had low vWF Ag. Screening hemostasis showed shortened aPTT in 37% and 44% had elevated d-dimers due to activated fibrinolysis.

Conclusion The severity of blood loss was found significantly associated with the BMI and the regularity of the cycles. The heavy menstrual bleeding among our hospitalized patients was associated with anemia and thrombopathy. We found high prevalence of platelet dysfunction in our patients and at the same time some of them had secondary activated fibrinolysis due probably to the length of the bleeding and the therapy applied.

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## Key words:

menstrual cycle, bleeding, thrombopathy

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# EVALUATION OF TREATMENT APPLIED TO ADOLESCENT PATIENTS HOSPITALIZED WITH HEAVY MENSTRUAL BLEEDING

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Study Objective: Feature analysis of the therapies applied to the respective patients  
Design: Retrospective data analysis based on patients' medical records over a one-year period  
Setting: University Clinic for Obstetrics and Gynecology – Skopje, N. Macedonia  
Participants: 27 adolescents with heavy menstrual bleeding that required hospitalization

Main Outcome Measures: Anemia treatment with erythrocyte transfusion, FFP and cryoprecipitates substitution, antifibrinolytics, methylergometrine and hormonal treatment with either gestagen or oral contraceptives.

Results: Out of 27 patients, antifibrinolytic therapy was administered to 92.6% due to low platelet aggregation. Anticoagulant therapy was administered to only one of the 27 patients.

Uterotonic therapy was administered to 85.19% of the patients.

Hormonal treatment was given to 20 patients (74.07%) - 65% were treated with progestogen and the remaining 35% received combined oral contraceptive therapy extensively after discharge, until correction of anemia

Red blood cell transfusion was administered to 30.03% until a hemoglobin level of over 80g/L was achieved. Platelet transfusion was administered 11.11% of the patients, whereas 7.4% needed FFP and 3.7% underwent albumin and cryoprecipitate substitution.

Out of 27 patients 59.26% were prescribed oral anti-anemic therapy with ferrous preparations, vitamin C, B12 and folic acid. and only 31.26% showed no deviations in laboratory analyses and did not undergo supportive treatment. In addition, all anemic patients were treated with ferrous preparations. Only one patient needed treatment with anticoagulants due to markedly shortened aPTT.

Conclusions The aim of the treatment was to stop the bleeding and correct the anemia. The applied treatment was according to the good clinical practice and it proved efficient without any complications. There was a need for a follow up at month one and three after the hospital discharge or until the resolution of the anemia.

**Key words:**

adolescent, menstrual bleeding, treatment

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# ADENOMYOSIS IN ADOLESCENTS: DIFFERENTIAL DIAGNOSIS, TREATMENT, OUTCOMES

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Yelena Luchshayeva

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**Study Objective:** Adenomyosis can lead to early onset of severe dysmenorrhea unresponsive to analgesics, and combined oral contraceptives. In 66% of women with endometriosis, the first symptoms of the disease appear before the age of 20 [1]. Currently, there are no clear guidelines on whether to avoid surgery as long as possible to prevent multiple surgeries or conduct surgery earlier before adhesions form. The time from the appearance of the first symptoms of the disease to the diagnosis is up to 8 to 10 years [2]. The purpose of this study is to find out the rational options for investigations and treatment.

**Materials and methods:** The retrospective cohort study reviewed four adolescents aged 13 to 14 years old with uterine adenomyosis nodules. All patients had severe dysmenorrhea and recurrent pelvic non-responsive to analgesics or oral contraceptive pills for 6 — 14 months. Ultrasound examination and magnetic resonance imaging (MRI) revealed a regular-sized uterus with a normal endometrial cavity. In all cases, there was an accessory cavity within the myometrium. The average size of adenomyotic cysts was 23mm. Hysteroscopy showed the normal cavity connected with both fallopian tubes that excluded Mullerian abnormality. There were slightly deformed uteri in laparoscopy. All patients underwent laparotomy. The myometrium was excised in the area of the maximal bulge, followed by the dissection of adenomyotic cysts from the normal tissues and then removal. Severe sclerosis was noted in the area of the accessory cavity. The uterine wounds were closed by three layers of entrapped sutures. Adenomyosis were confirmed histologically.

**Results:** The average score of postoperative pain was 2,3 on the visual analog scale. Before the surgeries, this indicator reached 7.6 points. A median follow-up was 27 months (12–38 months). There was no pelvic pain or dysmenorrhoea. There was no prescription of drugs during the postoperative period to relieve pain and reduce menstrual blood loss. Ultrasound examination and MRI revealed the regular-sized and homogeneous structure of the uterus.

**Conclusion:** Adenomyotic cysts of the uterus are a rare condition among the girls. This pathology has to be differentiated from a unicornuate uterus with a functioning non-connected accessory horn. Excision of adenomyotic cysts results in clinical recovery. The gonadotropin-releasing hormone analogue (GnRH-a) and dienogest are not required postoperatively. Early diagnosis and successful treatment of adenomyosis in adolescents can result in achieving a high quality of life and avoid unnecessary treatment with oral contraceptives and analgesics.

## **Key words:**

adenomyotic cysts, dysmenorrhea, adolescents, adenomyosis

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# FACTORS AFFECTING HEALTH SEEKING BEHAVIOR ON PRIMARY DYSMENORRHEA IN UNIVERSITAS PELITA HARAPAN STUDENTS

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**Background:** Primary dysmenorrhea is pain in the lower abdomen accompanied by other symptoms such as headache, nausea, vomiting where these symptoms appear before or during menstruation. Previous research shows that the incidence of dysmenorrhea in Southeast Asia is 84.2% and the incidence of dysmenorrhea in Indonesia is 64.25% where 54.89% are patients with primary dysmenorrhea. Discussions about menstruation are considered taboo. Previous study in Indonesia has shown that 26.6% respondent do not wish to seek help to alleviate the pain because they believe that menstrual pain is natural and all girls must bear the pain, while in fact, neglecting dysmenorrhea can lead to delayed diagnosis of endometriosis. Understanding factors affecting health seeking behavior can help healthcare providers to give interventions to change perceptions of Indonesian girls about menstruation.

**Objective:** To determine factors affecting health seeking behavior on primary dysmenorrhea in Universitas Pelita Harapan students.

**Method:** A cross-sectional study on 58 female students who experience primary dysmenorrhea using VMSS (Verbal Multidimensional Scoring System) questionnaire to assess severity of dysmenorrhea, and another questionnaire to assess knowledge, attitude, and health seeking behavior on dysmenorrhea. Respondents with gynecological problems such as cyst, leiomyoma, and chronic pelvic pain are excluded. The study was conducted in January-March 2019. Data analysis with SPSS program ver23 using chi square and independent sample t test.

**Result :** Respondents from various faculties in Universitas Pelita Harapan, age between 17-21 years old with 77.6% have normal menstrual cycles. The severity of dysmenorrhea is 58,6% mild and 42.4% moderate-severe. Most important source of information about menstruation is family (98.2%). Better attitude towards dysmenorrhea significantly affects better health seeking behavior ( $p=0,001$ ). The severity of dysmenorrhea and knowledge about dysmenorrhea was not significantly affecting health seeking behavior ( $p$  value 0,41 and 0,62 respectively).

**Conclusion:** Factors that significantly affect health seeking behavior are attitudes towards dysmenorrhea, while the severity and knowledge did not significantly affect health-seeking behavior. Interventions are needed to improve the attitude of girls towards menstruation and symptoms such as premenstrual syndrome and dysmenorrhea. Further qualitative study is important to explore more about health-seeking behavior.

## Key words:

Primary dysmenorrhea, health seeking behavior

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# CONSERVATIVE MANAGEMENT OF CERVICAL MULLERIAN ADENOSARCOMA WITH SARCOMATOUS OVERGROWTH IN A 13-YEAR-OLD ADOLESCENT: A CASE REPORT AND LITERATURE REVIEW

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**Background:** Mullerian adenosarcoma is a rare and low-grade malignant tumor. Hysterectomy with bilateral salpingo-oophorectomy had been the standard of care for it. The purpose of this report is to describe the clinical difficulties in reaching the diagnosis and to propose fertility-sparing management for adolescents.

**Case:** A 13-year-old girl presented with abnormal vaginal bleeding for three months. Her symptoms didn't improve with initial hormonal treatment. She had increase in abnormal vaginal discharge. Subsequently, a cervical mass of about 70mm was detected by pelvic ultrasound scan. The girl underwent excision of the cervical mass and the histopathology suggested a mullerian adenosarcoma with sarcomatous overgrowth. In view of the very young age and strong demand for preserving fertility from the family, she had the excision of cervix with clear margins. No recurrence was detected during the follow-up at six months.

**Summary and conclusion:** Cervical Müllerian adenosarcoma in adolescents is challenging especially without the expertise of experienced sonographer and histopathologist. Excision of the cervical tumor may be a feasible option when there is absence of sarcomatous overgrowth, heterologous elements, or deep cervical stromal invasion.

Although there was sarcomatous overgrowth, fertility preservation surgery was adopted for this girl because of young age and strong fertility wish. Close follow-up for long term is necessary to exclude recurrence.

## **Key words:**

cervical mullerian adenosarcoma; fertility-sparing surgery; sarcomatous overgrowth; follow-up

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# ATYPICAL CERVICAL LEIOMYOMA IN YOUNG VIRGO INTACTA PATIENT

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## Background

Atypical leiomyoma is extremely rare in adolescence less than 1%, with just few reports found in the literature with difficulties to diagnose.

## Case

A 17-year-old female patient (Virgo intacta) presented to our Clinic with prolonged bleeding and anemia for several months. She had been treated in other medical institution for juvenile bleeding with hormonal therapy for three months with different medications without any success. On admission the transabdominal pelvic ultrasound revealed a mass just below the cervix measuring approximately 25x25 mm. On transrectal palpation the formation was with solid structure. Immediate vaginoscopy was performed and formation on cervix with size of a walnut was detected. Defloration and transvaginal myomectomy were performed. Postoperatively no bleeding. Regular cycles restored. Histopathology results: Myoma cervicalis- Atypical Leiomyoma.

## Summary and conclusion

This is a rare case of structural cause of heavy menstrual bleeding in an adolescent patient and the delay in diagnosis was because she was virgo intacta.

## Key words:

atypical cervical leiomyoma.virgo intacta.prolonged bleeding.vaginoscopy.myomectomy

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# ENERGY HOMEOSTASIS IN ADOLESCENCE WITH POLYCYSTIC OVARY SYNDROME

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The etiopathogenesis of polycystic ovary syndrome (PCOS) has not been fully elucidated. Diagnostic criteria change frequently, due to the diversity of clinical and diagnostic markers, and confirm the scarcity and immaturity of perceptions of this pathological condition.

