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**MINIMAL INVASIVE SURGERY AT TREATMENT OF TUMOR-LIKE
FORMATIONS OF ADNEXES IN GIRLS- TEENAGERS**

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Abbreviations:

CBC- complete blood count

COC- combine oral contraceptives

CT- computer tomography

ECG-electrocardiography

ICD-international statistical classification of disease and related health problems.

MRI- magnetic-resonance imaging

NSAID- not steroid antiinflammatory drugs .

TF- tumor-like formation

USI- ultrasound investigation

Introduction.

Actuality. It is established that at girls at the age of 12-15 years against active stimulation of the central regulating structures the frequency of emergence of volume formations of adnexes sharply increases. Thus on occurrence frequency according to data of different authors, first place is won by tumor-like formations of adnexes (40-50%), the second and further - true benign tumors of ovaries.

The practiced in "adult" gynecology, dynamic supervision over follicular and luteum cysts of ovaries in out-patient conditions, in children's gynecology is fraught with accession of complications: torsion of ovary, a gap in a type of anatomic-topographical features of a children's organism and therefore, it is inadmissible. Timely diagnostics and choice of an optimum method of surgical treatment of tumors and the tumor-like formations of ovaries at girls makes one of actual problems in children's gynecology and in children's surgery. The damage caused to reproductive health of the girl at a choice wrong, and often unfairly radical tactics, it is impossible to correct even by means of carefully carried out therapy subsequently. It is connected not only with development of the next postoperative complications, but also with the remote adverse effects in the form of violations of a menstrual cycle, infertility, adhesive illness of a peritoneum.

That circumstance that at children's age functional cysts and benign tumors of ovaries are more often diagnosed in the presence of complications, even more increases the importance of the specified problem.

The minimal-invasive equipment allows to make removal of a cyst with the minimum trauma and the maximum preservation of healthy tissues of ovary. Advantages of a method consists, in faster in comparison with traditional access the recovery period and lack of a postoperative hem.

However also there are contraindications to minimal-invasive equipment: a serious condition of the child with the expressed violations of vital functions, formations of an abdominal cavity with signs of malignant regeneration.

Aim of work:

Optimization of surgical treatment of the tumor-like formations of adnexes in girls-teenagers.

Task:

1. To define the risk of development of intraoperative complications and recurrences in girls after surgical treatment of tumor-like formation of adnexes by open and minimally invasive access.
2. To reveal influence of a minimally invasive and open method of treatment on menstrual function, during removal of tumor-like formation of adnexes in girls.
3. To study a quality of postoperative rehabilitation at the girls operated concerning tumor-like formation of adnexes by laparoscopic and laparotomic access.

Scientific novelty

For the first time in Samarkand there were investigated the girls with tumor-like formation of adnexes, which had been executed removal of a cysts by laparoscopic and laparotomic access, and also had been studied the immediate results of the executed operations .

Practical importance of work. Minimal-invasive tactics of maintaining the girls with TF of adnexes, will allow them to keep an ovarian reserve with the minimum damage of tissues.

Research materials.

As object of clinical trial were 45 girls at the age of 12-15 years with the diagnosis served: ovarian cyst. 20 girls were examined and were on hospitalization in the 1st city hospital of Samarkand in the unit of endoscopic surgery since 2012-2014y.

Other 25 girls were observed in the 3rd maternity complex of the city of Samarkand, in the unit of gynecology, also since 2012-2014y.

Research methods

1. Collecting anamnesis: The postponed diseases at children's age, studying of menstrual function (duration, quantity, nature of allocations).
2. Physycal inspection: The somatic status, an assessment of extent of puberty on Tanner.
3. Laboratory researches: complete blood count, urinalysis, blood biochemistry, coagulation on Sukharev, a Rhesus factor and a blood type, a coagulogram.
4. Tool methods of research: USI, ECG, CT and MRI

Chapter 1

1. EPIDEMIOLOGY.

Tumor is the excess growth tissue consisting of organism cages, pathologically changed under the influence of different factors of the environment. Tumors of an ovary are the volume formations growing from ovary tissue. Tumor-like formation or false tumors, cysts of an ovary are, true tumors and formed due retention of liquid in a cavity.

Frequency of tumors and the tumor-like formations of ovaries in structure of gynecological diseases of children and adolescent, by data different authors, various from 1 to 4,6%. Thus on the frequency of tumor-like formation of adnexes meets (40–50%), the second place and further occupy true benign tumors of ovaries (germinogen, epithelial, gonadoblastoma). Malignant tumors at children meet seldom [1, 5, 6, 22, 25, 27, 29–31, 37].

Tumoral and tumor-like processes of ovaries can meet at any age of the woman – from the period of prenatal development of a fetus to extreme old age, however most often these formations meet during changing of gonadotropic stimulation and hormonal function of ovaries, under influence of different factors. At children such changes happen in the puberty period. It is connected with strengthening during this period of gonadotropic stimulation which is not always regular, and respectively, beginning of active functioning of ovaries. So, by data A. A. Gumerov (2010) new growths of ovaries meet at children of all age: in the period of a neonatal – in 1,2%, from 1 month to 3 years – in 2,9%, from 3 to 7 years – in 8,7%, from 7 to 9 years – in 14,5%, from 9 to 12 years – in 16,9%, from 12 to 15 years they meet most often – in 55,8% of supervision [5, 6, 14, 29, 31, 33, 34, 38, 41, 47]. The majority of volume formations of the ovaries which are found in the neonatal period and the period of a child has the germinogen or follicular nature.

In the puberty period every third formation of ovaries appears like tumor-like formation (follicular cysts, paraovarian cysts and cysts of a yellow body) and

germinogen tumors, epithelial tumors meet at 3 times rare. Gonadoblastoma and a sexual cord-stromal tumors, as a rule, meet at teenage girls with malformations of ovaries. It should be noted that the tumor in the right ovary at girls meets much more often than in left one, that confirms the theory of genetic determination of earlier and higher functional activity of the right ovary.

The good-quality newformation and cysts of ovaries meet at children more often than malignant tumor [2, 7, 10, 12]. Tumors and cystous formations of ovaries make about 40% of number of solid neoplasms of abdominal organs, conceding on frequency only to tumors of liver. Tumors of ovaries at children most often meet during puberty (10–14 years) that confirms a role of hypophysial stimulation in an etiology of these new growths. More than 80% of malignant tumors of ovaries at children of nonepithelial genesis – disgerminoma, sexual cord- stromal tumors with feminizing (tekoma, granulocellular tumor) or masculinisation (from Sertoli and Leydig cells) effect, immature teratoid tumor. Less meet choriocarcinoma and tumors of an endodermal sinus [3, 9, 11, 12, 14, 20, 23]. Among malignant neoplasm of ovaries at girls most often meets germinogen tumor (82%), tumors of a stroma of a sexual band (9%), gonadoblastoma (4%), cistadenocarcinoma (3%) [1, 8, 26, 32].

1.2. CLASSIFICATION.

All tumors divide into 2 big groups: benign and malignant, and division it is often relative, as part of the benign tumors may incur malignization. The benign tumor doesn't beyond tissue, characterized by a slow growth, lack of tendency to a metastasition. Appearance of tissue of a tumor (a histologic structure) poorly differs from surrounding healthy tissue. Growing benign tumor is capable to constrain, squeeze surrounding tissues, that often leads to its removal. After operation of excision of a benign tumor and its membrane there comes full treatment. The malignant tumor has no cover, grows quickly, its separate cages and cellular band are capable to infiltrative growth (to invasive in the next tissues with

damaging their structures), and also to a dissemination (to distribution or rating) to the remote bodies and tissues on blood vessels.

According with ICD-10 allocate the following tumoral and tumor-like processes of ovaries.

Benign new growth of an ovary

D39 The New growth of uncertain or unknown character female sexual organs

D39.1 Ovary

N80.1 Ovary endometriosis

N83 Not inflammatory diseases of an ovary, fallopian tube and wide ligament of an uterus

N83.0 Follicular cyst of an ovary

N83.1 Cyst of a yellow body

N83.2 Another and not specified ovary cysts

Excluded:

ovarian cyst:

– neoplastic (D27)

– connected with malformation (Q50.1)

– syndrome of a polycystous of ovary (E28.2)

C56 Malignant new growth of an ovary

C79.6 Secondary malignant new growth of an ovary

Q50.1 Cystous malformation of an ovary

Histologic classification of tumors of ovaries (WHO, Geneva, 1999, with reductions)

I. Superficial epithelial-stromal tumors

A. Serous tumors (benign, boundary malignant, malignant)

B. Mucinous tumors of endocervical-like and intestinal types (benign, borderline, malignant)

C. Endometrial tumors (benign, borderline, malignant, epithelial-stromal and stromal endometrioid tumors)

D. Light-cellular, or mesonephroid tumors (benign, borderline, malignant)

E. Transitional- cellular tumors (benign, boundary malignant, malignant tumors of Brenner, transitional -cellular cancer of no-brenner type)

F. Planocellular tumors

G. The mixed epithelial tumors (benign, a boundary malignant, malignant)

H. Undifferentiated carcinoma

II. Tumors of a stroma of a sexual band and stroma of an ovary

A. Granulosa-and stromal-cellular

Granulosocellular (adult type, juvenile)

Tecoma-fibroma (a tekoma, fibroma, cellular fibroma, a fibrosarcoma, a stromal tumor with the minimum maintenance of elements of a sexual band, a sclerosing stromal tumor, a stromal luteoma, not classified tumors, etc.)

