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BENIGN OVARIAN NEOPLASMS IN TEENAGE GIRLS

Yangibayev Jonibek Saparbayevich
Assistant, Department of Oncology and radiology,
Urgench branch of Tashkent Medical Academy, Uzbekistan

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Abstract:

In modern life, everything is new and, unfortunately, tumor processes have begun to occur more and more often at a young age. Ovarian neoplasms in adolescent girls occur in 2 to 5% of cases, visits to a pediatric gynecologist. There are data on their diagnosis even in the antenatal period. There are separate casuistic reports of cases of ovarian tumors in infants: removal of an ovarian cyst of 102 g in a newborn 11 days old and removal of a granulosa cell tumor in a 16-week-old girl. It should be noted that tumors and tumor-like formations in the right ovary in girls occur much more often than in the left, due to its prevalence in anatomical and functional terms, which confirms the theory of genetic determination of an earlier and higher functional activity of the right ovary.

Keywords: Benign tumors, ovarian cysts, adolescents, gynecology.

An analysis of literature data on modern concepts of benign tumors and tumor-like formations of the ovaries in children and adolescents, their clinical course and debatable issues of treatment tactics was carried out. Benign tumors and tumor-like formations of the ovaries in girls are of high scientific interest and require close attention from doctors, due to the increase in cases of their malignancy, diagnostic difficulties and often unsatisfactory treatment results [1].

Recently, a large number of reports have appeared in the literature [1, 4, 6, 19] about the detection of benign tumors and tumor-like formations of the ovaries in children and adolescents aged from birth to 18 years. Tumors and tumor-like formations of the uterine appendages in the structure of pediatric gynecological pathology occur with a frequency of 1 to 4.6%. In recent years, there has been a decrease in age in patients with tumors and tumor-like formations of the ovaries [7, 11].

ETIOLOGY

Among the possible causes of tumors and tumor-like formations in girls, a burdened gynecological (cysts and true ovarian tumors) and obstetric (preeclampsia, viral diseases during pregnancy, taking various medications) anamnesis in the mother should be noted [8, 12, 16]. It is necessary to take into account social factors (environmental influences, malnutrition, frequent stress), as well as reproductive dysfunction in girls in the form of menstrual disorders, failure of neuroendocrine regulation in the hypothalamus-pituitary-ovaries system [12, 15, 22]. Studying the long-term results of ovarian surgery in children and adolescents, a number of authors [2, 3, 14] note that surgery performed before menarche (at the age of 12–14 years) has an adverse effect on further menstrual function, and the degree of functional impairment ovarian activity is directly dependent on the volume of the operation and the side of the lesion.

Classification of tumors and tumor-like formations of the ovaries, most common in childhood (according to WHO, 2003):

1. Tumor-like processes: - paraovarian cysts; — functional ovarian cysts: follicular cyst, corpus luteum cyst; - endometrioid ovarian cysts.
2. Germinogenic tumors of the ovaries: - teratomas (mature and immature); - dysgerminomas.
3. True epithelial tumors: - serous cystadenomas; - mucinous cystadenomas.
4. Gonadoblastomas.
5. Tumors of the sex cord stroma.
6. Lipid cell tumors.

From this classification it follows that in childhood there is a smaller variety of histological forms compared to adults. Sources of the formation of ovarian tumors can be all tissues included in their composition, as well as available undifferentiated embryonic elements [1]. Among benign ovarian formations in children, ovarian retention formations (follicular cysts, corpus luteum cysts, less often endometrioid cysts) predominate, the frequency of which ranges from 39.5 to 70%. They are not true tumors and are cystic-proliferative changes in the integumentary epithelium, derivatives of the ovarian follicles and stroma [9, 12]. Of the true ovarian tumors in children, non-epithelial forms predominate, due to their dysontogenetic origin (80-90%). Among them, 2/3 cases are represented by germ cell tumors [1, 2, 18].

Brief description of the most common forms of tumors and tumor-like formations of the ovaries in girls and adolescents

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Follicular cysts are false tumors that form from an unruptured egg vesicle in which the egg dies. They do not have the ability to proliferate, their size usually does not exceed 10 cm. Macroscopically, they are a cavity single-chamber formation with thin walls lined with granulosa cells. The frequency of these cysts in children aged 13 to 17 years is 9.8% [6, 7].