The classic clinical-laboratory and ultrasound features of PCOS in adolescence are not considered aberrant (1), although their persistence increases not only the risk of menstrual and reproductive dysfunction, but virtually all severe, life-threatening non-infectious, age-related diseases, chance of development (2-6). Studies in adolescents to identify currently known and probable risk factors (7-8) will be crucial both in terms of their early identification as well as the prevention of later complications and the avoidance of medical and social costs. The aim of the study was to determine the importance of energy imbalance in the pathogenesis of PCOS in adolescents.

## Methods:

We conducted a case-control study enrolling adolescence girls aged age 12-19 years;

With normal BMI index (18.5-24.9)

Using this PCOS criteria: Abnormal menstrual pattern, Clinical evidence of hyperandrogenism (Hirsutism, Acne) with at least 1 clinical-laboratory sign of PCOS.

Subjects with chronic and acute somatic pathology were excluded.

We performed indirect Calorimetry, total testosterone tests and identified risk factors through specially designed questionnaires (about life style: eating habits and sleep pattern.)

Results: Ten patients were enrolled in the study out of the target group of 40 persons complying with the inclusion criteria.

Table 1 describes the sample. Table N2

2 person in the group has a normal Resting Metabolic Rate.

20 % of them have decreased this factor, 75% have increased it. And NO change in RMR was in 5%.

Discussion: The preliminary results showed variability in testosterone (total) concentration in most patient. According to literature data, it is currently believed that typical hormonal changes are not always present. It is known that during polycystic ovary syndrome testosterone concentration is slightly or moderately increased.

PCOS has been studied in many ways, but the assessment of energy status has never been the subject of research. In our opinion, PCOS develops as follows: a negative energy balance is formed in the body against the background of qualitatively (proteins and fats) and energetically insufficient food intake and/or excessive physical activity (more energy expenditure than intake), which is partially confirmed by our data (see Table N2). These deviations are considered diagnostic markers of PCOS.

Conclusion: In order to develop a solid scientific basis for improving clinical diagnostics and subsequent management of patients, it is necessary to:

1) Consideration of PCOS in adolescents from the standpoint of suboptimal health status (SHS).

2) Determining the importance of energy balance in the formation of PCOS in adolescents and evaluating the developed clinical and laboratory deviations should be done in the context of adaptive syndrome. However, the need for further research is also clear.

## Key words:

PCOS. Energy Balance, Adolescence

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# THE ROLE OF PROLIFERATION FACTORS AND APOPTOSIS IN THE PATHOGENESIS OF ABNORMAL UTERINE BLEEDINGS IN PUBERTY

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The research work was carried out on the basis of the gynecological department and the consultative polyclinic of the Federal State Budgetary Educational Institution of The Ministry of Health of Russia in the period from 2016 to 2018, was approved by the local ethics committee (IRB of Rostov State Medical University, Minutes No. 1. Date 12/09/2016). All patients and their parents gave written informed consent to participate in the study. Abnormal Uterine Bleeding (AUB) in puberty occurs in 10% - 37.3% within the context of juvenile gynecology diseases in Russia. The role of proliferation and apoptosis factors in the pathogenesis of the AUB is discussed [1]. The main modulators of the cell growth, possessing marked mitogenetic features in the tissues of uterus and ovaries are insulin-like growth factor-I (IGF-I) and vascular-endothelial growth factor (VEGF) [1]. Surveys show that hyperplastic processes in the endometrium appear against the background of neuroendocrine malfunctions and progressive apoptosis incapability of cells. Cytokines, growth factors and other proteins included in the macromedia of a cell are involved in apoptosis regulation.

**Objective:** To examine the production of growth factors and apoptosis in patients with AUB in puberty.

**Methods:** The investigation was carried out in 2 groups of patients: I - 132 girls with AUB, II - 20 healthy adolescent girls (control). Measure of serum concentration of hormones, free form (f) of IGF-1, VEGF, tumour necrosis factor -  $\alpha$  (TNF-  $\alpha$ ), soluble TNF-  $\alpha$  receptors-I - p55 - (sTNFR1), Fas-receptor (sFas), Fas-ligand (sFasL) and caspase-8 was carried out.

The overall statistics are estimated in the format of the results – median, interquartile scope (Me, Kv 75%, Kv 25%). To assess the relationship between the studied parameters, Spearman correlation analysis was used, with a permissible error  $p < 0.05$ . The study of data differences for unrelated groups of patients was conducted using the Mann-Whitney criterion, and for related groups, the Wilcoxon criterion in the Statistica 6.0 application suite. **Results:** The increased levels of fIGF-1 in group I were found (compared with control). It is possible that endometrial hyperplasia and abnormal folliculogenesis are associated with increased fIGF-1 levels, as indicated by the established correlation between fIGF-1, endometrium thickness and diameter follicles. Vascular endothelial growth factor is a major inducer of angiogenesis [2]. The normal monthly cyclical angiogenesis occurs only in the endometrium and ovaries and is under the control of LH [2].

If dysregulation of angiogenesis is a violation of vascularization of the follicles, causing them to atresia or persistence in different stages of maturity [2]. The level of VEGF was reduced in patients of group I, compared with the control group.

The increase of sTNFR1 is possible to reduce the TNF- $\alpha$  levels, which was confirmed by our studies. This indirectly specifies on the apoptosis blocking at the stage of induction.

In group I the contents of sFas and sFasL were lower than the control group that specifies on the expressed oppression of apoptosis in patients with uterine bleedings. It is known that sFas blocks, and sFasL initiates apoptosis [3]. Caspase-8 activates after Fas and FasL binding, which leads to the launch of the effector apoptosis phase. We used the ratio of sFas and sFasL for assessing the outcome of their multi-directional interaction. sFas/sFasL index exceeded values of the control group, that points out to the disturbance in sFas-sFasL system with the displacement of final effect towards apoptosis blocking in patients with AUB.

The highest serum level of caspase-8 was in the control group that evidenced about weak initiation of effector stage of apoptosis in patients with AUB.

**Conclusion:** Distinction in system production of fVEGF at patients with AUB, having equally high fIGF-1 and hyperandrogenism, possibly, is one of the basic components of endometrium hyperplasia and pubertal AUB pathogenesis. The revealed deficiency of apoptosis factors at both stages can have pathogenetic value in formation of reproductive system pathology in pubertal period shown in the form of AUB.

## Key words:

Abnormal Uterine Bleeding, adolescent girls, insulin-like growth factor-I, vascular-endothelial growth factor, tumour necrosis factor -  $\alpha$ , Fas-receptor, Fas-ligand, caspase-8

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# PROGNOSIS OF MENSTRUAL RECOVERY IN ADOLESCENTS WITH ANOREXIA NERVOSA

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Amenorrhoea is the constant feature of Anorexia Nervosa (AN), caused by sharp metabolism reduction of gonadotropines as compared with prepubertal level. Experimental investigation that leptin, produced by fat cells, plays a role of the metabolic signal, which regulates hypothalamic – pituitary – ovarian function. Leptin plays one of the most important role in the maintenance of energy homeostasis. There are 4 stages in dynamics of AN: 1) initial; 2) anorectic; 3) cachectic; 4) reduction.

Objectives: To develop a method of forecasting of menstrual function restoration at patients at a stage of AN reduction.

Materials: 2 groups of girls aged 15 - 16: 1. Basic group involved 89 AN patients diagnosed at the anorectic stage with body mass index (BMI) =  $15.34 \pm 1.04$ ; 2. control group involved 20 healthy adolescent girls with BMI =  $20.3 \pm 1.4$ .

Retrospective analysis of medical cards the basic group has been divided into 2 subgroups depending on a disease outcome: A – patients with persistent amenorrhoea (42 persons); B – patients with restored menstrual cycle (47 persons). Treatment in both subgroups was identical.

Methods: Serum leptin by ELISA, BMI research and leptin/BMI ratio were measured at the first visit, and 3 and 6 months after start of treatment.

Results: In the first time interval (comparing 3 months after treatment with baseline), the rate of increase of leptin level in 1B subgroup exceeded the level at baseline by 6.3 times and this was 3.5 times for 1A subgroup, at the second time interval (comparing 6 months to 3 months after treatment), it was 1.12 times increase ( $p < 0.05$ ). Leptin/BMI ratio at baseline in 1A subgroup was lower than in 1B subgroup in 4 times. In the end of research this ratio was in 5.4 times lower than in 1B subgroup and below values of control group in 1.6 times, thus without differing from the initial level. Absence of the dynamics of the given indicator within 3 months from starting of treatment, despite BMI increase, can be used as a criterion of an inefficiency of treatment and may predict the adverse effect on restoration of menstrual function.

Conclusion. The research proves the necessity of leptin and BMI researches inclusion for algorithm of conducting patients with AN at the first visit, in 3 and in 6 months from treatment beginning. At proceeding amenorrhea and presence of the criteria defining the adverse forecast of menstrual function restoration, in 3 months from a starting of treatment at achievement by the patient of the set weight and in the presence of ultrasonic signs uterus hypoplasia and absence of dynamics of a follicle growth, necessity of appointment of therapy by sexual steroid hormones is proved.

## Key words:

Anorexia Nervosa, Leptin, adolescent girls

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# HYPOGONADOTROPIC HYPOGONADISM AS A CAUSE OF PRIMARY AMENORRHOEA

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A variety of congenital and acquired hypothalamic or pituitary disorders may cause hypogonadotropic hypogonadism with delayed or absent normal pubertal development, with no menarche: constitutional delay of growth and puberty (CDGP), functional hypothalamic amenorrhoea (FHA), congenital hypogonadotropic hypogonadism (CHH), combined pituitary hormone deficiency (CPHD) or hypopituitarism due to expansive processes in sellar/suprasellar region.

CDGP is the most common cause of delayed puberty in females (30-56%). More than a half of girls with CDGP have a family history of delayed puberty, implying a genetic basis of CDGP. Functional hypothalamic amenorrhea (FHA), with reduced LH pulse frequency and insufficient levels of gonadotropins is found in approximately 20% of females with delayed puberty. A variety of causes (stress, excessive exercise, restrictive eating habits, anorexia nervosa, chronic diseases - inflammatory bowel disease, chronic renal disease, cystic fibrosis, celiac disease) may lead to functional hypothalamo-pituitary-gonadal suppression. Congenital hypogonadotropic hypogonadism (CHH) is a rare genetically and phenotypical heterogeneous disorder caused by the impaired production, secretion or action of gonadotropin-releasing hormone (GnRH). CHH affects approximately 10-20% of females with delayed puberty, in some cases associated with non-reproductive abnormalities, such as anosmia/hyposmia (Kallmann syndrome/KS), hypodontia, unilateral renal agenesis, hearing loss, cleft palate and lip... CHH may be also a part of rare complex neurological diseases (syndromic CHH, for example 4H syndrome). A genetic basis of CHH is not fully elucidated. More than 30 different genes are identified as a cause of CHH, associated either with normosmic CHH (nCHH), with KS or with both nCHH and KS. CHH is characterized by incomplete penetrance, variable expressivity and oligogenecity in some patients. Combined pituitary hormone deficiency (CPHD), congenital or acquired, syndromic or non-syndromic, may evolve over time, presenting in adolescence with delayed puberty. Various expansive processes in the hypothalamo-pituitary region (pituitary adenoma, germinoma, craniopharyngioma, Rathke's cleft cyst), infiltrative process or inflammation (hypophysitis), Langerhans cell histiocytosis, hemochromatosis, traumatic brain injury may also cause hypogonadotropic hypogonadism and delayed puberty.