B. Sertoli – stromal-cellular tumors (androblastoma, tumors from Sertoli and Leydig cells – mesenchyma derivatives)

High-differentiated (a tumor from Sertoli's cells, a tumor from Sertoli's and Leydig cells, a tumor from cages of Leydig)

Tumor from Sertoli's and Leydig cells of an intermediate differentiation

Low-differentiated from Sertoli's and Leydig cells (sarcomal)

Reteform option (with heterological elements)

C. A tumor of a sexual band with ring-shaped tubules

D. Ginandroblastoma

E. Not classified

F. Steroido (lipidic) - cellular tumors

Stromal lyuteoma

Tumor from cages of Leydig

Not classified

III. Germinogen tumors

A. Disgerminoma

B. Tumor of a vittaline bag (tumor of an endodermal sine)

C. Embryonic carcinoma

D. Poliembrioma

E. Choriocarcinoma

F. Teratoma

The unripe

Mature (solid, cystous – a dermoid cyst, with a secondary tumor, fetimorfal – the homunculus)

Monodermal (a struma of an ovary, carcinoid, strumal carcinoid, carcinoid from scyphoid cages, a neuroectodermal tumor, a tumor with a grease differentiation, etc.)

G. The mixed germinogen tumors

IV. Gonadoblastoma

V. The mixed tumors from the germinogen cages and derivatives of a sexual band stroma of an ovary of nongonadoblastomal type

VI. Ovary network tumors

A. Adenoma, cistadenoma

B. Adenocarcinoma

VII. Mesothelial tumors

A. Adenomatoid

B. Mesothelioma

VIII. Tumors of not clear genesis and the mixed tumors

A. Microcellular cancer

B. Tumor probably volfov of genesis

C. Hepatoid carcinoma

D. Mixoma

E. Others

IX. Gestational throphoblastical illness

X. Tumors of soft tissues not specific to ovaries

XI. Malignant lymphoma and leukemia

XII. Not classified tumors

Secondary (metastatic) tumors

Tumor-like processes

- A. Solitary follicular cyst
- B. Multiple follicular cysts (multiple cysts of ovary, sclerocystous ovaries)
- C. Large single luteum follicular cyst of pregnancy and postnatal period
- D. Multiple luteumfollicular cysts (hyperreactio luteinalis)
- E. corpus luteum cyst
- F. Luteoma of pregnancy
- G. Ectopic pregnancy
- H. Stromal hyperplasia
- I. Stromal hypertecosis
- J. Superficial epithelial cysts of inclusion (germinal cysts)
- K. Massive hypostasis of an ovary
- L. Fibromatosis
- M. Follicular cyst and cyst of a yellow body
- N. Endometriosis
- O. The cyst which isn't classified (a simple cyst)
- P. Paraovarian cysts
- Q. Inflammatory processes

1.3. ETIOLOGY AND PATHOGENESIS.

True benign tumors of an ovary grow due to proliferation of cellular elements of an organ. As a rule, at an uncomplicated current, the small sizes (to 5–6 cm) proceed at children almost asymptomatic, being a diagnostic find at an USI of abdominal organs or on a preventive examination.

False tumors or tumor-like formations of an ovary grow due to accumulation of liquid in a cavity. At accumulation of liquid in a cavity of a follicle - the follicular cyst, in a cavity of a yellow body - a luteum (hemorrhagic) cyst, in an embryonic over the ovarian appendage which is formed of an epithelium of a mesonephron - a paraovarian cyst of an ovary is formed.

Endometrial cysts of ovaries (external genital endometriosis of ovaries) are formed in a benign growth of tissue in the morphological and functional similar mucous membrane of a body of womb (endometrium) in ovaries. Development of genital endometriosis is promoted by complicated abortions and labor, frequent intrauterine diagnostic and medical manipulations, a hormonal violation, inflammatory diseases of the sexual organs. Attach significance to hereditary factors. There are also hypotheses connecting the development of endometriosis with autoimmune processes, violations of cellular immunity. But most spread theory about development of endometrium tissue is from the celomical cages (as a result of their metaplasia); remains of embryonic cages: implanted in an unusual place of the cages of endometrium brought with menstrual blood (for example, in uterine tube, an abdominal cavity) by blood or lymphatic vessels or during operations on uterus.

The most numerous group of benign new growths of ovaries is made by the epithelial tumors developed from the germinal epithelium covering the surface of an ovary. Generally it is a cystadenoma the source of which are so-called inclusion cysts, arising at the expense of invagination of a superficial epithelium in the

strom of an ovary. Epithelial tumors develop from an integumentary epithelium, i.e. a serous cover of an ovary.

On the embryonic provenance a serous cover and derivatives of the müller channels are same as they formed from the mesothelial cages of a mesodermal provenance. Therefore, the cages of serous cystadeny can have similarity to cells of uterine tubes, the mucinose cystadeny – with endocervix, endometrial – with endometrium.

Stromal-cellular tumors develop from cages of a mesenchyma which is a source of development of a stroma of an ovary.

Most often from malignant new growths germinogen tumors meet (80–84% the malignant formations of ovaries). This type of tumors arises on account of violations of migration, a proliferation and differentiation of the pluripotent cages of a vitelline bag. The laying of a gonad is formed on an internal surface of primary kidney on the 3-4th week of development of an embryo. Primary gonad has an indifferent structure, consists of a celomical epithelium (an external cortex layer), a mesenchyma (an inside brain layer) and gonocyte which migrate in a gonad with the help of amoeboid movements from area of the basis of a vitelline bag. Migration begins since the end of 3 weeks, happens till 6-7th week, and with the end of this process the indifferent stage of development of a gonad comes to the end. The remains of the mesonephral channels remain in the form of a paraooforon and an epoofofon and sometimes in the form of so-called the garthner courses and cysts on the lateral walls of a vagina. Epoofofon and paraooforon can be the source of development of tumors. [4, 6, 25].

1.4. CLINIC.

Such clinical manifestations at girls with tumor-like formations as complaints to pains in the lower departments of a stomach of various character and intensity, violation of a menstrual cycle in the form of irregular and/or painful periods, amenorrhea, the uterine bleedings, don't differ from those at adult women.

However symptoms of tumors and the tumor-like formations of ovaries at children all the same have the features. It is necessary to remember that approximately at 20% of girls (it is considerable more often than at the adult women) tumors and tumor-like formations of ovaries proceed without any clinical manifestations and are a casual diagnostic find. At 3% of cases the increase of size of stomach is the only occasion of the address to the doctor. It should be noted lack of accurate communication between the size of formation and extent of its clinical manifestations. In a depend on the nature of formation and a place of its arrangement, a tumor of the less sizes can provoke pain and discomfort in a cavity of a small pelvic, and formation more than 7-8 sm in the diameter – may not give any clinical picture.

Typical manifestation of endometriosis of ovaries is belly-ache in the premenstrual period and during menstruation, caused by of ferruteros elements of endometric tissue, congestion of blood and a secret of glands in the closed cavity.

At bimanual or rectoabdominal research in the field of an arrangement of adnexes it is palpated either increased ovary, or an formation in the area of adnexes which can reach large sizes. Owing to features of an anatomic of a small pelvis and the internal genitals at children, tumors of ovaries more often than at adults, go beyond a small pelvis. Consistence of them varies from tightly-elastic to compact, a surface – from smooth to tuberos.

Hormonal active tumors of adnexes clinically can caused by the premature sexual aging (PSA), from - heterosexual depending on a type of the hormones produced by tumor cells: in the first case at the phon of producing of estrogen, in the second one – androgens. Estrogenproducing tumors are the reason of premature sexual aging in 2,6% of cases.

It is possible development of a syndrome of “acute stomach” (an acute pain in a stomach, with irradiation most often in a crotch, nausea, vomiting, sometimes a delay of a chair, an urination): in a case of torsion or gap, hemorrhage in a new

growth, cysts or tumors of an ovary, the phenomena of an inflammation of a tumor. In a look of anatomic-topographical (the small sizes of a uterus, rather high arrangement of ovaries) and anatomic-physiological (overflow of a bladder, youthful locks, a rough intestinal vermicular movement, tendency to fast turns of a body) features of a children's organism, bigger mobility "twisting" of a leg of volume formation at girls comes earlier and more often than at adults. The greatest tendency to a twisting was found by teratoid tumors and cysts of ovaries, mainly at the large size of formations [2, 8, 10, 26, 29, 35, 43].

1.5. COMPLICATIONS.

Torsion of ovarian formation. Among the reasons causing a picture of "acute stomach" in children according to children's surgeons the torsion of ovarian formations makes about 15%. The leg of a tumor is formed by the stretched ligament (infundibulo-pelvic ligament, proper ligament of an ovary, part of a back leaf of a wide ligament of uterus), which consists of the ovarian artery and branches connecting it to a uterine artery, lymphatic vessels and nervous quite often the stretched uterine tube also enters to a leg of a tumor. Torsion of the legs of a tumor of an ovary occurs at the sharp movements, change of a position of a body, physical tension. Torsion can be full or partial. At full twisting it sharply violates the blood circulation in a tumor, there appears hemorrhages and necrosis, that is followed by emergence of symptoms of "acute stomach": sudden sharp belly-ache, nausea, vomiting, tension of muscles of a forward belly wall, increase of a temperature of a body, pallor, cold sweat, tachycardia. The tumor increases in sizes, it gaps and infects with development of peritonitis. Partial torsion of leg of tumor leads with less expressed symptoms, which intensity depends on extent of the changes resulting from violation of a blood circulation in a tumor. Perifocal inflammation can lead to confluence of tumor with surrounding organs and tissues.

The echographic picture of twisting isn't specific. Changes in the image of an ovary depend on degree of twisting and existence of the accompanying pathology. Strengthening of pains at pressing the sensor on the revealed formation, increase in

the sizes of an ovary and emergence of its changes of internal structures in the course of dynamic USI (for example, signs of, formation of partitions, an echopositive suspension) mostly caused by violation of alimentation in a vascular leg of a cyst. USI in the mode of color Doppler mapping can be the only effective diagnostic way of an assessment of a condition of a cyst of an ovary or the ovary when it is possible to define absence of normal a blood-groove in an ovary.