Cysts of the corpus luteum are tumor-like formations of the ovaries, in the cavity of which there is a transudate from the blood vessels penetrating the corpus luteum. Their wall is thick, its inner surface is folded and yellow in color. The reasons for their formation are still not clear. A number of authors insist on the inflammatory nature of this disease, other authors attach importance to the violation of hormonal regulation in the body of girls. Their frequency is not high and amounts to 2–5% [9, 12].

Germinogenic tumors are a group of ovarian tumors arising from primary germ cells that have the property of pluripotency and are able to develop in any direction. Tumor cells, as a result of transformation and differentiation, can form mature and immature tissues belonging to all three germ layers - ecto-, meso- and endoderm. The incidence of these tumors in girls and adolescents ranges from 21 to 60%. In 10–15% of patients, such tumors are bilateral [10]. Most researchers [9, 11] state that half of ovarian germ cell tumors in children are malignant. The most common germ cell tumors are mature and immature teratomas, dysgerminomas, and tumors of the epidermal sinus. Mature teratomas deserve special attention in the structure of benign neoplasms of this group. These are the most common ovarian tumors in children. Mature teratoma can be cystic (dermoid cyst) and solid. It consists of elements of three germ layers, with a predominance of the ectodermal component. The cyst wall is lined with stratified squamous epithelium containing sebaceous and sweat glands. Dermoid cysts also contain bones, teeth, cartilage, hair, eye rudiments, and nervous tissue [1, 4].

True epithelial tumors constitute from 15.4 to 26.7% of all ovarian formations in children and adolescents, thus occupying the second place after germ cell neoplasms. They are represented mainly by serous and mucinous cystadenomas. Serous cystadenoma is a smooth-walled formation with serous contents and can be either single or multi-chamber. Mucinous cystadenoma is less common in adolescents. It is always multi-chamber, contains pseudomucin in its cavities. It is characterized by rapid growth, large size, and the ability to become malignant in 5.9–13% of cases [11, 15]. Sex cord stromal tumors are formed in 3.5-11% of children. Among them, granulosa cell, stromal cell tumors, androblastoma, gynandroblastoma and unclassified tumors are distinguished. They originate from granulosa cells, theca cells, Sertoli cells, Leydig cells, fibroblasts of the ovarian stroma. They have hormonally active properties, which manifest themselves in the form of hyperestrogenism, which leads to premature puberty [1, 12].

Features of the clinical picture characteristic of the uncomplicated course of tumors and tumor-like formations of the ovaries in children

Due to the anatomical and physiological features of the girls' body (small size of the uterus, the location of the uterus and ovaries high in the abdominal cavity, underdevelopment of the small pelvis), the clinical course of ovarian tumors does not have pathognomonic symptoms and is most often asymptomatic [2, 4, 7]. The most striking clinical picture can be seen only in the case of pedicle torsion of an ovarian neoplasm, which occurs in children much more often than in adults and is associated with a higher mobility of these neoplasms [5, 8]. It should be noted that tumors and tumor-like formations in girls are located not in the small pelvis, as in adults, but in the abdominal cavity, which leads to the absence of complaints [2, 3]. Of the complaints in the uncomplicated course of tumors and tumor-like formations of the ovaries, most often you can encounter pain, menstrual irregularities and an increase in the size of the abdomen. Pain can be both low-intensity and aching, and strong, paroxysmal. The pain is most often localized in the lower abdomen above the womb and in the ilio-inguinal region (although it can also be localized in the lumbar region), it can be aggravated by physical exertion, active movements during the game or in physical education classes. With large volumes of formation, urination and defecation disorders are possible [2, 4, 5, 7]. Violations of the menstrual cycle are manifested in the form of irregular menstruation with retention cysts, profuse bleeding after 2-4 months of absence of menstruation - with follicular ones. Amenorrhea in girls is more often observed with gonadoblastoma or dysgerminoma [9]. Hormonally active tumors show signs of precocious puberty [11].

Features of the clinical picture characteristic of the complicated course of tumors and tumor-like formations of the ovaries in children

The main complications of tumors and tumor-like formations of the ovaries include torsion of the tumor stem, rupture of the capsule, suppuration, and hemorrhage into the capsule [2, 5, 19]. In this case, the following symptoms will be expressed: sudden intense colicky pain in the lower abdomen, tension of the anterior abdominal wall, positive peritoneal symptoms,

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nausea, vomiting, a slight increase in body temperature, intestinal paresis, stool retention, pallor of the skin, cold sweat, tachycardia, possible palpation of a painful formation in the projection of the uterine appendages; when trying to displace the formation, there is a sharp pain; the leukocyte reaction is not pronounced in the first hours of the disease [6, 8, 23].