Diagnostics and therapy of primary amenorrhea in teenagers and adolescents often needs collaboration between the pediatric or adult endocrinologist and gynecologist. The goal of treatment is to induce puberty and restore sexual, bone, metabolic and psychological health. When fertility is desired, it can be induced with pulsatile GnRH treatment or gonadotropins.

## Key words:

hypogonadotropic hypogonadism, primary amenorrhoea

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# FUNCTIONAL BLEEDING IN ADOLESCENCE OUR EXPERIENCE, A LITERATURE REVIEW

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The frequency of menstrual disorders in adolescence is 10-17%. In 95% of cases it is due to slow maturation of the hypothalamic-pituitary-ovarian axis. Anovulation is the most common cause of genital bleeding when it is not due to an organic cause.

Abnormal vaginal bleeding in adolescence, which accounts for half of all uterine bleeding, is usually not due to structural damage to the reproductive system, but is the result of anovulatory cycles. In some cases, structural abnormalities such as polyps and submucosal or intramural fibroids may coexist.

There is usually no involvement of the entire endometrium and it is often of great intensity without excluding the possibility of manifesting as drops for several days.

Bleeding is generally irregular with fluctuations in intensity. Incidence in adolescent girls is 20%.

In the first and third year after menarche, 55% and 1/3 of cycles are still anovulatory, respectively. They are due to functional immaturity of the hypothalamic-pituitary-ovarian axis. Adolescent girls whose menarche occurs before the age of 12 have 50% fewer follicular cycles during the 1st year while in those with menarche at the age of 12-13 years the cycles require a period of up to 3 years to become ovulatory.

It is the most frequently encountered urgent gynecological problem in adolescence.

According to our records a total of 388 girls aged 11-17 were screened at our Family Planning Center from January 2004 to September 2022.

Vaginal bleeding in 52.8% was the main reason for visiting the examination room at the Family Planning Center. Amenorrhea (primary/secondary) occurred in 20.2% of cases, while oligomenorrhea and dysmenorrhea occurred in 21.9% and 5.1% of cases respectively.

The goal of treating abnormal vaginal bleeding in adolescence, when all other causes have been ruled out, is to stop the bleeding and restore the endometrial mucosa.

Treatment included replenishment of iron stores, iron supplements, cyclic administration of progesterone, high-dose estrogen or oral contraceptive pills and continuous administration of contraceptive pills in preference to single phase ones.

In cases of severe bleeding intravenous fluids are recommended and in rare cases a blood transfusion may be required.

Menorrhagia is a symptom and not a specific pathological entity. The effectiveness of the treatment is based on the correct diagnosis. Caution will have to be given until stabilization of follicular cycles. After a thorough inspection and evaluation, consider her young age experts to reevaluate and initiate further treatment options.

## Key words:

menstrual bleeding, adolescence, bleeding abnormalities

## References:

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# EVIDENCE OF PCOS IN TEENAGERS WITH TYPE 2 DIABETES

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## Background:

The obesity-related type 2 diabetes (T2DM) in children and adolescents has reached an epidemic level globally. Pediatric obesity is also associated with metabolic syndrome, hypertension, dyslipidemia, nonalcoholic fatty liver disease (NAFLD) and in females, polycystic ovarian syndrome (PCOS). The diagnostic criteria for adolescent polycystic ovary syndrome (PCOS) is challenging as criteria include normal physiological events that occur during puberty such as acne, hirsutism and menstrual irregularities.

## Aim:

The aim of this study is to evaluate the documentation of PCOS in female teenagers diagnosed with T2DM. The diagnosis of T2DM was made based on clinical presentation, insulin and C-peptide levels and lack of autoimmune markers of type 1 diabetes

## Method:

A retrospective chart review of female teenagers diagnosed with T2DM in a three-year period was performed. Prepubertal females were excluded.

Age, race, body mass index (BMI), blood pressure, Hemoglobin A1c, documentation of dyslipidemia, elevated liver enzymes and PCOS (medical history/ review of systems, androgen levels, or pelvic ultrasound).

## Results:

Twenty-six patients were initially diagnosed in a three-year-period. Average age of diagnosis was 16 years and 3 months (range 9 to 18 years). Sixty one percent of patients were Hispanics, 30 % were African-Americans/Blacks.

Average HbA1c at diagnosis was 9.8%. Thirty four percent of the patients had hypertension at diagnosis but only 15% of them remained hypertensive and required therapy.

Dyslipidemia and elevated liver enzymes were seen in 56% and 78% of patients, respectively.

Almost 69% of females had a history of irregular menses but only 5% of had elevated testosterone levels. One patient was referred to adolescent gynecology for persistent menstrual irregularities.

## Conclusion:

Documenting PCOS features in obese teenagers with T2DM should be emphasized. We have used this data to improve our screen for PCOS in our patient population.

## Discussion:

It is well known that adult PCOS/hyperandrogenism may have roots in the pediatric and adolescence period. Obesity, metabolic syndrome and T2DM have complex cause-effect relation with PCOS.

PCOS and T2D are both obesity-related conditions that share insulin resistance as an important pathogenic factor. PCOS is a well known high-risk of development of T2DM. Early diagnosis, management of PCOS along with T2DM, and other comorbidities of obesity should be emphasized.

## Key words:

evidence of PCOS in teenagers with type 2 diabetes

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# CLINICAL AND ANAMNESTIC FEATURES OF ADOLESCENT WITH POI

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The prevalence of premature ovarian insufficiency (POI) is progressively increasing and has now reached 4.0% among the European population of women under the age of 40 [1]. The most common POI is diagnosed in the 3rd-4th decade of life. However, in the pubertal period, the problem of reducing the ovarian reserve is also quite common. The POI in adolescent is 1:10,000.

Objective: to evaluate the clinical and anamnestic features of adolescents with POI.

Methods: anamnestic, clinical

Patients: The study included 116 girls aged 10 to 17 y with high risk of POI and 37 was selected after confirming the diagnosis at the FGBU NMRC OG and P from 2019 to 2021. The results were processed by statistical methods.

Result(s) the full form of the POI was found in 18, biochemical – in 9, hidden – in 10 girls. Reliably family cases of POI were established in 4 patients. The peculiarity of adolescent patients, in contrast to the older age group, was the absence of vasomotor symptoms and vulvovaginal atrophy in the clinical picture of most patients. It was found that among the factors provoking menstrual cycle disorders, 39% of girls indicated psychoemotional stress, 17% – a recently transmitted infectious disease. Among the causal factors, fatigue (14%), hyperinsolation (9%), a sharp loss or gain of body weight (5%) were also noted, 16% of girls could not specify a specific reason.

Evaluation of menstrual function showed that the age of onset of menarche averaged  $11.7 \pm 0.8$  y. In 21 (56.7%), the menstrual cycle was regular with menarche. The duration of the menstrual cycle was from 21 to 50 days, with an average value of  $28.3 \pm 0.3$  days. The painlessness of menstruation was noted in all analyzed patients. The average time from menarche to the first clinical manifestations of the disease was  $9.4 \pm 0.3$  months (minimum – 1 month, maximum – 36 months from menarche). The average age of manifestation of the disease was  $13.3 \pm 0.3$  years.

All pregnancies in the mothers of the patients occurred spontaneously. None of the girls were born from multiple pregnancies. The features of the premorbid background indicated that the majority of girls – 27 (73%) – had indications of infectious diseases. Among the somatic diseases registered at the time of the study, diseases of the ENT organs (21.6%) and pathology of the musculoskeletal system (21.6%) dominated. Less often, the patients suffered from skin diseases (13.5%), pathology of the urinary system and respiratory organs (10.8%), pathology of the cardiovascular system and central nervous system (8.1% each). Autoimmune diseases were registered in 5 (13.5%) patients.

## Key words:

POI, adolescent, menstrual disorder

## References:

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# PROFILE OF ADOLESCENTS UNDERGOING RED BLOOD CELL CONCENTRATE TRANSFUSION IN A PEDIATRIC HOSPITAL

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## Background and aim:

Anemia is an important cause of morbidity and mortality, especially among children and adolescents. There are many causes, such as: hereditary and acquired anemia, renal or endocrine disease, intraoperative and/or postoperative bleeding, heavy menstrual bleeding. Concentrated red blood cell (RBC) transfusion is indicated in severe cases with hemodynamic instability.

The main objective of the present report was to describe the profile of girls submitted to RBC transfusion at Hospital da Criança Santo Antônio (HCSA) and correlate these episodes with menarche and menstrual bleeding.

**Methodology:** Retrospective cross-sectional observational study. The data were obtained from medical records of female patients, hospitalized at the HCSA in a period between April 2020 and March 2021. Female patients between 28 days of life and 18 years old who received RBC transfusion at the Hospital da Criança Santo Antônio were included. Patients with incomplete or missing medical records and newborns (babies up to the twenty-eighth day of life) were excluded. This study was approved by the medical research ethics committee (CAAE: 60837422.9.0000.5335).

**Results:** In the described period, 180 children received transfusion of RBC concentrate at HCSA. Seventeen patients were excluded due to lack of data in the electronic medical record. Of the total of 163 patients, 128 were pre-menarche and 35 post-menarche. In the group of pre-menarcheal girls, 33/128 had cancer as the underlying disease, 75/128 had increased bleeding during surgical procedures and 20/128 patients were affected by other diseases, such as: benign hematological diseases, inflammatory bowel disease and severe clinical complications with Intensive Care Unit admission. In the post-menarche group, 12/35 patients had been diagnosed with cancer and 11/35 had undergone surgeries with excessive intraoperative bleeding and 12 had other diseases. Heavy menstrual bleeding affected 5 girls who had RBC transfusions, 2 of them had idiopathic thrombocytopenic purpura (5,7%), 2 had Crohn's disease (5,7%) and 1 had a diagnosis of cancer (2,8%) (Acute lymphocytic leukemia type B).

**Conclusions and relevance:** The HCSA is a reference for congenital heart diseases and childhood cancer, which interfered with the profile of patients in this study. Of the 163 children and adolescents who had RBC, 81% were due to increased bleeding in surgeries or had cancer. There were no cases of previously healthy adolescents who had received RBC after menarche for increased dysfunctional uterine bleeding.