Gap or anguishes of a capsule of a cyst, tumor with bleeding as a result of a trauma or at a gynecologic examination, conducting to solderings, an implantation in a peritoneum, implantations of elements of a tumor on a peritoneum (for example, a peritoneum pseudomyxoma at a rupture of a mucinous cystoma). Symptoms of a rupture of a tumoral capsule of an ovary are the sudden belly-aches, shock caused by intra belly bleeding.

Suppuration of a cyst or wall and/or contents of a tumor. Accession of a secondary infection is possible by lymphogenic or hematogenic way. Thus it is possible formation of perifocal solderings, fistular way due to break of an abscess in a rectum or a bladder. Clinical manifestations of this complications are characterized by symptoms of a purulent infection (a fever, a hyperthermia, leucocytosis, sings of peritoneum).

Hemorrhages in a wall or a cavity of a tumor can be followed by appearance or strengthening of pain. It is possible to reveal them during operation or at histologic research.

Dysfunctional uterine bleeding at the tumor-like formations of ovaries and the feminizing tumors.

Malfunction of adjacent bodies. Growth of a tumor can lead to shift and a pressing of ureter, a bladder and intestines.

Becoming malignant of a benign tumor. Most often becomes malignant serous papillar cystoma, and rare – mucinous, papillary [3, 8, 29].

1.6. DIAGNOSTICS.

The diagnosis of a tumor of an ovary is established on the basis of data of gynecologic, USI and histological researches. At gynecologic research define the increased ovary. The big help in diagnostics, especially at small tumors, the USI allowing to establish precisely the sizes of ovaries and a tumor, their structure, capsule thickness renders. Color Doppler mapping allows to judge degree of a blood supply of ovaries. In the presence of formation in an ovary it is necessary to pay attention to structure of formation its echogenic, uniformity, existence of cystous formation, thickness of their wall, existence of partitions in cystous formations, a partial component, and also involvement in process of other bodies of a small pelvis, ascites. The boundary tumor at USI is characterized by existence of fragmentary thickened and jagged partitions having one or a set of papillary growths with a fringed surface with a diameter more than 20 mm and the ascites phenomena. The malignant tumor of ovaries is characterized by an illegibility of contours, often twosideness of process, the mixed cystous and solid internal structure, existence of partitions, fragmentary thickenings and dense inclusions, drain character and the surface of a dense component of a tumor maleficiated without crenations, the partial growths, including an external contour and ascites.

Persistence of any volume formation in the field of adnexes, especially at its casual identification, demands research of a blood-groove in the mode of color Doppler mapping. For the purpose of differentiation of benign and malignant character of a tumor it is necessary to specify existence or lack of zones of a blood supply in formation, especially in partitions or a dense component of a tumor, to estimate their quantity and to note features of a blood-groove (laminar, turbulent, mosaic). Lack of zones of a blood supply in a tumor in 75% of cases testifies to high quality of process. According to V. N. Demidov and , existence of benign process confirm also high ($RI > 0,42$ and $PI > 0,72$) values of the dopplerometric indexes. At the same time it is necessary to consider that similar sizes have metastatic tumors of an ovary.

In hard cases, in the presence of not clear pathological processes of bodies of a small pelvis, suspicion on existence of malignant process the magnetic resonant tomography (MRT) has indisputable advantage. Feature of this method is excellent visualization of internal genitals of a small pelvis which allows to define precisely nature of pathological process, its localization, interrelation with the next bodies, and also to estimate an anatomic condition of a cavity of a small pelvis.

Information received by means of MRT allows clinical physicians to make correctly the decision at a choice of a way of conservative or surgical treatment. In diagnosis of tumors of ovaries at small children of MRT carry out under anesthetic. It is necessary to consider that tumors of ovaries at children most often are defined not in a small basin, and in hypogastral area.

The immunological method of early diagnosis of a cancer by definition in blood of an anti-gene of SA-125 is insufficiently sensitive and specific therefore screening dough can't be considered reliable. However if before treatment high concentration of the specified anti-gene was defined, research of its level after operation or chemotherapy allows to judge remission (at decrease in concentration of SA-125) or progressing of an illness (at invariable concentration of a marker or its growth) [2, 8, 11, 28].

Finally benign or malignant character of a tumor is confirmed by results of a biopsy.

In the diagnostic centers are applied special researches for the purpose of presurgical differential diagnosis of benign and malignant tumors of an ovary: collecting the anamnesis of data with emphasis on the events preceding emergence of complaints or identification of formations in an ovary;

all-clinical trial (survey, palpation of regional lymphatic nodes, clinical blood test, etc.);

- stomach palpation;

- rectoabdominal or vaginal research (at sexual and active teenagers) of internal genitals;

USI of bodies of a small pelvis (if necessary both in the first, and in the second phases of a menstrual cycle), including with use of the three-dimensional modes and color Doppler mapping;

USI of abdominal organs;

radiological research of bodies of a thorax (at suspicion on a malignant tumor);

excretory urography (at suspicion on a malignant tumor);

definition in serum of blood of level of C-jet protein;

definition in serum of blood of the SA-125, HG, AFP, REA level (at suspicion hormonproducing germinogen tumors);

hormonal research (definition in serum of blood of level of an estradiol, testosterone);

- microbiological research of contents of a vagina with determination of sensitivity to antibiotics (according to indications);

MRT of bodies of a small pelvis;

pelvic angiography (according to indications at suspicion on a malignant tumor);

irrigoscopy (according to indications at suspicion on a malignant tumor);

cystoscopy (according to indications at suspicion on a malignant tumor).

Also the patient has to be consulted by doctors of adjacent specialties (the endocrinologist, the geneticist, etc.).

1.7. DIFFERENTIAL DIAGNOSTICS.

Differential diagnosis of tumors and the tumor-like formations of ovaries should be carried out among themselves, and also with the following states:

volumeformations of an extragenital etiology (in connection with anatomic features: ovarian formation at children often settle down outside a small pelvis above the terminal line);

to serosocela against adhesive process after surgeries or chronic inflammatory processes; an acute appendicitis, appendicular infiltrate, violation of intestinal passability, apoplexy of ovary, tubo-ovarian formation of inflammatory genesis (at the acute pain syndrome caused by torsion of ovarian formation or a rupture of a capsule of a cyst);

malformations of internal genitals with violation of outflow of menstrual blood (a hematomethra, hematocolpos at an aplasia of the lower part of a vagina and the functioning uterus, when doubling a uterus and vagina in combination with an atresia of the lower part of a vagina and a hypoplasia of an ovary);

at PPS on heterosexual type with the congenital dysfunction of cortex of adrenal glands (CDBAG), tumors of adrenal glands;

at PPS on isosexual type with PPS against volume formations of a brain.

Especially it is necessary to differentiate functional cysts of ovaries from other ovarian formations. It is necessary to remember that when developing functional cysts at children it is necessary to investigate function of a thyroid gland.

Epithelial tumors

Epithelial tumors arise, as a rule, only after puberty and in 15–20% of cases of all formations of ovaries. Tumors usually bilateral, are more often synchronous, but there is cases when the opposite ovary affected 3–14 years later after removal of primary tumor .

Epithelial tumors are subdivided on benign, boundary or proliferating and malignant. Malignant epithelial tumors at children are rather rare. It is known that incidence of them varies from 0,8 to 6% and reaches, according to the latest data,

9,6% of all malignant tumors at children. In group of the increased oncological risk are included children of advanced age, from 12 years and above that confirms opinion of experts of the children's oncologists carrying malignant epithelial tumors at children's age to so-called adult tumors.

Benign epithelial tumors – are the most widespread tumors of an ovary. Especially often meet serous and mucinous epithelial tumors which in clinical practice are called cystoma. Cystadenoma (cystoma) – a "true" tumor of an ovary – volume formation with the expressed capsule, an epithelial laying, unlike of cysts of ovaries, capable to proliferation and blastomatous growth (malignisation).

Serous (cilioepithelial) tumors make 60% the epithelial one. Usually proceed asymptomatic. A form – round or ovoid, formation mainly has one - or two-chamber, smooth, mobile, settle down sideways or behind a uterus. Can become malignant. Morphologically distinguish smooth-bore and papillary cystoma. The smooth-bore serous cystoma (a serous cystadenoma, a cilioepithelial cystoma) represents spherical one - or multichamber formation with thin walls, with a diameter up to 60-70 mm, containing light opalescent liquid, covered from within by a vibrating epithelium. As a rule, a tumor unilateral (88–90%), small, but meet tumors which weight reaches several kilograms. The echographic picture is similar from an echopicture of follicular cyst of an ovary. Unlike the last doesn't disappear independently and can reach the considerable sizes (to 15–17 cm in the diameter). The serous cystadenoma on an echogram is defined by the round, or ovoid mobile liquid formation having one, rare some cavities of uniform noechogen structure with a smooth internal surface and usually settling down sideways, behind, and at the big sizes – are above of a uterus bottom . At liquid contents of a serous cystadenoma there can be lowechogen and fine suspension which is easily displaced at percussion of formation or changing of position of a body of the patient.

