

IMAGING OF OVARIES DURING CHILDHOOD

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ABSTRACT

Ovarian volume has been developed from 0.2 cm³ (or milliliters) in the newborn, then becomes 3 cm³ on the start of puberty and usually is 6 cm³ during adolescent period and whole reproductive age. Measuring the ovarian volume (V), instead of one or two diameters, we could recognize patients with normal volume, or those with suspected premature ovarian insufficiency ($V \leq 3 \text{ cm}^3$), or with ovarian torsion ($V \geq 3$ times larger than contralateral).

Usually, in the ovary we recognize ovarian follicles, or they increase in diameter ≥ 30 mm and are called - cysts. Rarely, a tumour is developed inside the ovary and the normal ovarian tissue is compressed and surrounds the tumour. For adults, the most common are ovarian tumours by epithelial origin, but in pediatric and adolescent groups plenty of tumours by different origin were reported. The ovary is the only organ in the human body with ability to increase its volume more than 1000 times with preservation of its existence and function.

The success of ovarian preservation in benign pathology in different studies should not be compared without taking into account the rate of surgical treatment of uncomplicated functional cysts. Surgery of uncomplicated ovarian cyst should be avoided.

During last 16 years, we developed a new decision tree system (DTS) for the management of adnexal masses in prepubertal and adolescent girls, aimed to improve the distinction between benign and malignant masses, improve ovarian preservation from torsion and reduce the rate of surgical management of uncomplicated functional ovarian cysts. DTS is based on the ovarian volume, ultrasonographic characteristics of the tumour, and, the most important is the presence or absence of normal ovarian tissue surrounding the tumour or cyst – the «ovarian crescent sign» (OCS).

The presentation shows how it is possible to increase ovarian preservation rates using the only important ultrasound sign of the OCS, and the differences between the value of this sign in young and adult patients with ovarian tumour.