## Key words:

Red blood cells; Transfusion, Children, Adolescents, Heavy menstrual Bleeding

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# ENDOMETRIOSIS IN ADOLESCENCE IS ASSOCIATED WITH AN INCREASED AEROBIC GLYCOLYSIS AND MITOCHONDRIAL BIOENERGETICS, WHICH MEDIATE THE PROLIFERATION AND APOPTOSIS REDUCTION IN ENDOMETRIOID FOCI

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**Background:** The energy metabolism changes are believed to play a pivotal role in the proliferative activity of endometriosis in adults. Such researches are almost absent in the initial stages of the disease. **Objective:** to evaluate the impact of the aerobic glycolysis, mitochondrial bioenergetic, estrogen receptor isoforms and apoptosis levels on pathogenesis of peritoneal endometriosis in adolescents. **Methods:** 45 girls (13-17 years old) were included in a case control study: 30 with laparoscopically (LS) confirmed PE and 15 controls (with paramesonephric cysts) underwent full examination, the levels of beclin,  $ER\alpha/\beta$ , Hex2, PDK, Glut1, MCT, PGC1 $\alpha$ , OPA1, TFAM, VDAC, NRF2, Bax, Bcl2, hif1 $\alpha$ , p38, TGF $\beta$ , in plasma and peritoneal fluid exosomes in comparison with endometrioid foci and unaffected peritoneum were determined. **Results:** The decrease in the level of the proapoptotic marker (BNIP protein) was revealed in the plasma vesicles in the endometriosis group, but not the autophagy and apoptosis factor (Beclin). Besides, patients with endometriosis showed higher level of the proliferative isoform of the estrogen receptor (ER- $\beta$ ) in the plasma vesicles compared to the control group, while the level of the ER- $\alpha$  and progesterone receptors (isoforms B and A) didn't differ. The analysis in the peritoneal fluid exosomes didn't reveal any statistical differences among studied parameters. Patients with PE were characterized with higher levels of proliferation (ER- $\beta$ , p38) markers and aerobic glycolysis parameters (MCT, PDK, Glut1), along with the decrease of apoptosis markers (bax/bcl2) in the endometrial lesions in comparison with the unaffected peritoneum ( $p < 0.05$ ) in the main group compared to the control group.

**Conclusion:** Patients with peritoneal endometriosis demonstrate the activation of proliferation and modification of microenvironment in endometrioid foci, mediated by the pathways of aerobic glycolysis and reduction of apoptosis, which emphasizes the necessity to start timely therapy from the disease manifestation in adolescence.

**Funding:** The work was carried out with the financial support of the state assignment of Ministry of Health "The role of energy metabolism and immune defense disorders in the development of various forms of endometriosis, the development of personalized therapy and the forecast of its effectiveness in the early reproductive period (from menarche to 18 years)" 18-A21.

## Key words:

peritoneal endometriosis; dysmenorrhea; mitochondrial dysfunction; aerobic glycolysis; apoptosis; estrogen receptor  $\beta$ ; adolescents

## References:

**Funding:** The work was carried out with the financial support of the state assignment of Ministry of Health "The role of energy metabolism and immune defense disorders in the development of various forms of endometriosis, the development of personalized therapy and the forecast of its effectiveness in the early reproductive period (from menarche to 18 years)" 18-A21.

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# CONVENTIONAL CYTOGENETIC ANALYSIS WITH MOLECULAR CYTOGENETICS FACILITATES GENETIC COUNSELING

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**Background:** An 18-year-old female patient with short stature, amenorrhea, and primary ovarian insufficiency, was referred for conventional cytogenetic analysis.

**Methods:** A peripheral blood sample was obtained, and two individual lymphocyte cultures were stimulated with phytohemagglutinin to obtain metaphase chromosomes. GTG banding was performed, and 100 metaphase spreads were analyzed. FISH on peripheral blood cells was performed using CEP X, CEP 11 and CEP Y probes, and 10 metaphases were evaluated for each probe.

**Result:** A 45,X karyotype designation was observed in 56 out of 100 metaphases studied. In the remaining 44 metaphases a 46,X,+mar was observed (female karyotype with monosomy X and a small marker chromosome). Further investigation by FISH revealed that the marker was a ring chromosome derived from chromosome X. Thus, the final karyotype was 45,X[56]/46,X,r(X)[44], which according to the literature is reported with an incidence of 7-16% among Turner syndrome patients.

**Conclusion:** Conventional cytogenetic analysis cannot fully describe the genetic content of marker chromosomes. The combination of conventional cytogenetic analysis with molecular cytogenetics describes in detail complex karyotypes and assists genetic counseling. Diverse features of the ring X chromosome, such as its size and the genes involved, may impact the phenotype and comorbidities

## Key words:

Conventional cytogenetic analysis, molecular cytogenetics, Turner syndrome, karyotype, genetic counseling

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# THE TIME TREND OF AGE AT MENARCHE IN GREECE, A HIGH INCOME, INDUSTRIALIZED COUNTRY

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Ermioni Tsarna

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**Study objectives:** Menarche is determined by multiple genetic and environmental factors (1). Genome-wide association studies have identified several genes or loci that directly affect menarcheal age (1). In addition, environmental determinants, such as nutrition, socioeconomic and psychosocial factors, and endocrine-disruptive chemicals, influence the onset of menstruation (1, 2). Age at menarche is thought to change over time from the prehistoric period to the present, a change attributed to environmental rather than genetic determinants (3). The aim of this study was to describe time trends in age at menarche in a high income, developed country among women born between the 1930s and the 2000s (4).

**Materials and methods:** Data regarding year of birth and age at menarche were extracted from structured interviews that were obtained from 2586 women, who visited the outpatient OB/GYN offices between 2017 and 2020. Since both age at menarche and year of birth were heavily tailed data, we opted for non-parametric analyses. In particular, the Spearman rank correlation coefficient ( $r_s$ ) was calculated for the total study population and for subgroups with more than 50 study participants, based on nationality. The results were regarded as statistically significant, if  $p$ -value was less than 0.05.

**Results:** Among the total study population ( $n=2282$ ), year of birth spanned from 1934 to 2005; the  $r_s$  was  $-0.07$  ( $p<0.01$ ) and the mean age at menarche was 13.25 years among women born in the 1930s and declined to 12.1 years in those born in the 2000s (Table 1). Similarly,  $r_s$  was  $-0.07$  ( $p<0.01$ ) among women with Greek nationality ( $n=1724$ ) and the mean age at menarche declined from 13 to 12.17 years (Table 1). The time trend of age at menarche was more pronounced in women with Albanian nationality ( $r_s=-0.24$ ,  $p<0.01$ ,  $n=261$ ) and former USSR nationalities ( $r_s=-0.25$ ,  $p<0.01$ ,  $n=128$ ) (Table 1). A negative and comparable in magnitude  $r_s$  was observed also in women with Central and Eastern European nationalities ( $r_s=-0.23$ ), although it was non-significant ( $p=0.11$ ) (Table 1). To be noted, the Central and Eastern European nationalities subgroup had the smallest sample size ( $n=52$ ).

**Conclusions:** In our study, the age at menarche declined with time among women born after the 1930s. This decline was steeper among women of Albanian and former USSR descent. The aforementioned countries have experienced a change of political system during the period examined in our study, which directly impacts the environmental determinants of menarcheal onset and could, thus, explain the steeper decline in age at menarche.

## Key words:

time trend, age, menarche, genetic factors, environmental factors

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# PRIMARY OVARIAN INSUFFICIENCY IN A FORTTEEN YEARS OLD GIRL

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Ana Ranc

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Primary ovarian insufficiency (POI), is defined as primary hypogonadism in a woman under the age of 40 years.

A 15-year-old female patient came to the clinic for a check-up due to secondary amenorrhea. The menstrual cycle was for four years regular, then the period stopped. The patient was otherwise healthy.

At the time of examination, pubertal development was Tanner stage 2. Imaging diagnostics showed a normal uterus and smaller and non-functioning ovaries. Laboratory tests showed an elevated FSH value (145 IU/l) and a low Estradiol value ( $<0.04$  nmol/l). The patient was treated multidisciplinary due to premature ovarian failure. A genetic testing was within normal limits. Bone density measurement was normal. Combined hormone therapy was introduced. The treatment aim was to ensure the definitive development of secondary sexual characteristics and to have a positive effect on bone density. The patient received psychological support and a conversation about expected problems in the field of reproduction.

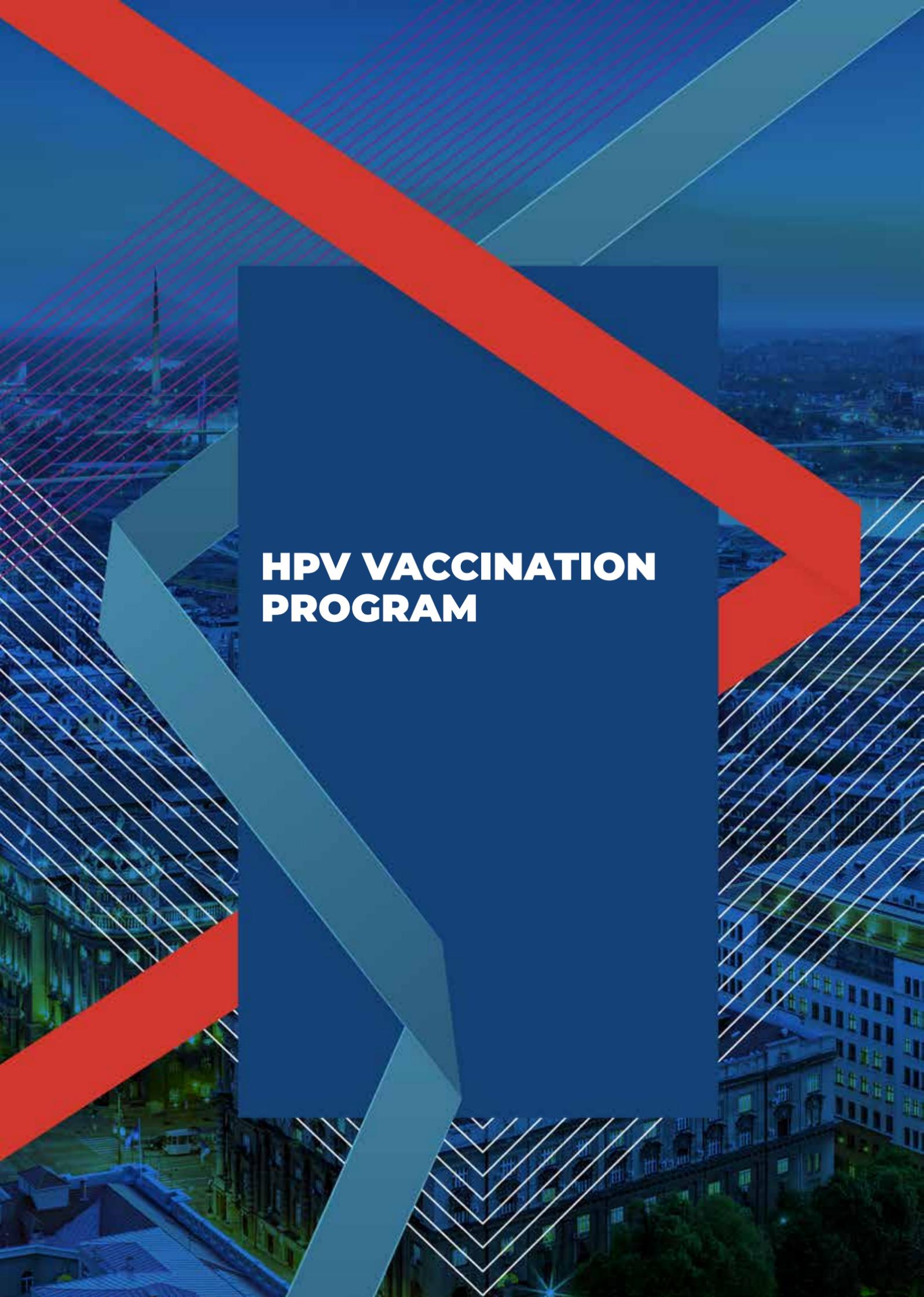
The presented case is an example of good clinical practice of a multidisciplinary approach and successful recognition of POI in a young woman. With timely diagnosis and treatment, we enabled the patient to complete pubertal development and prevent possible complications of hypoestrogenism.

