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Pediatric and Adolescent Gynecology — diagnostic and therapeutic trends

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Pediatric and adolescent gynecology is a topic that gynecologists, pediatricians, pediatric surgeons, pediatric endocrinologists or dermatologists face in their daily practice. It encompasses a range of gynecological problems, such as vulvovaginal infections, vulvar dermatoses, precocious puberty, menstrual disorders, heavy menstrual bleeding or neoplasms of the reproductive organs, as well as situations in which the doctor encounters sexual abuse or rape of an adolescent patient [1, 2].

Vulvovaginal infections are one of the most common reasons for a parent to visit the Pediatric or Child and Adolescent Gynecology Outpatient Clinic with the child. The etiologic agent of vulvovaginitis before adolescence most often includes: infections with *Enterococci, Escherichia coli, Streptococcus viridans, Group A Streptococcus, Hemophilus influenzae* and among adolescent girls: *candida*, BV (*bacterial vaginosis*) infections and *Trichmonas vaginalis*. Girls report itching of the anal and/or vulvar area, burning, accompanied by dysuric symptoms, discharge, and on gynecological examination erythema is noted [3, 4]. In the case of recurrent reproductive tract infections, the presence of a foreign body or the possibility of sexual harassment should always be considered [3, 4]. The principles of the gynecological examination of a juvenile patient are described in detail in the 2020 Recommendations of the Expert Group of the Polish Society of Gynecologists and Obstetricians [5, 6].

Another extremely important issue in pediatric gynecology are dermatoses of the vulva with special attention to *lichen sclerosus vulgaris* (VLS) — a chronic inflammatory disease of unclear etiology. VLS is characterized by clearly demarcated, pallid, atrophic skin lesions, involving lesions on the mucous membranes of the vulva and anal skin („figure-of-eight" sign) [7, 8]. 15–34% of cases among women and about 14% among girls coexist with allergies or autoimmune diseases, such as vitiligo, thyroiditis, type 1 diabetes, psoriasis, celiac disease and alopecia areata [9]. Early recognition and prompt implementation of treatment (0.05% clobetasol propionate ointment, 1st-line therapy) is crucial in preventing long-term complications of lichen sclerosus vulgaris - especially in girls, such as adhesions, resorption of the labia minora, clitoris [7, 8].

In daily medical practice, adolescent female patients with menstrual disorders constitute a large group. Among teenage girls, the most common cause of irregular menstruation is functional amenorrhea of hypothalamic origin (FHA), hyperprolactinemia, and polycystic ovary syndrome (PCOS). An in-depth differential diagnosis of menstrual cycle disorders should always be carried out in the following clinical situations: cycles < 21 days and > 90 days in the first year after menarche; cycles < 21 days and > 45 days one to three years after first menarche; cycles < 21 days and > 35 days more than three years after menarche; and for primary amenorrhea after age 15 or after > 3 years after thelarche [10–12].

A major problem in pediatric gynecology is juvenile bleeding (metrorrhagia juvenilis). Metrorrhagia juvenilis is characterized by profuse bleeding from the genital tract with clots (> 80 mL), lasting more than 10 days, often leading to profound anemia, which is not associated with any organic pathology of the reproductive organs or chronic diseases [13–15]. Juvenile bleedings are the result of immaturity of the hypothalamic-pituitary-ovarian axis and more than 90% are caused by lack of ovulation. In cases of heavy and prolonged menstrual bleedings, von Willebrand factor levels and coagulation system should always be assessed [13–15]. Treatment of adolescent bleedings depends on the severity of bleeding and serum hemoglobin levels. Pharmacotherapy includes hormonal treatment with estrogens to heal bleeding sites in the atrophic endometrium and stimulate its proliferation, and progestogens (in the luteal phase) to stabilize the endometrium and regulate the menstrual cycle [13–15].

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Diagnostic and therapeutic challenges in this age group of patients are undoubtedly malignant tumors of the reproductive organs. Malignant tumors of the ovary in the pediatric population are histologically different from those in adult women - the predominant type is non-epithelial malignant tumors of the ovary, which account for 3–6% of all malignant tumors in the juvenile [16, 17]. In 2022, detailed guidelines for the diagnostic and therapeutic algorithm for ovarian tumors in children were developed [17]. The primary goal of ovarian tumor diagnosis is to determine the nature of the lesion (benign, malignant) and to assess the possibility of sparing surgical treatment and to verify the need for surgery in the case of a non-malignant lesion [17].

Gynecologists who specialize in the care of adult women are not always prepared to treat children as well. Therefore, in the case of girls' gynecological problems, parents often have a difficulty getting a proper diagnosis and treatment quickly. Moreover, due to the specific characetr of pediatric and adolescent gynecology and the dynamic progress of knowledge, the cooperation of specialists in various fields of medicine is necessary in order to provide juvenile patients with comprehensive care with a sense of security.

Conflict of interest

All authors declare no conflict of interest.

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