The papillary serous cystoma (papillary serous cystadenoma, proliferating cilioepithelial cystoma) differs from smooth-bore in existence the nipply of

growths on an internal surface, and sometimes and outside at the expense of the ciliary epithelium covering an internal surface of a capsule, possessing tendency to proliferation and formation of the soft crumbling nipples (can remind a cauliflower). As a rule, small sizes, mobile, painless. The serous papillary cystadenoma on an echogram has the parietal dense component with a diameter from 2 to 24 mm presented by single or multiple papillary growths of spongy structure with a fringed surface of the average or raised echogention, well carrying out an ultrasonic wave. Quite often are affected both ovaries, there appears unions with the neighbor bodies, ascites. Often regenerates in a cancer as cells of a tumor possess big extent of proliferation. Sometimes multiple nipples fill all cavity, sprout through a capsule on an external surface it. The tumor easily extends on a peritoneum. Serous cystoma seldom meet at children and young women, develop more often in pre-and a postmenopause.

In the mucinous cystadenoma the epithelium covering a tumor wall produces mucyn in the form of grains which gives characteristic echogen sign of "disperse suspension". Mucinosse cystoma received the name because of muciform contents. Tumors, as a rule, multichamber, have a lobular surface for the account the bulding of separate chambers, quickly grow, can reach the big sizes, thickness of partitions is often various. The capsule thick, but can become thinner in places with a growth that is followed by a rupture of separate cavities and outpouring their contents in an abdominal cavity. At papillary mucinous cystomas with growth of nipples on asurface of tumor quite often arises ascites. At USI of the chambers, they have an appearance of the formations of a round or oval form which are imposed at each other. In a cavity of chambers with thick walls determine average or highechogen fine suspension (mucin) which isn't displaced at percussion or change of position of a body of the patient and distinguishes it from a yellow body and pioovar.

Tumors unilateral. Mucinosse cystoma are also seldom observed at children, but differ in very rapid growth and emergence of such complication, as a myxoma of a

peritoneum. Myxoma differs from the serous cystoma in existence of a fine suspension similar on properties to contents of a mucinous cystoma.

Other forms of the epithelial benign tumors are – endometrial (morphologically similar to tumors of the endometrium), light-cellular (which part the light cells containing a glycogen), Brenner's tumor (the epithelial cells consist of connecting tissue of an ovary and the sites which are settling down in its various form) and mixed – meet at children extremely seldom

Sexual cord stromal tumor

Sexual cord stromal tumors carry to hormone-producing tumors, develop from a sexual cord or a mesenchyme of embryonic gonads. Contain from granulated cells, thecal cells, collagen-producing cells, Sertoli's and Leydig cells. May be clinically malignant at histologic benign provenance (for them recurrence and metastases are characteristic). They are subdivided on feminizing (producing estrogen) and virilizing (producing androgens).

Clinical manifestations of the feminizing tumors of ovaries depend on age at which they develop. At girls of the first decade of life premature sexual development is observed: external and internal genitals, mammary glands increase: there are hair on a pubis; begin menstrual-like acyclic allocations. The majority of the feminizing ovary tumors (75–80%) is benign. But even in the absence of histologic signs of a malignancy there can be metastases on a serous cover of abdominal organs, a parietal peritoneum, an epiploon and recurrence of a tumor in 5–30 years after its removal.

The diagnosis of the feminizing tumors of ovaries at girls of the first decade of life in connection with characteristic clinical symptomatology isn't difficult. It is confirmed by detection of the increased ovary (more than 4 cm on an USI).

Auxiliary diagnostic value has detection much of the maintenance of an estrogen exceeding age norm in blood and urine that points to autonomous secretion of these hormones.

The feminizing tumors of ovaries include granulocellular, tecacellular (teca) and the mixed (granulostecocellular) tumors.

The granulocellular tumor develops from the granulosa cells of atretic ovary follicles. The tumor, as a rule, unilateral, its diameter varies from 0,2–0,3 to 20 cm (more often doesn't exceed 10 cm). The tumor is covered with a dense smooth capsule, has a soft consistency, on a section in it the cystous cavities, solid structures which are quite often painted in yellowish color (luteinisation), and defined the centers of hemorrhages. The granulocellular tumor is capable to produce estrone and estradiol, very rare – androgens, in 30% of cases doesn't possess hormonal activity that leads to untimely diagnostics and treatment. At patients unilateral formation of a cystous and solid structure in an ovary and a hyperplasia of endometriogranulocellular decides on tumors on echograms. Malignisation is observed in 10% of cases. Most often the tumor meets at children's age, and also after 45 years (practically doesn't meet at reproductive age). After removal functions are restored, signs of hyperestrogenia disappear.

The tecacellular tumor (teca) meets by 3 times less than the granulocellular. It is formed from a tecacells, doesn't reach the big sizes (usually its diameter no more than 8 cm), has a dense consistency, often repeats a shape of an ovary. On a section in a tumor defined solid structures of intensive-yellow color, contains a large number of lipids. Usually unilateral. It is often combined with uterus myoma. The feminising tumor. Echographic has the accurate oval form, generally uniform echostructure lowered or an average echopassing, often defined availability of free liquid in a small basin.

Granulocellular tumors consist from the granulosa cells and a theca cells.

All three types of the feminizing tumors of ovaries at children meet seldom, as a rule, develop in the first decade of life before menarche. At many patients with the feminising tumors of ovaries reveal uterus myomas, follicular cysts of ovaries and

various hyperplastic processes in an endometrioma (a ferruginous and cystic hyperplasia, an atypical hyperplasia, to adenocarcinoma).

Ovary fibroma – the benign tumor developing from a connective tissues of elements. The tumor can reach the big sizes, has a smooth or hilly surface, an ovoid or spherical form, whitish color and a dense consistency. In most cases affects one ovary. For a long time can not be any symptoms. Sometimes the tumor is followed by Meigs's triad (ascites, hydrothorax, anemia). Only ascites is most often observed. Echographic fibroma of an ovary is characterized by roundish formation by the sizes of 10-40 mm in the diameter, with equal contours, indistinctly expressed capsule, non-uniform or uniform (solid) echonegative structure. The raised echocompact causes emergence of acoustic effect, weakening of an echo signal behind a tumor. In fibroma sometimes it is possible to visualize the strengthened echo signals at the expense of calcifications or a congestion the anechogenic signals at the expense of sites of a degeneration and a hyaline in a tumor.

Cystadenofibroma of an ovary has the small sizes (to 50 mm), differs in existence of thick partitions of various size (from 2 to 4 mm), the calcification centers in a dense reinforced capsule of formation. The internal structure of cystadenofibroma differs in a considerable variety.

Thecafibroma – the tumors forming a continuous number of transitional forms from the tumors which are completely consisting of the cages reminding fibroblasts and producing collagen to tumors with prevalence of the cages reminding rich with lipids of a thecal cells make 8,9% of benign tumors of an ovary. In essence – a hormonal and inactive thecoma. The part of changes in an organism can be explained with hormonal activity which accurately doesn't come to light. Represents dense, mobile formation of a roundish form. Often is followed by Meigs's syndrome. Ascites develops at big tumors. Often meet dystrophic changes in tumor tissue owing to insufficient blood supply. Slow growth is characteristic, reaches the considerable sizes. The tumor unilateral, doesn't happen

intraligamentary growth. Can be delimited or diffusion (ovary tissue thus isn't defined, the capsule isn't present).

Tecaluteum cysts are formed at bubble drift or a chorioncarcinoma. On echograms have an appearance of the multichamber bilateral formation located more often above a uterus fundus. Contents of chambers of a cyst, as a rule, anechogen, uniform. The sizes of cysts can reach 90–100, in isolated cases of 300 mm. Become exposed to regress in 2–4 months after an initiation of treatment.

Virilising tumors of ovaries – androblastoma – arise from Sertoli's cells and/or cages of Leydig. The tumor from Sertoli's cells and cages of Leydig, as a rule, small (no more than 5-6 cm in the diameter), a soft consistence, has no capsule, on a section reminds unripe or cryptogen small eggs. The tumor can be its differentiation, malignant or benign depending on degree. The tumor from Sertoli's cells – are benign, consists of the high-differentiated cages. Along with androgens produces an estrogen that leads to emergence against a virilisation of unsharply expressed hyperplastic processes in an endometriya. The tumor usually doesn't exceed 10 cm in the diameter, is surrounded with a dense capsule, on a section has a lobular solid structure, yellowish coloring. The tumor from cages of Leydig meets seldom. Develops in the field of ovary gate in the form of delimited, not having a capsule, knot with a diameter no more than 10 cm, yellowish on a section. In most cases the benign.

Germinogen tumors

Germinogen tumors meet twice more often at girls. Note 2 peaks: till 2 years with decrease by 6 years and at the age of 13–14 years. Most often meet at children mature and unripe teratoma, then – tumors of a vitelline bag, then – teratoma, the mixed germinogen tumors, etc..

Disgerminoma – the most frequent ovarian germinogen tumor which is mainly diagnosed in the second decade of life and it is rare – at little girls. The histogenesis of a disgerminoma is insufficiently studied. The tumor in most cases

unilateral, its size fluctuates in considerable limits, quite often the tumor sprouts a capsule and grows together with surrounding tissues. Thus the disease quickly enough extends on the second ovary and peritoneum. In tissues of a tumor are often observed hemorrhages. The tumor consists of the big accurately outlined cages with large kernels. Sometimes in it multinuclear huge cages like Pirogov-Langkhansa's cells, are defined a lymphocytic infiltration of a stroma.

Metastasing occurs in mainly lymphogenic way. Disgerminoma develops at girls and young women. The "pure" disgerminoma of ovaries arises in most cases in a dysgenetic gonad. Therefore at detection of such tumor definition of a karyotype is necessary for the solution of a question of need of removal of the second gonad (at a karyotype 46,XY and a female phenotype the gonad is deleted, owing to high risk of development of tumoral growth and in the second gonad). It can clinically be shown by pains in the bottom of a stomach, sometimes (for example, at hemorrhage in a tumor) – sharp. The diagnosis is based on results of gynecologic, USI and histologic researches. Disgerminoma of an ovary has a solid structure, roughness of contours, an average echogenicity of a tumor in combination with sites of the raised and lowered echogenicity, high sound transmission.