## Key words:

puberty ovarian insufficiency amenorrhea

## References:

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**HPV VACCINATION  
PROGRAM**

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# HUMAN PAPILLOMAVIRUS IMMUNIZATION IN CHILDHOOD CANCER SURVIVORS

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Human papillomavirus (HPV) is the causative factor in over 90% of cervical and anal cancers and over 70% of oropharyngeal, vulvar, vaginal, and penile cancers[1]. Childhood cancer survivors are at higher risk of developing HPV-related dysplasia and cancer later in life, as compared to the general population. Longitudinal cohorts of childhood cancer survivors have shown up to a 3-fold increased risk of HPV-associated subsequent malignancies compared to controls[2]. For childhood cancer survivors diagnosed with HPV-related malignancy, younger ages at diagnosis are seen even after controlling for screening[2,3]. These effects are seen both for patients who did and who did not undergo radiation therapy and chemotherapy[2]. It has been hypothesized that immune dysfunction as a result of accelerated aging may be driving this increased risk[3]. HPV vaccination is an evidence-based intervention to decrease the risk of developing HPV-related dysplasias and malignancies[4]. Immunogenicity of the HPV vaccine in adolescent and young adult cancer survivors is non-inferior compared to controls without a history of cancer[5]. Nonetheless, surveys and single-institution studies of immunization rates in eligible childhood cancer survivors suggest they may have lower rates of initiation of the series, compared to the general population[6,7].

This study is a population-based retrospective cohort study to evaluate HPV vaccine initiation in childhood cancer survivors in California. Database linkage between the California Cancer Registry and the California Immunization Registry is planned in order to understand the prevalence of HPV vaccine initiation in childhood cancer survivors who were eligible for HPV vaccination based on age between January 2015 and December 2020. Multivariate regression will be used to identify factors associated with HPV vaccine initiation in this population. Factors to be assessed include age at cancer diagnosis, sex, race/ethnicity, rural/urban address, socioeconomic status quintile, payer (public vs private), census tract, linguistic isolation, type of cancer diagnosis, history of stem cell transplant, history of chemotherapy, and history of radiation. This will be the largest analysis of HPV immunization in childhood cancer survivors described in the literature so far, and the first to link a statewide cancer registry with a statewide immunization registry. With increasing rates of cancer survivorship in childhood and adolescence, new strategies are needed on how to address survivorship-related gynecologic concerns. Understanding factors associated with HPV immunization in childhood cancer survivors is essential in order to tailor interventions targeted at improving uptake in this population, which is known to be vulnerable to subsequent malignancies.

**Key words:**

HPV, vaccination, immunization, survivorship, cancer

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# CURRENT GENOTYPICAL HPV VACCINATION COVERAGE AMONG FEMALES IN CANTON SARAJEVO, BOSNIA AND HERZEGOVINA

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**Background:** Human papillomaviruses (HPV) are one of the most frequent causes of cervical, anal, and oral cancer. HPV vaccination is an effective method of primary prevention of the infection and has just recently begun in Canton Sarajevo for young females ages 11-26.

**Objective:** The purpose of this study is to evaluate whether the currently administered quadrivalent HPV vaccine Gardasil would be an effective protection against cervical cancer in regards to the genotypical incidence of HPV infection among females in Canton Sarajevo during a 10-year period.

**Methods:** This cross sectional study included data sampled over the last 10 years at "Center for Gynecology, Perinatology and Infertility "Mehmedbašić" among patients admitted for gynecological examination in Canton Sarajevo in Bosnia and Herzegovina.

**Results:** In total, 1517 patients were included in the study out of which 653 (43.05%) patients had positive HPV test and 864 (56.95%) had negative HPV results. HPV positive patients, 386 (59.1%) were infected either with one type of virus only, while 267 (40.9%) patients were infected with multiple virus strains where we have identified 166 virus strain combinations. Research revealed that the following specific HPV viruses were present in the individuals who had only one virus strain: 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, and 68. Among all the patients, HPV-16 was the most common strain (22.5%), and HPV-18 was discovered in 5.1% of them.

**Conclusion:** As Gardasil vaccine protects against strains 6,11,16,18; according to our study, 27.5% of patients would be protected considering high risk strains if vaccinated.

## **Key words:**

vaccination, Gardasil, Bosnia and Herzegovina, cervical cancer, screening

## **References:**

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# HPV INFECTION IN ADOLESCENTS AND ADULTS: IS THERE A DIFFERENCE?

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**Background:** Human papillomavirus (HPV) is one of the most common concerns for the sexually active population. Prevalence rates are higher in adolescence. The use of HPV DNA detection tests is part of the screening efforts for HPV-related precancerous and cancerous lesions. HPV typing distribution may be different in adolescence compared to adults. The aim of this study was to describe the prevalence of human papillomavirus (HPV), and the distribution of different HPV types.

**Material:** We analyzed data from 300 women, attending a private diagnostic center. We divided women into two separate groups. Group A consisted of 100 adolescents, while Group B consisted of 200 adult women, serving as a control group. HPV DNA from cervical samples was extracted and HPV genotyping was performed. We compared the differences between HPV prevalence as well as HPV typing distribution between the two age groups.

**Method:** Total DNA was extracted from the referred sample and the conserved genetic region L1 of HPV was amplified by PCR (HPV Direct Flow Chip Kit, Master Diagnostica, CE IVD). PCR products were used for reverse hybridization with specific probes for 35 HPV strains\* on hybrid spot 24 system. Analysis of the results was done with hybriSoft software (Master Diagnostica).

**Results:** Out of the 100 specimens analyzed from adolescents in group A, 44% were positive for HPV, with either single or multiple infections identified. The most common HPV type was 42, detected in 10 samples either alone or in combination with other types. The most prevalent high-risk HPV types were 51 (10 samples) and 56 (7 samples), while high-risk types 31 and 39 were only found in one sample each. Surprisingly, High-risk types 16/18 were not found in any sample of group A.

Out of the 200 specimens analyzed from group B, 35% (71 samples) were positive for any HPV type. From the HPV-positive samples, type 42 was the most prevalent being recognized alone or together with other types in 21 samples. The second most prevalent were types 62 and 81, found 14 times. The 6 most common high-risk HPV types were 31 (11 samples), 45 (9 samples), 59 (7 samples), 16 (6 samples), 51 (6 samples), and 56 (6 samples).

**Conclusion:** HPV, including high-risk types, is very common among sexually active adolescents. These data indicate that not only the prevalence of HPV infection varies between adolescents and adults, but even the HPV types distribution is different.

## Key words:

HPV, adolescents, adults, prevalence, typing.

## References:

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# HPV VACCINATION STATUS AMONG A SOCIOECONOMICALLY DEPRIVED POPULATION IN GREECE AND RISK FACTORS OF NON-VACCINATION

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Ermioni Tsarna

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**Study objectives:** According to the WHO, 90% of girls up to 15 years old should be vaccinated against HPV by 2030 (1). In Greece, HPV vaccination coverage between 2017 and 2021 was 55.4% among girls aged 11-18 years old (2). In Greece, the National Health System funds vaccination against HPV in females, initially up to 26 years old and currently up to 18 years old. The aim of this study was to estimate the extent of vaccination in a socioeconomically deprived population in Greece, based on regional Human Poverty Index analyses, and to examine risk factors for non-vaccination (3).

**Materials and methods:** This study was conducted among 809 women born between 1982 and 2008, for whom HPV vaccination has been funded by the National Health System. These women have visited the outpatient OB/GYN office and given a structured interview. Potential risk factors for non-vaccination were evaluated with the Chi square test for categorical variables and the non-parametric Kruskal-Wallis Rank Sum Test for continuous variables.

**Results:** Only 180 out of 809 participants (22.25%) were vaccinated against HPV. Among the 94 study participants younger than 20 years old at the time of interview, 46 (48.94%) were vaccinated. In contrast, only 134 out of 714 (18.77%) women older than 20 years old at the time of the interview were vaccinated against HPV. The aforementioned indicates an improvement in vaccination coverage against HPV over the years. In our total study population, women that were not vaccinated against HPV were born earlier, were older at the time of interview, were less likely to be insured, less likely to be single, more likely to be unemployed, were more likely to be smokers, were less likely to use condoms, were more likely to use intrauterine devices for contraception, were more likely to engage in intermittent sexual intercourse for contraception, had a lower educational level, were more likely to have had at least one pap smear, had greater parity and gravidy status, and were more likely to have breastfed at the time of interview. No other examined variable differed significantly between the two groups.

**Conclusions:** Among a socioeconomically deprived population in Greece, vaccination coverage was low but has improved among women below 20 years old, approaching the national vaccination coverage. However, women who are at higher risk of contracting HPV and developing cervical intraepithelial neoplasia and cancer were less likely to be vaccinated.

## **Key words:**

HPV, vaccination, socioeconomic, risk factors, non-vaccination

## **References:**

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The background is an aerial night photograph of a city. A prominent cable-stayed bridge with many red cables is visible in the upper left. The city lights are visible in the lower right. Overlaid on the image are several geometric shapes: a large dark blue rectangle in the center, a thick red diagonal band crossing from the top left to the bottom right, and a light blue diagonal band crossing from the bottom left to the top right. There are also thin white lines forming a grid pattern across the image.