Diagnosis of tumors and tumor-like formations of the ovaries in girls and adolescents

When diagnosing volumetric formations in the pelvic cavity in children and adolescents, in addition to the analysis of clinical and anamnestic data (the main complaints are given above), a recto-abdominal examination is performed to determine the consistency, the nature of the surface of the formation, the degree of its mobility and sensitivity, however, this research method does not allow identify small ovarian cysts [10, 13]. Therefore, one of the leading places in the diagnosis of volumetric formations in the pelvic cavity is occupied by ultrasound, through which it is possible to detect small ovarian formations and monitor the dynamics of development or regression of ovarian retention cysts [13, 20, 21].

Criteria for accurate diagnosis of retention ovarian formations have been developed: a diameter of 5 cm or less, a decrease in the size of the formation during dynamic observation, a completely anechoic structure, and increased sound conductivity of the formation [1, 9, 11]. An effective diagnostic method for assessing this condition is color Dopplerography, it allows you to judge the degree of ovarian vascularization. If there are formations in the ovary, attention should be paid to the structure of the formation, its echogenicity, homogeneity, the presence of cystic formations, the thickness of their walls, the presence of partitions in the cystic formation, the parietal component, as well as the involvement of other organs of the small pelvis in the process [20, 21].

In order to differentiate the benign and malignant nature of the tumor, it is necessary to clarify the presence or absence of vascularization zones inside the formation, especially in the septa or the dense component of the tumor, evaluate their number and note the features of the blood flow (laminar, turbulent, mosaic). The absence of vascularization zones inside the tumor in 75% of cases indicates a benign process [18, 20]. In torsion of the pedicle of the ovarian formation, the absence of blood flow is a poor prognostic sign, indicating that necrosis has already occurred [3]. The next step in the diagnosis of ovarian formations in girls should be considered laparoscopy. The latter successfully combines the possibilities of both a more detailed diagnosis of the nature and location of the formation, and its removal by endoscopic means [1, 3, 6]. It should be noted the importance of laboratory research in such patients. Assign the determination of the level of C-reactive protein in the blood serum; determination in the blood serum of the level of CA125, human chorionic gonadotropin, alpha-fetoprotein, cancer embryonic antigen (if hormone-producing germ cell tumors are suspected); hormonal study (determination of the level of estradiol, testosterone in the blood serum); smear microscopy, microbiological examination of the contents of the vagina with the determination of sensitivity to antibiotics (according to indications) [6, 9].

Tactics of treatment of tumors and tumor-like formations of the ovaries in children and adolescents

In the treatment of tumors and tumor-like formations of the ovaries in girls, there are two tactics. The first one is expectant. It consists in dynamic ultrasonic observation for 6 months. In the case of retention formations with a diameter of 5 cm or less, there are data on up to 60% of cases of their independent regression [14, 15]. If the neoplasm of the ovaries does not disappear on its own, they resort to the second method of treatment, surgical, in the form of laparoscopic intervention. At the same time, all pediatric gynecologists adhere to the principle of the most organ-preserving operation [15—17, 22]. The advantages of laparoscopy over laparotomy are the low invasiveness of the operation, the shorter duration of the operation and anesthesia, the reduction in the risk of postoperative adhesions, and the reduction in the recovery time of patients [17]. The volume of endoscopic operations does not differ from that performed by laparotomic access. In the presence of intact and healthy ovarian tissue, the cyst is exfoliated, the teratoma is enucleated, and the ovary is resected [12, 17]. With torsion of the appendages, detorsion, removal of the formation and fixation of the ovary are performed. Only with complete replacement of the ovary with a cyst, tumor, as well as with ovarian necrosis, adnexectomy is required [2, 3, 5]. Children and adolescents should be operated on in specialized gynecological hospitals, where it is possible to conduct the necessary studies and the full range of therapeutic measures [1, 9].

CONCLUSION

Tumors and tumor-like formations of the uterine appendages in children and adolescents are an urgent problem in modern gynecology. This is primarily due to diagnostic difficulties associated with the

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absence of characteristic complaints, asymptomatic course and the complexity of gynecological examination in children, which leads to an erroneous diagnosis, lack of correct and timely treatment and, as a result, the occurrence of complications that often adversely affect the reproductive function of a young woman. patients in the future.

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