I – completely anechogenicity formation with high sound transmission and existence on an internal surface of a tumor of the small formation of a high echo, a round or oval form representing a dermoid hillock.

II – anechogen formation, in which internal structure multiple small hyperechogen shaped inclusions are defined.

III – a tumor with a dense internal structure, hyperechogen uniform contents, with the average or a little lowered sound transmission.

IV – formation of a cystous and solid structure with existence of a dense component of a high echogenicity of a roundish or oval form

Among the germinogen tumors of ovaries most often meet mature teratoma (dermoid cysts) – the benign tumors consisting of various tissues of an organism in a stage of a complete differentiation (skin, fatty tissue, hair, nervous tissue, bones, teeth, thireoid tissue) concluded in mucinose weight, and covered with a dense thick-walled capsule. The only tumor which is defined in a x-ray picture of an abdominal cavity (due to inclusions – existence of a bone tissue). Teratoma make 10–12% among tumors of ovaries. The tumor usually unilateral, grows slowly, the big sizes doesn't reach. Feature mature teraty is the asymptomatic current and the minimum risk of a malignisation. Mostly favorably proceeding tumor. Minimum expressed pain syndrome. Characterised by uneven consistence and a rough surface. Doesn't possess hormonal activity. It is found, as a rule, in young women and girls in the puberty period. Quite often has a long leg that provides big mobility therefore twisting legs occurs rather often.

The dermoid cysts is pathognomical features heterogeneity of their structure and absence of dynamics of the ultrasonic image of a cyst. In a cavity of a cyst structures quite often visualized, characteristic for fatty congestions, hair and elements of a bone tissue (a dense component). The dermoid cysts is a typical echographic sign existence of excentricly located hyperechogen formation of a roundish form in a cyst cavity. Round formation of normal tissue of an ovary is well visualized or decides on badly visualized lower department (effect of "an iceberg top"), lower weakening of an echo signal takes place. Sometimes the teratoma is presented in the form of the tumor ("invisible being") which is difficult differentiated as an echostructure. Serves one of the main sources of diagnostic mistakes [7, 8].

Dermoid cysts at MRI have a characteristic picture. Almost all dermoid cysts of ovaries contain the fatty material (grease or fatty tissue) allowing to distinguish them from other volume formations of adnexes. Dermoid cysts and hemorrhagic volume formation in adnexes have close MRI characteristics -: both of these

appearance of defects have high signal strength on the T2-weighted images and changeable signal strength on the T1-weighted images.

Struma of an ovary on an echogram is defined by the formation of a roundish form having the spongiform structure of mainly average echogenicity which is coming nearer to a structure of a thyroid gland. The vast majority of these tumors is in a condition of the finished differentiation and consists of various mature fabrics therefore the struma of an ovary has no relation to an embryogenesis of a thyroid gland. If thyroid tissue in a struma is functionally inactive, the teratoma clinically doesn't differ from other teratomas. However thyroid tissue can actively start functioning and giving a bright picture of a thyrotoxicosis. According to literature, about 5-6% the ovarian struma is followed by the hyperfunction phenomena. Struma of an ovary can be the cause of recurrence of a thyrotoxicosis after expeditious treatment.

Tumor-like processes

Most widespread are: the follicular cyst of ovaries and corpus luteum cyst, paraovarian cyst, endometrial cyst of an ovary, multiple follicular cysts of ovaries, or polycystous ovaries; oophoritis which is often combined with an inflammation of a uterine tube and followed by formation of tumor-like conglomerate – tuboovarian formation. Other tumor-like processes of ovaries like: hyperplasia of a stroma and hypertecosis, massive hypostasis – meet seldom. Multiple luteum follicular cysts and corpus luteum cyst practically don't meet at children, as a rule, they are the iatrogenic diseases resulting from application of inadequately high doses of the preparations stimulating an ovulation.

The follicular cyst is the tumor-like formation arising owing to accumulation of liquid in a cystic atresing follicle. In such formation there is no true blastomatous growth. Macroscopically follicular cysts represent thin-walled single-chamber formations of a tightly-elastic consistence.

Functional follicular cysts of ovaries can arise still intrauterine. Clinical manifestations most often are absent and cysts find incidentally during USI. Torsion of cysts meets seldom therefore the laparotomy and an ovariectomy aren't recommended. Persistence of a functional cyst can be followed by short-term blood allocations from sexual ways.

Follicular cysts can arise at any age, but nevertheless are more often formed after the puberty period. In pathogenesis of follicular cysts the postponed inflammatory process can matter. Diameter of a cyst doesn't exceed 10 cm. The main symptom of a disease are pains in the bottom of a stomach. In process of increase in a cyst of a cage, its walls covering an internal surface, will atrophy. The small follicular cysts covered by granulose cages possess moderate hormonal activity. Follicular cysts with a diameter up to 4-6 cm clinically often aren't shown.

At hormonal active cysts may be the hyperestrogenia and the violations of a menstrual cycle caused by : acyclic uterine bleedings at the menstruating teenage girls or premature sexual development in girls of the first decade of life. At the big sizes of a follicular cyst (diameter of 8 cm and more) can occur torsion of cyst legs, followed by violation of blood circulation and a necrosis of tissue, and (or) a rupture of a cyst. In these cases develops the picture of acute stomach.

The diagnosis of a follicular cyst is established on the basis of clinical manifestations, these gynecologic and USI. At gynecologic research (vaginal abdominal-parietal, recto-abdominal)in front and sideways from a uterus tumor-like formationis palpated tightly-elastic consistence with a smooth surface, in most cases mobile, low-painful. On an ultrasound scanogram the follicular cyst represents single-chamber roundish formation with thin walls and uniform contents, unlike the cerosacell always on the periphery have ovarian tissue. Diameter of cysts varies from 25 to 100 mm. Behind a cyst always there is an acoustic effect of strengthening signal. Follicular cysts are often combined with hyperplasia signs of endometrium. Usually follicular cysts disappear spontaneously during 2–3 menstrual cycles therefore at their identification in the course of USI

dynamic supervision from an obligatory echobiometry cyst is necessary. Such tactics is dictated by need of prevention of a torsion of an ovary.

The corpus luteum cyst on the structure is similar to a yellow body and differs from it in only sizes (usually no more than 8 cm in the diameter). Its walls are thick. The internal surface is characterized by a skladchatost* of a yellow body. The corpus luteum cyst is formed on a place of not regressing yellow body in which centercollects hemorrhagicliquid as a result of violation of blood circulation. As a rule, it is exposed to the return development, , by the beginning of the following menstrual cycle. Diameter of a cyst usually doesn't exceed 6–8 cm. The corpus luteum cyst, as a rule, proceed asymptomatic and exposed to the return development within 2–3 months. Complications are torsion legs of a cyst and the rupture of a cyst as a result of hemorrhage in its cavity which is followed by a picture of acute stomach. At gynecologic research tumor-like formation in the field of adnexes which on an ultrasound scanogram can have the same structure as a follicular cyst is defined, more often in a cyst of a yellow body the fine suspension (blood) comes to light. On an echogram of a cyst of a yellow body settle down sideways, above or behind from a uterus.

Allocate 4 options of an internal structure of a corpus luteum cyst:

uniform anechogenic formation;

uniform anechogenicformation with multiple or single, full or incomplete partitions of the wrong form;

uniform anechogenicformation with parietal moderate density smooth or mesh structures with a diameter of 10-15 mm;

formation in which structure is defined a small zone - and a middle structure of an average echogenicity, located parietal (blood clots).

According to doppler sonography, in the ovarian arteries on the part of a corpus luteum cyst is defined strengthening of blood circulation and increase of an index of a vascularisation.

On MRT of a cyst have low signal strength on the T1-weighted images and very high signal strength on the T2-weighted images.

Hyperplasia of ovarian stroma and hyperkeratosis belong to hyperplastic processes. At hyperkeratosis and hyperplased ovarian stroma are formed focal congestions the luteum cages, at macroscopic research of an ovary on a section having an appearance of yellowish focuses. On clinical manifestations hyperkeratosis reminds an illness of polycystous ovaries. However at a hyperkeratosis virilisation symptoms are more expressed, are noted considerable hypertrichosis, an atrophy of mammary glands, voice coarsening, amenorrhea. At gynecologic research reveal evenly increased (to 6 cm length and 4 cm width) dense ovaries. At USI their structure is hyperechogenic and homogeneous. The diagnosis can be established only at histologic research before which carrying out patients are usually observed by the gynecologist concerning an illness of polycystous ovaries. At children meets extremely seldom.

Massive hypostasis of an ovary results from violation of blood circulation at partial or full overwind bryzheyka* of an ovary, can be followed by a necrosis, a rupture of a capsule. It is clinically shown by symptoms of a sharp stomach. At gynecologic research find sharply painful increased ovary (no more than 10 cm in a diametkra). At massive hypostas shown the ovariectomy.

Endometrial cysts are presented in the form of the formation with a dense capsule filled with dense contents of dark brown color (its former name – "a chocolate cyst"). Often they are followed by adhesive process because of microperforation of cysts during periods. Diameter them seldom exceeds 12 cm. Endometrial cysts on echograms decide by formations of roundish or moderately oval form the sizes of 8-12 mm in the diameter, on an internal smooth surface. Echo-graphic distinctive

signs the endometrial cysts are the high level of an echopassing, unevenly reinforced walls of cystous formation (from 2 to 6 mm) with the hypoechogenic internal structure containing a set of dot components – a fine suspension.