# **APPROACHES TO DSD**

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# MAYER – ROKITANSKY – KÜSTER – HAUSER SYNDROME. CASE REPORT

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Ageneis of the uterus and vagina is a relatively common congenital defect with an incidence of 1:4,500-5,000 in female fetuses. Usually it is diagnosed during the psychologically fragile period of puberty, when girls establish their first partner relationships. The inability to have sexual intercourse can cause feelings of inferiority and low self-confidence.

Choosing the right way to enable sexual intercourse has no easy solution and always depends on the individual decision of the girl. The surgical solution is not only about the procedure performed, but also about the follow-up period, when the support of the family and the attending physician is essential to encourage the patient with continual dilatations. The girl must be aware that the vagina needs to be dilated throughout her life.

The issue of reproduction is a separate chapter. The possibility of genetic testing as part of preimplantation diagnosis for genetic variants of MRKH syndrome with associated defects appears to be a possible extension.

This year a 21-year-old girl with MRKH type 2 underwent surgery in our department. We performed neoplastic surgery according to Vecchiatti. The operation itself was performed without complications.

## **Key words:**

müllerian dysgenesis, Rokitansky, Vecchiatti

## **References:**

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# COMPLETE ANDROGEN INSENSITIVITY SYNDROME IN GIRL WITH PRIMARY AMENORRHEA

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A 16-year-old girl was born at term. Amniocentesis and prenatal diagnosis were previously carried out and a normal male karyotype, 46,XY was obtained. Physical exam revealed a phenotypic female with primary amenorrhea, Tanner stage III breast development, Tanner stage II pubic hair and no clitoral enlargement or other evidence of virilization. External genitalia were infantile and vagina was 4 cm length. Her serum follicle-stimulating hormone (FSH) level was 6,3 IU/L, luteinizing hormone (LH) level was 13,6 IU/L and total testosterone level was 31,3 nmol/L. Repeated karyotype: 46, XY and positive SRY gene. Laparoscopic surgery revealed bilateral gonads and absence of uterus and fallopian tubes. Bilateral gonads were excised and histopathological examination revealed presence of testicular tissue showing seminiferous tubules with rare Leydig cells and nodules of seminiferous tubules with hyperplasia of Leydig cells. Seminiferous tubules are lined with Sertoli cells, without the presence of germ cells.

After all, data from the family history speak in support of complete androgen insensitivity syndrome, as an X-linked recessive disorder of sexual development. Namely, one older sister had a gonadectomy at the age of 18 and has been using hormone replacement therapy ever since. Her mother's sister had gonadectomy at a young age also.

## **Key words:**

Sexual development, primary amenorrhea, androgen insensitivity

## **References:**

Emans, Laufer, Goldstein's Pediatric and Adolescent Gynecology Sixth Edition

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# IMPROVING THE LONG TERM SUPPORT OF CHILDREN WITH VARIATIONS OF SEX CHARACTERISTICS BY PARTICIPATORY RESEARCH

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This presentation provides experiences and preliminary outcomes from a Swiss Citizen Science Research Project.

Variations of sex characteristics (VSC) comprise a group of congenital variants, which can lead to obvious genital ambiguity or differences in development of internal sex organs. Apart from biological considerations, affected families face various social and psychological challenges (e.g. gender of rearing, reproduction, discrimination).

In the past, medical decisions were largely made by medical personnel caring for these families. More recently, holistic approaches and shared decision making have gained increasing importance. Multidisciplinary teams (medical professionals, psychologists, social workers and ethicists) discuss each individual case in the best interest of the child and make joint decisions with involvement of the parents.

We have recognized the need for peer support, meaning other affected individuals and families acting as a crucial supportive element and enabling families to deal with these challenging situations. The aim of this project is a transdisciplinary exchange between affected individuals, families, members of peer support groups and medical professionals in focus groups, questionnaires, and participant observations. Our goal is to improve our understanding regarding needs for peer support and to enhance networking among affected individuals whilst guaranteeing the quality and neutrality of information.

To our knowledge, this is the first citizen science project in the field of VSC in Switzerland. In this very controversially discussed field it is essential to improve the dialogue between peers and medical professionals with the ultimate goal of improving support and quality of life in affected individuals.

## **Key words:**

DSD, participatory research, citizen science

## **References:**

provided in oral presentation

# OVARIAN FUNCTION IN PATIENTS WITH TURNER SYNDROME DEPENDING ON AGE AND ONSET OF SPONTANEOUS PUBERTY

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**Introduction:** Ovarian function in patients with Turner syndrome (PTS) directly depends on the pathology of the X-chromosomes and the monosomal karyotype is considered as a significant predictor of premature ovarian insufficiency (POI) even before the girl reaches reproductive age [1,2]. However, some researchers describe the presence of oocytes in TS gonads, but the timing of follicular pool depletion is unknown [3-7].

**Purpose:** To evaluate ovarian function in PTS depending on passport age and stage of spontaneous puberty.

**Materials and methods:** We conducted a retrospective analysis using data of 60 PTS without the SRY-gene aged 9-17 years (28 with monosomy 45,X; 3 - with a mosaic karyotype 45,X/46,XX; 7 - with an anomaly structures of one of the homologues of the X-chromosome; 18 - mosaic karyotype 45,X/46,XX with one marker, ring or isochromosome X; 3 - other variants of TS). The patients were divided into groups by age: girls under the age of 12 inclusive (n=8) - group I, adolescents over 13 years old with spontaneous puberty (n=26) and without it (n=26) constituted groups II and III, respectively. Different karyotypes were evenly distributed in the groups.

**Results:** The average passport age at admission was  $14.9 \pm 2.17$ , with a bone age -  $13.56 \pm 2.71$  years. Spontaneous puberty was confirmed in 29 patients, of whom spontaneous menarche was in 9, including 3 with a monosomal karyotype.

We revealed a lower level of FSH in group I (50.3%,  $p < 0.01$ ) and group II (33.9%,  $p < 0.05$ ), compared with group III. The mean FSH values in three groups were  $52.79 \pm 35.09$ ,  $70.25 \pm 50.58$ , and  $106.2 \pm 38.05$ , respectively. There were no significant differences in estradiol levels between the groups. A detectable level of AMH was registered in 7 patients, including 2 from group I and 1 from group III. In group II follicles in the ovaries are significantly more often were visualized ( $p < 0.05$ ). A gonadal biopsy was taken in 9 45,X-patients: primordial follicles were detected in 1, nests of follicular tissue cells in 1, Sertoli cells in 1 and SRY-gene in one gonad in 1 patient in the absence of it in the blood and contralateral gonad.

**Conclusion:** Considering the risk of increasing FSH levels as predictor of POI and the possibility of the presence of follicles in 45,X-patients, it is necessary to study the characteristics of OR in prepubertal PTS to identify possibility of their own reproductive potential.

## Key words:

Turner syndrome, premature ovarian insufficiency, ovarian reserve

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# RESTORING VAGINAL STENOSIS IN A CASE OF CONGENITAL ADRENAL HYPERPLASIA: INDIVIDUALIZATION FOR BEST RESULTS

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**Background:** Vaginal hypoplasia is a common finding in patients with Disorders of Sexual Development. Several surgical techniques have been described, aiming to improve psychological outcomes and create a functional and aesthetically pleasing vagina of adequate dimensions.

**Case:** We present the case of a 27-year-old 46,XX female with classical congenital adrenal hyperplasia and severe vaginal introital stenosis (of less than 1 cm in width and approximately 5 cm in length), following a feminizing genital surgery at birth. After failed previous self-dilation, surgical treatment has been decided by using a pudendus/singapore skin flap to restore the vagina. The first step included a diagonal incision, beginning from the vaginal opening and extending at a 45-degree angle towards the upper part of the vagina. Then, a full-thickness pudendus flap, measuring 5 cm in length and 3 cm in width, with an integral blood supply, was harvested from the left perineal area, lateral to the labia majora. The flap was then transposed into the dorsal vaginal defect and sutured with resorbable sutures, providing a larger vaginal opening of approximately 2-2.5 cm in width. After wound healing, vaginal dilations will follow.

**Summary and Conclusion:** An individualized approach results in proper patient management by a multidisciplinary team, providing the best results for the patient's benefit.

## **Key words:**

vaginal stenosis, Congenital adrenal hyperplasia, surgical treatment, skin flap

## **References:**

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# PROCEDURE IN A RARE CASE OF TURNER SYNDROME WITH A PARTIAL Y-TRANSLOCATION

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Turner syndrome occurs in approximately 1/2500 newborn girls. The cause is the complete or partial absence of a sex chromosome. About 50 % show the classical karyotype 45,X; the other 50 % are different mosaicisms, structural abnormalities such as iso- or ring-X-chromosomes, or, rarely, translocations between the X-chromosome and autosomes (Gravholt et al. 2017). Translocation with Y-chromosome derived material occurs but is extremely rare. In females presenting with (Yq) sequences largely composed of heterochromatin with few coding genes being present, the phenotype depends on the scale of the Xp deletion rather than Yq presence in females. In case of Turner patients with involvement of Y-chromosome the development of malignant germ cell tumors of the gonads (GCC) must be considered (Debo et al. 2021). Optimal treatment of the gonads of children with X;Y translocations requires a case-by-case weighing of the risk of developing germ cell tumors against the benefits of hormone and possibly fertility preservation. We present a patient with a rare X;Y translocation resulting in extra Y-chromosome material and a partial deletion on the X-chromosome. Genetic diagnostic steps are given, and the final therapeutic recommendation is explained.

## Case presentation:

A 14-year-old patient with short stature, regular menses, normal endocrine function presented to our pediatric gynecological outpatient clinic with hypermenorrhea causing anemia. The girl entered puberty spontaneously, menarche occurred at the age of 12. 7 years ago, genetic testing was carried out due to growth failure revealing the karyotype 46,X,der(X)t(X;Y)(p22;q11.223). FISH was carried out and showed that the deleted region in the X-chromosome contains the SHOX-gene, which is important for linear body growth. GBY (gonadoblastoma locus on the Y-chromosome) candidate genes such as TSPY, SRY were not present in the translocated region of the Y-chromosome. Due to short stature, treatment with growth hormones was started. The clinical examination revealed the following findings: height 150 cm (SD:±4,8cm), weight: 56 kg, Tanner stage: B4,P4, sonographic findings: right ovary: 2.3 x 1.8 x 2 cm with normal follicular cysts, left ovary: 2 x 1.9 x 2 cm also with normal follicular cysts, the uterus measures 6.8 x 3.3 x 3.8 cm, the endometrial reflex is 3 mm. Menstrual cycle is 28/4-5 days. The laboratory results:

CBC: Hb: 11,2 g/dl (external value before: 7,1 g/dl; Hct: 34%.