This suspension isn't displaced at percussion of formation and when moving a body of the patient. The sizes of an endometrial cyst increase by 5–15 mm after periods. Endometrial cysts give effect of a double contour and distalny strengthening, i.e. strengthening of a distant contour. On MRT-images the most specific signs of the endometrial cysts are: multiseclusion, heterogeneous signal strength, lack of a clear boundary with adjacent bodies, a thick capsule with rough contours. The structure of a tumor happens either cystous, or cystous and solid. High signal strength of cysts on T1-and the T2-weighted images is frequent manifestation endometrium. However this sign isn't specific and can be present at hemorrhagic (functional) cysts, and also at malignant tumors of ovaries. The solderings causing an union of pelvic formation can represent a certain complexity for diagnostics.

Seroscele at USI comes to light as anechogenic thin-walled formation which external contours repeat a form of adjacent bodies. The main ultrasound differential and diagnostic criterion to a serosocela and a paraovarian cyst is lack of a capsule at the serosocell.

The basic and almost only ultrasound symptom of a paraovarian cyst is identification of an intact ovary. Paraovarian cysts represent the single-chamber thin-walled formation which is settling down sideways and above a uterus bottom with uniform anechogennic contents, the fine movable suspension in rare instances meets. Paraovarian cysts have various sizes: from 30 to 150 mm in the diameter, settle down, as a rule, sideways or over a uterus. Unlike the paraovarian cysts of a hydatid more often settle down at considerable distance from an ovary, near fibrilar department of a uterine tube. Echographic signs of hydatide are similar to paraovarian cysts, however the sizes of formations are seldom more than 12 mm.

1.8. TREATMENT.

At functional cysts of ovaries treatment is carried out for the purpose of development of involution of a cyst, normalization of a menstrual cycle and restoration hypothalamo - hypophysial ovarian relationship. At formation of follicular cysts intrauterine or treatment usually isn't required from newborns. If there are symptoms, carry out a cyst puncture with aspiration of contents (at a laparoscopy or under ultrasonography control). At nonfunctional the ovarian formations carry out surgical treatment by the principle of organ-preserving operations with the purpose of prevention of violations of reproductive function in the future.

At detection of a cyst with a thin capsule and liquid contents in the embryonic or early neonatal period it is necessary to adhere to waiting tactics. Aspiration of contents under control of USI is made only at emergence of risk of a hypoplasia of a lung, at its pressing with tumor-like formation.

The only subject to medicamentous therapy is long existing or recurrent functional cysts of ovaries. Once revealed cyst at USI with a diameter up to 8 sm is subject only to dynamic supervision with USI use. Hormonal therapy in the pubertatny period is carried out at suspicion on a functional cyst of ovaries or a persistent follicle with a diameter more than 2 sm, and in the neutral period – in the presence of PPS symptoms. Apply didrogesteron inside on 10 mg 2 times per day or a progesterone inside on 100 mg 3 times a day from the 16th to the 25th day of a menstrual cycle. Duration of the above therapy and dynamic supervision of functional formations of ovaries shouldn't exceed 3 months. Absence of positive dynamics (reduction or disappearance of formation, according to the ultrasonography which is carried out for the 5-7th day of a menstrual cycle within 3 months) is the indication to expeditious treatment – a cyst enucleation (i.e. organ-preserving operation), preferably endoscopic method. In view of possibility of development of a functional cyst against inflammatory process, recommend to carry out anti-inflammatory therapy also.

Removal of cysts of an ovary is also shown at multichamber formation, intra belly bleeding. True benign tumors are subject to obligatory surgical removal.

Distinguish two types of operations: preserving tissue of an ovary and radical. Carry suturing tissues of an ovary to the operations preserving ovary tissue (for example, at an apoplexia); shelling out of cysts with the subsequent suturing of tissue of ovary; resection (removal of part) of an ovary. Radical operation – removal of an ovary, or an adnexectomy, – is carried out mainly at overwind ovary cyst legs with a necrosis of its tissues, tumors of ovaries [40, 42, 44, 48].

Treatment of benign the epithelial tumors of an ovary quick as irrespective of the size of a tumor there is a danger of its malignisation. During operation conducted urgent histologic research of tumoral tissues. At a serous smooth-bore cystoma the volume of operation depends on age of the patient: at young women it is admissible inclusions of tumors with leaving of healthy tissue of ovary. At serous papillary cystoma, the mucinose cystoma and Brenner's tumors at girls and women of reproductive age delete only the affected ovary. At overwind legs of a tumor of an ovary or a rupture of a capsule of a tumor operation is performed in the emergency order.

Treatment of tumors of ovaries always has to begin with operation. The principle of organ-preserving treatment (removal of adnexes on the one hand and a resection of a big epiploon) manages to be carried out at patients with a unilateral dysgerminomas, tecomas, granulocellular tumor, and also from the mucinose c. In all supervision of cystadenocarcinoma malignant tumors of ovaries at children operation is combined with polychemotherapy, and at a widespread dysgerminoma carried out radiation of a basin and an abdominal cavity according to the individual plan .

Germinogenic tumors are subject to expeditious removal. Benign (dermoid) cysts delete in a planned order (except for cases of a torsion of a leg of the tumor which is followed by symptoms of a acute stomach), carry out anucleation of formation.

Forecast favorable. In the presence of malignant the germinogenic tumors at patients of young age at a small tumor, an intact capsule, is allowed removal of the affected ovary and a big epiploon with the subsequent chemotherapy (6–8 g of a cyclofosfan on a course). In the next 3 years the preventive chemotherapy is recommended. In other cases perform radical operation (removal of an adnexes) and chemotherapy. The forecast at adequate treatment rather favorable. Treatment unripe teraty quick (removal of an adnexes) with the subsequent poliochemiotherapy. Forecast adverse.

Treatment of feminising and virilising tumors of an ovary is quick. At girls and young women removal only of the affected ovary is admissible. The forecast is established after histologic research of a tumor according to which establish need of a pan-hysterectomy. Considering possibility of recurrence and metastasis in the remote terms after operation, patients have to be during all life under supervision of the gynecologist-oncologist [13, 15–19, 21, 24, 29, 30, 36, 45].

When forming a female phenotypical floor in the presence of a pool of the cages containing a Y-chromosome the frequency of tumors of sexual glands is increased. Described that at a karyotype 46,XY removal of gonads is carried out right after statement of the diagnosis as tumors at the age of 7 years.

In the postoperative period appoint the physiotherapeutic treatment directed on prevention of development of adhesive process and an obliteration of uterine tubes, and also on preservation of reproductive function.

In case of a malignant tumor at the girl treatment is carried out in specialized hospitals. Carried out radical therapy in volume of a uterus extirpation with appendages and resection of a big epiploon . It is necessary to carry out chemotherapeutic treatment as in the majority of a tumor sensitive to chemotherapy. In cases of not radical operation or at treatment of metastasises carry out radiation therapy on the center of defeat [8, 39,43].

At malignant new growths the forecast is defined by possibility of radical removal of a tumor. At tumors of ovaries use of the combined schemes of therapy allowed to receive 5-year survival at 89,7% of patients [8].

Thus, the differentiated approach to a choice of conservative or surgical methods of treatment the tumor-like formations of ovaries at girls is possible only in the conditions of a versatile children's hospital with diagnostic vigilance of pediatricians, surgeons on gynecologic pathology at girls and teenagers, high qualification of the gynecologist of children's and teenage age, the doctor of BONDS diagnostics. Application of modern laparoscopic technologies will allow to avoid postoperative complications and to keep the reproductive potential of future women.

Chapter 2. Materials and methods of research.

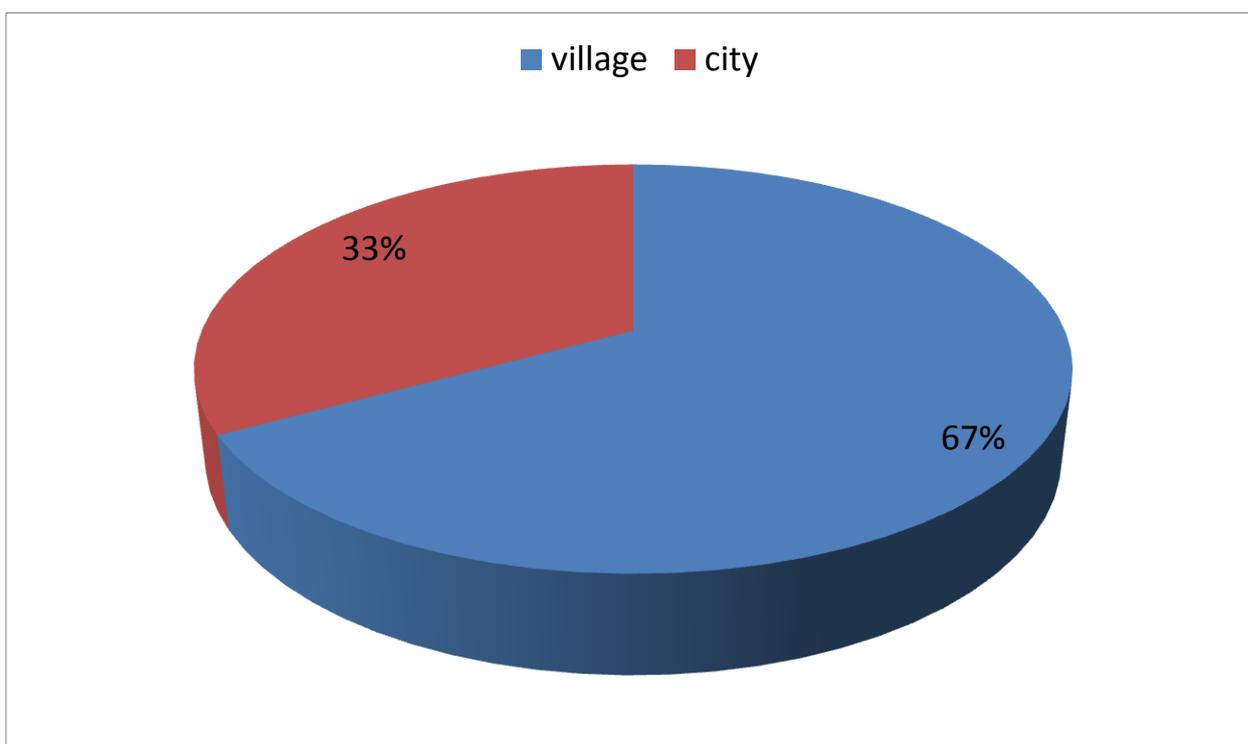
2.1. Materials of research.

As object of clinical trial were 45 girls at the age of 12-15 years with the diagnosis served: ovarian cyst. 20 girls were examined and were on hospitalization in the 1st city hospital of Samarkand in the department of endoscopic surgery since 2012-2014y.

Other 25 girls were observed in the 3rd maternity complex of the city of Samarkand, in the department of gynecology, also since 2012-2014y. Among girls observed by us, 30(67%) of girls were from village, and 15(33%) from city

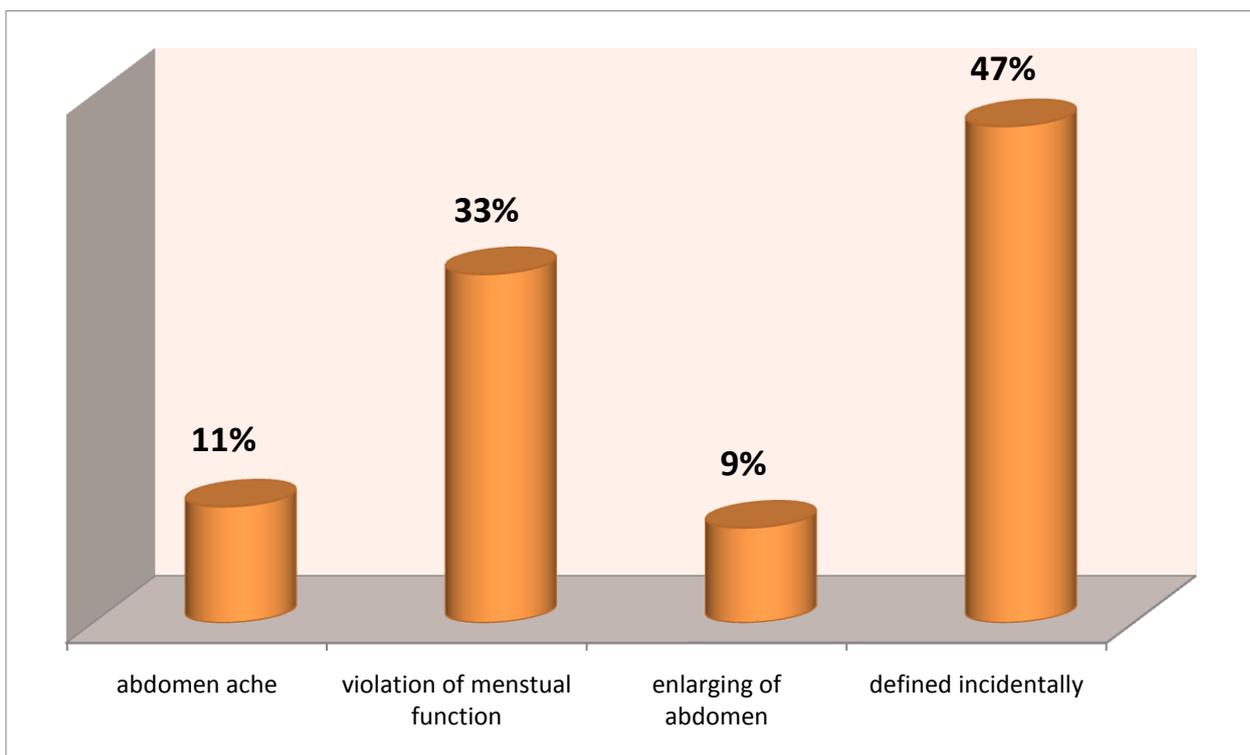
(pic 2.1.).

Place of living of the examined girls



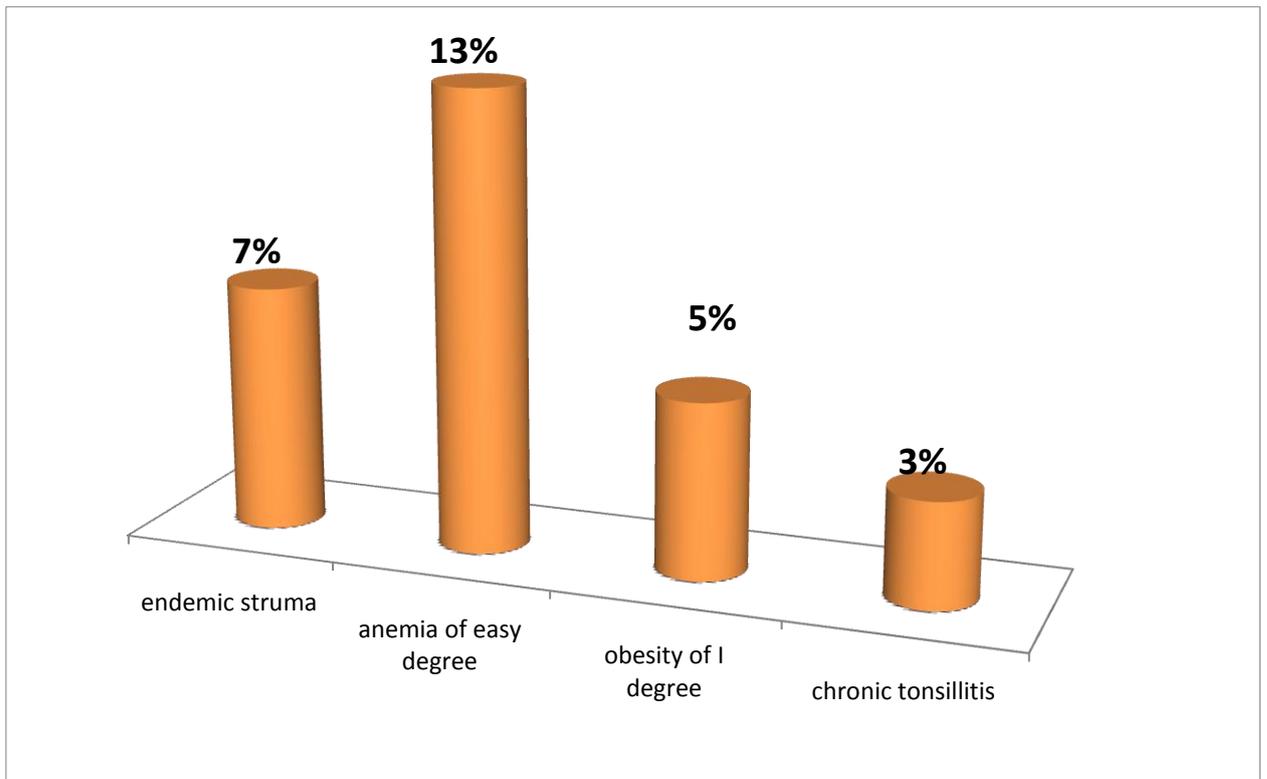
5(11%) girls came with complaints to the belly-ache of the aching character, 15(33%) complained to irregular and painful menstrual cycle, 4(9%) addressed concerning increase of a stomach, other 21(47%) girls had no any complaints (pic. 2.2), and the cyst was found incidentally during prevent examination in policlinic .

Complaints of girls.



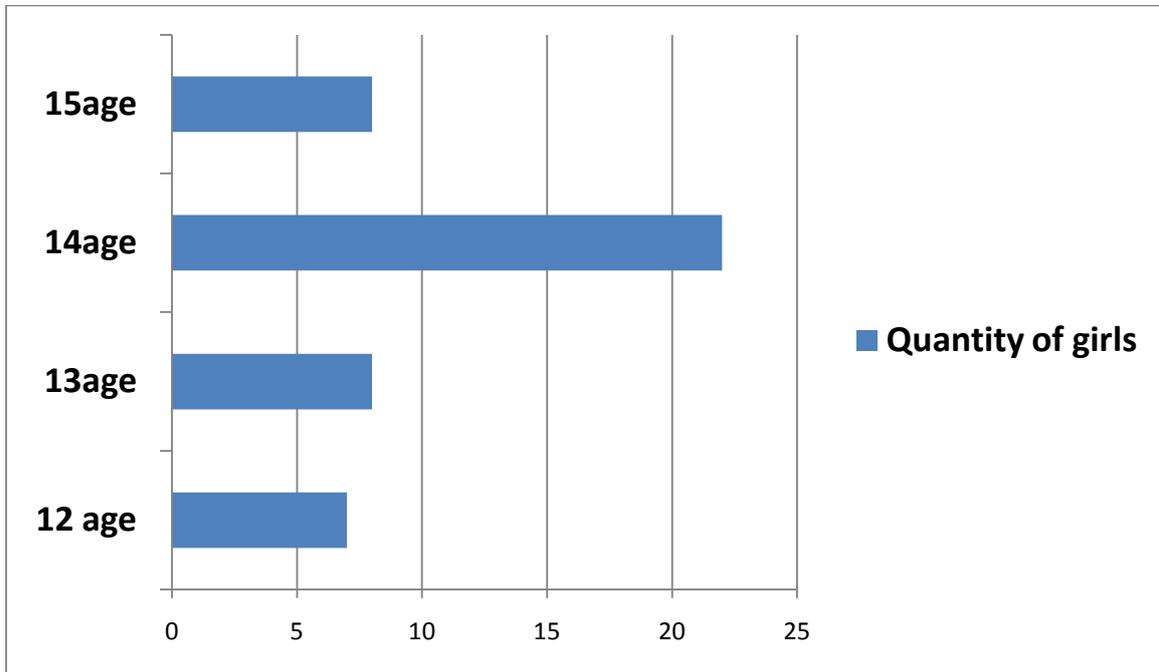
In 9(28%) girls, were found following associated diseases like: endemic struma in 3(7%) girls, anemia of easy degree in 6(13%) girls, obesity of I degree in 2 (5%) and chronic tonsillitis in 1 (3%) girl (pic. 2.3.)