Hormone profile: LH: 1.2 mU/ml; FSH: 5 mU/ml; Estradiol: 45 pg/ml; Inhibin B: < 10 ng/L; AMH: 0.71 µg/l; Testosterone: 10,8 ng/dl; DHEA-Sulfate: 133 µg/dl.

Tumor markers: AFP: 2.1 µg/l; HCG: < 2 IU/L; CEA: <0.5ng/mL; CA 12-5: 8.0 U/ml; LDH: 162 U/l.

Gonadoblastoma Risk: Since the presence of Y material potentially increases the risk of malignant degeneration of the gonads, due to the abnormal expression of the testis-specific protein Y-encoded (TSPY), located on the short arm of the human Y chromosome, and the pluripotency factor octamer binding protein 3 transcription factor 4 (OCT3/ 4), further genetic studies were carried out to be able to narrow down the patient's individual risk (Barbosa et al. 2021). The SNP Array reveals 2 aberrations: 1.) an 8.5 Mb deletion in the short arm of an X-chromosome and 2.) at least 13 Mb material of a Y-chromosome in the range from Yq11.221 to q12. After consultation with a German DSD center and international experts, we agreed that in this particular case the risk of GCC was low with the aforementioned findings and the functional ovaries were left under close monitoring (sonography, tumor markers and MRI). Currently, there is no official recommendation for the surveillance of these patients.

## Ovarian function and Fertility:

Because of preserved gonadal function of the patient, fertility preservation is an option. 50% of the derived X-chromosome would be passed on to the offspring. In male offspring, this would most likely lead to a severe malformation syndrome and a high miscarriage rate. This was already explained to the patient during genetic counselling. The patient was referred for fertility preservation counselling.

## Conclusion:

In summary, accurate clarification of our patient's karyotype by SNP array analysis revealed a loss of 8.5 Mb of distal Xp22 and a gain of 13 Mb of Yq, not containing SRY and TSPY. Our results suggest that this der(X) chromosome leads to short stature. We suppose the malignancy risk to be low.

Addition of molecular genetic testing allows more precise clinical management and counselling of female patients with Xp;Yq translocations, including estimation of their individual gonadoblastoma risk, and interventions for fertility protection

## Key words:

Turner Syndrome, partial Y-translocation

## References:

Gravholt et al. 2017), (Debo et al. 2021).

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# PARTIAL ANDROGEN INSENSITIVITY SYNDROME AND CONGENITAL ADRENAL HYPERPLASIA IN ONE INDIVIDUAL

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Partial androgen insensitivity syndrome (PAIS) is a congenital disorder of sex development, inherited in a recessive manner coupled to the X chromosome and determined by a mutation within the gene encoding the androgen receptor. The karyotype is 46, XY, the phenotype depends on the degree of insensitivity.

Congenital adrenal hyperplasia (CAH) is a genetic defect in adrenal steroidogenesis. Due to inactivity or deficiency of steroidogenesis enzymes, cortisol deficiency and androgen excess occur. We present a case report of a rare cooccurrence of PAIS and CAH in one female patient. Now 24 years old, she was diagnosed in infancy due to ambiguous urogenital organs, presence of testes and absence of uterus. Tests were performed and showed karyotype 46, XY, presence of the SRY gene and presence of mutation, leading to the diagnosis of PAIS. A bilateral gonadectomy was performed. Due to features of androgenisation and delayed bone age, a diagnosis of CAH was initiated and confirmed by molecular testing. Estrogen substitution was started. A separate vaginal and urethral entrance was created and vaginal reconstruction was performed. Further vulvoplasty procedures are planned.

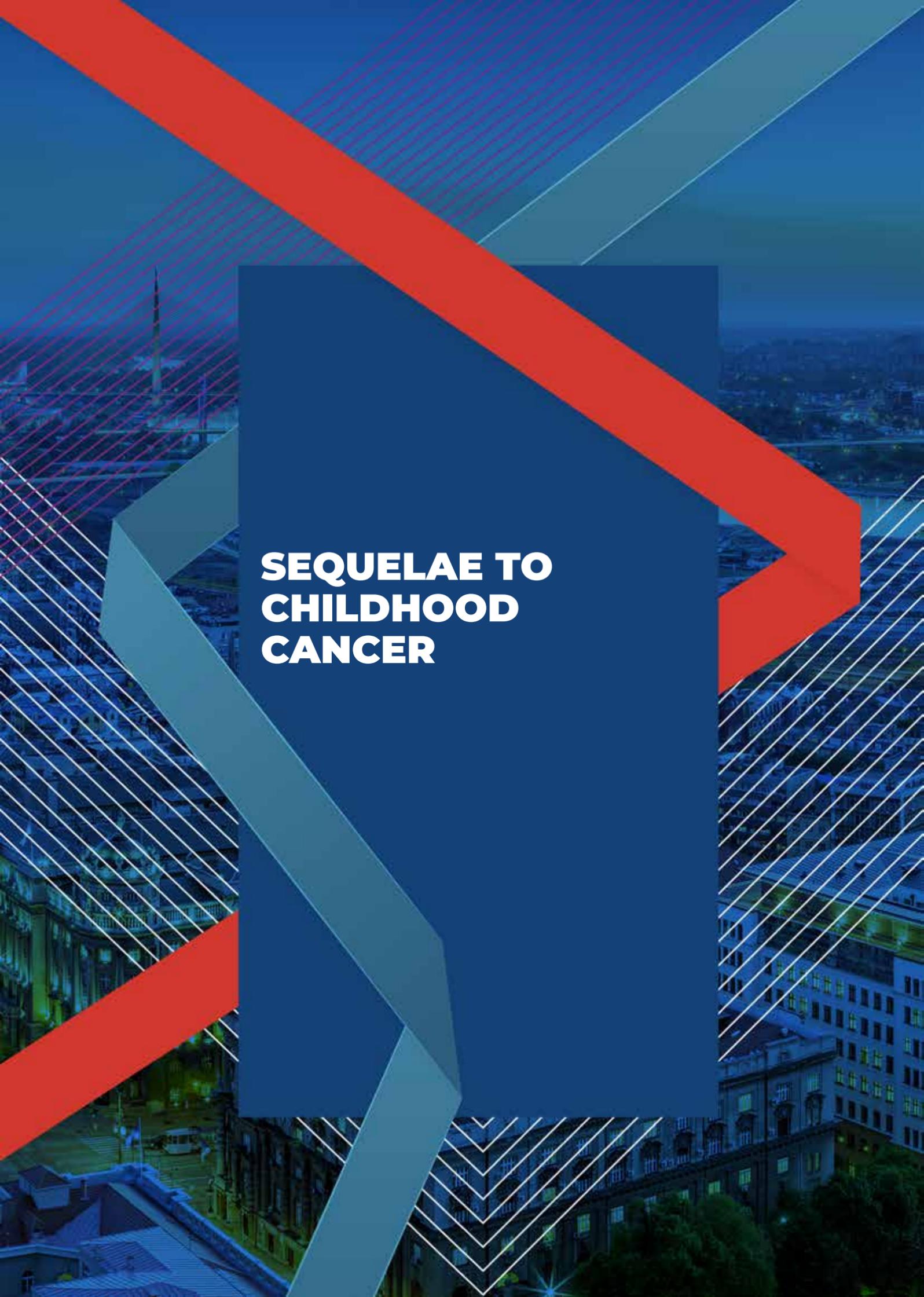
Accurate diagnosis of overlapping rare diseases is possible with careful observation and extensive diagnostic testing.

## Key words:

Disorders of Sex Development, Partial Androgen Insensitivity Syndrome, Congenital Adrenal Hyperplasia

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**SEQUELAE TO  
CHILDHOOD  
CANCER**

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# BONE MARROW TRANSPLANT SEQUEL A QUALITATIVE REVIEW

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## Introduction

Bone marrow transplant (BMT) is the treatment of choice for patients with malignant and nonmalignant hematological disorders. With a high overall survival rate, quality of life has been identified as a major concern for these patients. One of the most important gynecological adverse effects of their treatment is premature ovarian insufficiency and gynecological Graft Versus Host Disease. In our department we qualitatively reviewed 10 cases of women who underwent BMT between the ages of 14 to 43 years old and by a mini interview we tried to shed some light to the emotional journey after their treatment.

## Material and method

10 cases of Women who were referred to our department from 2019 to 2021 because of gynecological symptoms after Bone Marrow treatment were reviewed. All answered a phone interview of 10 basic questions referring to their consultation before the BMT, the gynecological symptoms that they experienced after, the time of referral to the specialized gynecological team and their feelings throughout the procedure.

## Results

9 patients had menstrual disorders or amenorrhea and 8 patients had all systemic symptoms of menopause. 1 patient suffered from vaginal synechie and 1 suffered from vaginal stenosis. All patients had to go into hormonal substitution therapy. All patients felt they had not been properly informed for the gynecological complications of their treatment and they were not prepared. One patient admitted she preferred not to have known before as it would psychologically negatively influence her. Three basic concerns were derived from the qualitative study and these were: 1) feeling of insecure because of the unknown 2) difficulty to communicate the gynecological problem with the hematologist and therefore late diagnosis and treatment 3) anger because of not being informed before the initiation of treatment.

## Discussion

Bone marrow transplant is becoming a successful treatment of hematological disorders and the number of survivors increase. Because of the chemotherapy and radiation conditioning regimens the gynecological complications are certain. This brings symptoms that affect everyday life of women as hot flushes, depression, insomnia, sexual discomfort and equally important infertility. Long term sequel if hormonal substitution therapy is not initiated is cardiovascular disease and osteoporosis. Due to the urgency of their primary diagnosis patients are inadequately informed for the specific complications and they are left to feel negatively surprised and confused when they have to deal with them. Children undergoing BMT are even at higher risk of delayed symptom identification, as there may be a lag between treatment and menarche and coitarche.

## Key words:

Bone marrow transplant, graft versus host disease

## References:

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# **OTHER SUBJECTS**

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# PREGNANCY AND BIRTH OUTCOMES IN PREGNANT FEMALE ADOLESCENTS; INFANTS OF ADOLESCENT MOTHERS

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Jelena Djuric

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Mirjana Raicevic-Pavlovic, Vesna Ljubic, Vanja Corac Stojakov, Natasa Visekruna, Danijela Boricic

The aim: To analyze the neonatal outcomes of infants born to adolescent females.

Material and methods: The retrospective analysis included 119 adolescent women aged 14 to 17. The data were obtained from delivery protocols and the histories of infants delivered at the Hospital for Gynecology and Obstetrics, Clinical-Hospital Center Zemun, over a period of seven years (2016 – 2022). The data are presented and analyzed both based on calendar age and based on the number of infants born to adolescent females. The results are presented in tabular form and as graphs, numerically and in percentages, and compared to those of the control group of 119 women of a legal age, obtained by random sampling. The analysis included: the number of infants born to adolescent females, type of delivery, the gestational age of the infant, body weight at birth (TM), the Apgar score (AS) performed at 1st and 5th minute after birth, neonatal morbidity, and neonatal outcomes.

The results: The number of adolescent females aged 14 to 17 who gave birth a baby (no. 119) made up 1.3% of the total number of births over the cited period (no. 9429). Most of the adolescent females were aged 17 (69 or 57.9 %), then 16 (31 or 26.1%), 15 (15 or 12.6%), and finally aged 14 (4 or 3.4%). A vaginal delivery was recorded for 110 of the adolescent females (92.4%) and a Cesarean birth for 9 (7.6%), while 100 vaginal deliveries were recorded for the control group (84%), along with 19 Cesarean births (15%). Fourteen infants were born prematurely (11.8%), while no such cases were recorded for the control group. The average birth weight of the infants born to adolescent females was 2.951,4 grams, while for the control group it was 3.420,6 grams. The average AS of the newborns at 1st minute was (8.6) and at 5th minute (9.7), with no recorded differences for the control group. Neonatal morbidity in the group of infants born to adolescent females was noted in 31 cases (26%), and in the control group in 10 (8.4%). In sum, 114 newborns were discharged in good health (95.8%), and 5 were referred to a different higher-ranking healthcare facility (4.2%), while in the control group all 119 patients (100%) were discharged in good health.

Conclusion: There was lower prevalence of Cesarean section, a greater percentage of premature births and infants too small for their gestational age (SGA), a more frequent occurrence of neonatal morbidity, and a need for further treatment among the adolescent women compared to the control group of females of a legal age.

## Key words:

adolescents, delivery, newborn, outcome

## References:

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# MALIGNANT GERM CELL TUMORS IN RARE SITES: 2 CASES OF VAGINAL YOLK SAC TUMORS IN FEMALE INFANTS

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**Background:** Ovary tumor often occurs in the gonads. It is rare in extragonadal tissue, especially in the vaginal area.

**Case:** Two 5-month-old female infants visited our clinic for "irregular vaginal bleeding and tissue discharge." Physical examination: vaginal bleeding in the vaginal opening increased after digital rectal examination. Ultrasound and MRI indicated space-occupying lesions in the vaginal, 2.9cm×1.1cm×1.0cm and 4.0cm×3.6cm×3.7cm, respectively; AFP in the blood increased, 251.52ng/ml and 2261.81ng/ml; vaginal and cervix examination with Cystoscopy under anesthesia revealed soft vegetation, bleed easily when touch. Major resection of the mass was performed. Histopathology suggested yolk sac tumors (reticular pattern). The final diagnosis was a vaginal yolk sac tumor (III stages). After being treated with a chemotherapy regimen of cisplatin, etoposide, and bleomycin (PEB) for six courses, the AFP decreased to normal in the first and the second course for two infants. 42- and 23-month follow-up showed their AFP was back to normal, and no recurrence.

**Summary and Conclusion:** Malignant germ cell tumors in the vagina should be considered for vaginal bleeding and discharge of tissue. The elevated serum AFP is a prominent feature of the yolk sac tumor. Treatment recommends vaginal endoscopic surgery combined with a chemotherapy.

**Key words:**

vaginal yolk sac tumors, female infants

**References:**

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# ONCOFERTILITY AND THERAPY INITIATING PUBERTY INDUCTION IN GIRLS WITH FAMILY HISTORY OF HEREDITARY CANCERS

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## Introduction:

In children after oncological treatment, gonadal damage can result not only in infertility, but also in lack of puberty in adolescence. The decision about medical puberty induction may be hindered by the presence of hormone-dependent cancers in family. The literature data focus mainly on the use of menopausal hormone therapy BRCA-mutation carriers. There is a need for a clear message to caregivers and young adults about medical puberty induction and fertility preservation.

## Case:

We present a case of 16-year-old girl with primary ovarian failure after oncological treatment. Physical examination: Th1, Ax1, Pb1; laboratory tests: FSH 85.0 mIU/mL, LH 59.0 mIU/mL, Estradiol < 0.05 pg/mL, AMH < 0.01. At the age of 9, treated for acute lymphocytic leukemia, she received AIEOP-BFM chemotherapy followed by bone marrow transplantation (allo-HCT). Due to a significant family history of breast and ovarian cancer (mother and two 2. line relatives), the parents did not agree to start hormone therapy despite of lack of confirmed oncogenic mutations. After explaining the effects of hypoestrogenism, estrogen replacement therapy was started, restoring the physiological process of puberty.

## Summary and Conclusion:

The girls after oncological treatment are a specific group of patients who require individualized care by a multidisciplinary team. Little is still known about the safety of puberty initiating therapy in patients suffering from familial breast and ovarian cancer.

## Key words:

Oncofertility, puberty induction, estrogen replacement therapy, hormone-dependent cancer

## References:

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# LAPAROSCOPIC MANAGEMENT OF A 6-YEAR-OLD GIRL WITH MATURE TERATOMA AND OVARIAN TORSION

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## Introduction

Ovarian torsion is a rare condition that requires urgent intervention to prevent ovarian damage. Mature teratomas are the most common benign ovarian tumours and can occasionally cause torsion. Laparoscopic approach is the preferred method of treatment for ovarian torsion.

## Case

We present a case of a 6-year-old girl who was repeatedly evaluated by pediatricians due to occasional abdominal pain and vomiting for 6 months. She was presented to our department with severe abdominal pain and was diagnosed with ovarian torsion. Laparoscopic evaluation with detorsion of adnexa was performed. An enlarged ovary due to a cyst, which had imaging characteristics of a teratoma, was confirmed. We decided not to remove the cyst during the first surgery because of oedema and consequentially higher risk of bleeding. We performed enucleation during the second laparoscopic surgery, with aim to prevent further torsion and potential ovarian damage.

## Summary and Conclusion

Laparoscopic detorsion of ovarian torsion and enucleation of mature teratomas is a safe and effective approach in children. Early diagnosis and intervention can prevent irreversible ovarian damage. Pediatricians should consider ovarian torsion as a potential cause of abdominal pain in children, even in the absence of constant symptoms.

## Key words:

laparoscopy, ovarian cyst, ovarian torsion, pediatric gynaecology

## References:

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# FEMALE DELAYED PUBERTY DUE TO 17- $\alpha$ -HYDROXYLASE DEFICIENCY—A CASE REPORT

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**Background:** CAH is a group of autosomal recessive diseases mainly caused by corticosteroid synthesis disorder due to the defects of catalytic enzymes in various stages of adrenal corticosteroid synthesis pathway. 21OHD is the most common type, accounting for 90-95%; 17OHD is rare, with a global incidence rate of about 1:50000, accounting for 1% of CAH cases. The incidence rate varies from place to place in different regions; in China, 17OHD is the second most common CAH.

**Case:** This article introduces the disease characteristics and diagnosis and treatment plan of 17OHD; through the diagnosis and treatment of a girl whose clinical manifestation was only no female secondary sexual sign when she was 15Y. The gene diagnosis showed CYP17A1 gene heterozygous mutation.

**Summary and Conclusion:** The final diagnosis requires gene diagnosis, but it plays a crucial role in mastering the clinical characteristics of the disease, interpreting various indicators of sex hormones, evaluating adrenal function and understanding the metabolic pathway of steroid hormones.

## **Key words:**

CAH, 17OHD, female delayed puberty, primary amenorrhea

## **References:**

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# A RARE CASE OF VAGINAL DISCHARGE IN PUBERTY: CASE REPORT

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Chylous disease and lymphedema are rare diseases, which are mainly caused by lymphatic system diseases (congenital dysplasia, acquired injury and other factors). For a long time, it has been difficult to diagnose and treat clinically.

**Case:** This article introduces a rare case of an adolescent girl with intermittent vaginal discharge, discusses the clinical case characteristics and diagnosis and treatment methods of the children with vaginal chylous fistula, and provides a reference for the clinical diagnosis and treatment of this disease. The patient was diagnosed with primary lymphatic malformation and vaginal chylous fistula through pelvic ultrasonography, CT, MRI, hysteroscopy and a series of examinations.

**Summary and Conclusion:** In this case, the vaginal discharge was significantly reduced after anti inflammation treatment and later dietary intervention. Vaginal chylous fistula caused by primary lymphatic malformation is extremely rare. Early identification and diagnosis are very important to improve the quality of life of patients.

## **Key words:**

Chylous disease, vaginal chylous fistula, primary lymphatic malformation

## **References:**

1. Tang G: Vaginal discharge caused by lymphatic malformation identified by lymphoscintigraphy combined with T2-weighted magnetic resonance imaging. J Vasc Surg Cases Innov Tech. 2020 Feb 1;6(1):1-5. doi: 10.1016/j.jvscit.2019.10.003. PMID: 32025595; PMCID: PMC6997504.
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# BARRIERS IN HEALTH CARE AND EDUCATION FOR ADOLESCENT GIRLS IN TANZANIA.

## A QUALITATIVE ANALYSIS

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**Introduction:** Tanzania has a high adolescent birth rate of 22% and almost half of sexually active adolescents do not have access to effective contraception. Teenage pregnancy is considered a high-risk pregnancy. Furthermore, it leads to social inequalities for both mother and offspring.

**Methods:** We conducted semistructured interviews with 12 adolescent mothers, during their stay on the postnatal ward of the maternity department of MnaziMmoja Hospital in Zanzibar. The study took place between November and December 2022. Data were then analyzed qualitatively.

**Results:** Four main themes emerged from the interview data: 1. Effects of Pregnancy in the life of the girls. Pregnancy at this young age seemed to affect the girls in a negative way both emotionally as well as in their educational and professional development. 2. Insufficient family planning uptake. Unfounded rumors and fears regarding contraception and abortion prevailed, leading to unplanned pregnancies. 3. Obstacles in education. Superstition, religion, educational and financial difficulties seemed to affect many life decisions, including education and continuation of the pregnancy. 4. Non-adherence to the suggested obstetrical care. Most of the girls did not prioritize their health and their pregnancies highly.

**Conclusions:** Adolescent pregnancy remains an important public health issue in Tanzania, despite important measures by authorities to curtail it. Changes should be performed in education and professional opportunities as well as in family planning, enabling young girls to achieve professional and personal goals effectively, while further delaying motherhood into adulthood.

### **Key words:**

Adolescence pregnancy, Contraception, Education, Family planning, Africa, Tanzania, Zanzibar.

### **References:**

1. Tang G: Vaginal discharge caused by lymphatic malformation identified by lymphoscintigraphy combined with T2-weighted magnetic resonance imaging. J Vasc Surg Cases Innov Tech. 2020 Feb 1;6(1):1-5. doi: 10.1016/j.jvscit.2019.10.003. PMID: 32025595; PMCID: PMC6997504.
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