Associated diseases.



On an age category girl shared as follows: 22(49%) girls were at the age of 14 years, 8(18%) at the age of 15 years, 8(18%) at the age of 12 years, and other 7(15%) were 13 years (Pic. 2.4.).

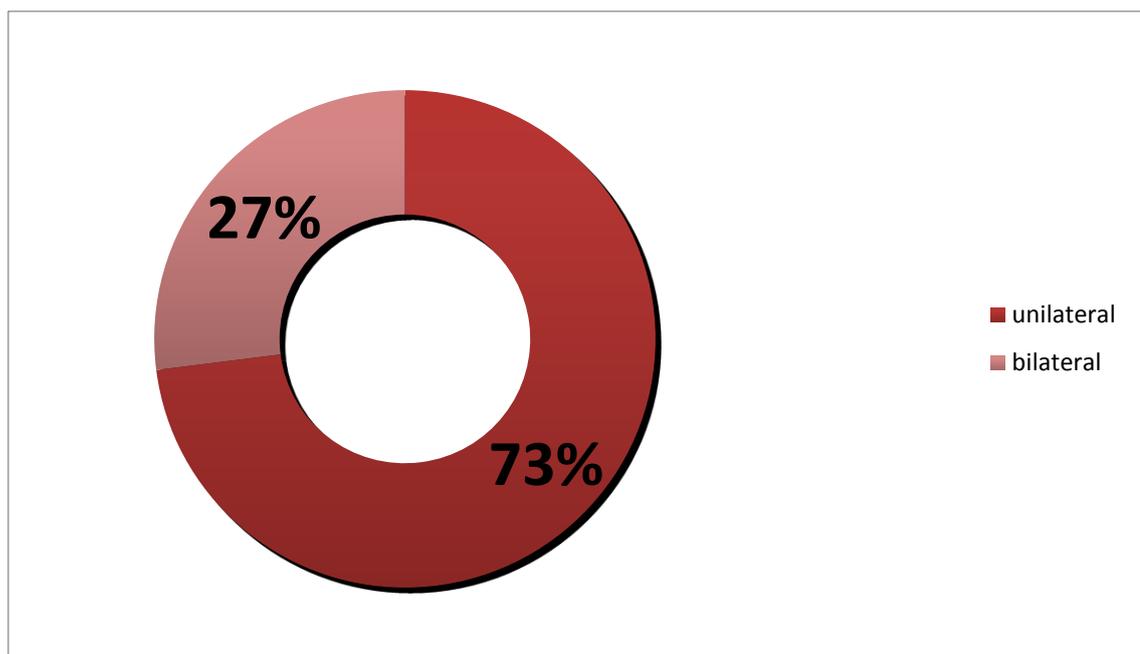
Age of girls



2.2. Methods of research.

In 33(73%) cases cysts were unilateral, in 12(27%) cases-bilateral (рис.2.5.).

Localization of cysts



Classification of stages of puberty at girls on Tanner

Stage	Development of (Ma)	Axillar hairiness (A)	Growth of hairs on pubis, signs (P)
I	Puberty enlargement of mamilla	Absence	Puberty, absence of hairs
II	Gland and mamilla raised above the surface like small tuber, increases diameter of paramamillar zone	Single and straight hairs on axillar cavity	Seldom hairs, long, straight and slightly curling, mainly on genital lips
III	Gland and paramamillar increases, but doesn't contour accurately	Curving hairs on axillar cavity	More dark and coarse, spread on pubis.
IV	Paramamillar zone and gland forms –secondary gland	—	Bushy, hair of adult type, don't spread on medial surface of femur.
V	Adult contour of mammary glands with arising of the mamilla only.	— II —	Hairs of adult type of triangle, spread on medial surface of femur

Assessment of a stage of sexual development in girls

Stage	Age (y)	Mammary glands (Ma)	Haireness Pubic (P)	Haireness Axillar (A)	Menarche (Me)
Ia	To 9	Ma,	P,	A,	No
B	9—10	Ma [^]	P,	A,	No
II	10—11	M [^]	P2	A,	No
III	12—13	Ma ₃	P3	A2	Menarche
IV	14—15	Ma _{,,}	P«	A3	Ovulation
V	15—17	Ma ₅	P5	A3	—

The sizes of a uterus and ovaries at healthy girls depending on a stage of sexual development, according to an ultrasonography

Stage	Volume of uterine (ml)	Volume of ovarian (ml)
I	0,5—1,5	0,2—0,9
II	1,5—3,0	0,9—1,5
III	3,0—10,0	1,5—2,5
IV	10,0—30,0	2,5—3,0
V	30,0—80,0	3,0—10,0

All girls were executed the following laboratory and tool methods of research: complete blood count, urinalysis, biochemical blood test, coagulation by Sukharev, definition of a blood type and Rhesus factor, prothrombin time and index, ultrasonography of bodies of a small pelvis, survey of the therapist and anesthesiologist, and also consultation of the endocrinologist. One girl was advised by the otolaryngologist concerning chronic tonsillitis.

Methods of research

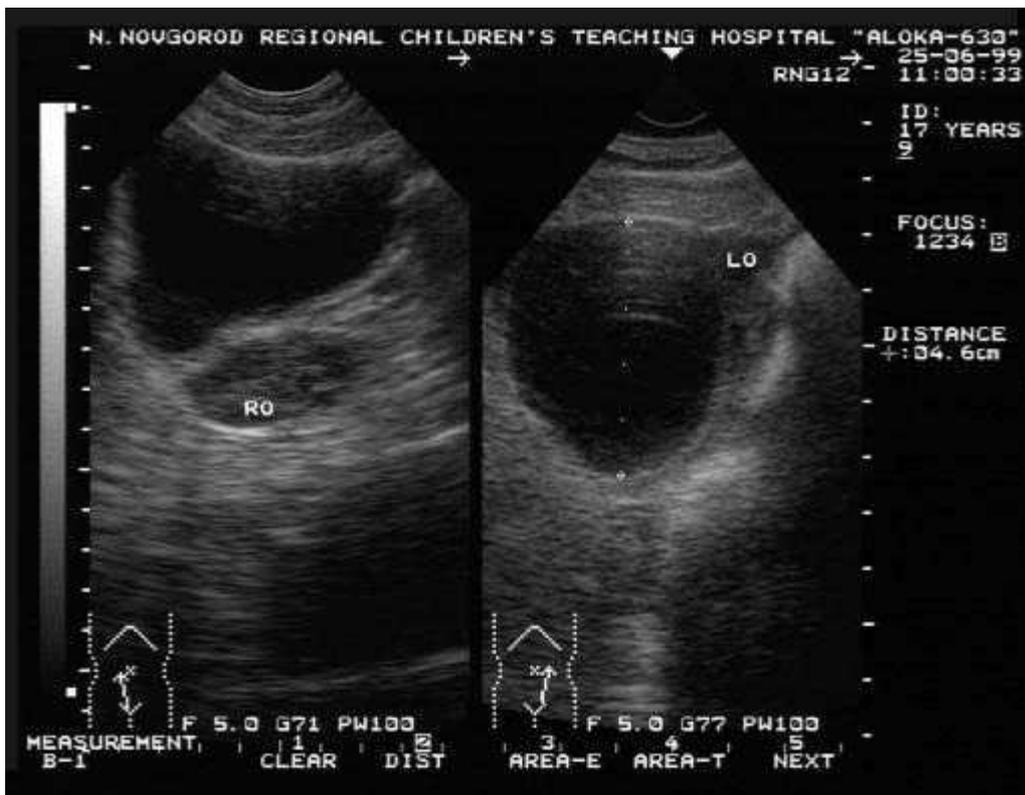
№	Methods of diagnostic researchs	Amount of patients
1	To study anamnesis	45(100%)
2	To study features of menstrual functions	45(100%)
3	Complete blood count.	45(100%)
4	Urinalysis	45(100%)
5	Biochemical blood analysis	45(100%)
6	Determine the Rhesus factor and group of blood	45(100%)
7	Coagulation by Sukharev	45(100%)
8	Prothrombin time and index	45(100%)
9	ECG	45(100%)
9	USI of organs of small pelvis	45(100%)
10	CT	5(%)
11	MPI	2 (1%)
12	Therapeutist examination	45(100%)
13	Anesthesiologist examination	45(100%)
14	Endocrinologist examination	45(100%)

15	Otolaryngologist examination	45(100%)
16	Histological learning of macropreparation	45(100%)

The ultrasonic sonografiya which could give exact information about location, contents and the size of a cyst was the most informative method of research(Pic.2.6), (Pic.2.7.).



2.6. Echographic picture of a cyst of a yellow body of the left ovary.



Pic 2.7. Echographic picture of a follicular cyst of the left ovary (right half of a picture). Not changed tissue of an ovary is visualized in the form of a site of a crescent form. On the left half of a picture not changed right ovary.

In 98% of cases the diagnosis of the expert of an ultrasonografi coincided with the diagnosis of operators concerning the sizes and localization of TF.

Research was conducted on the device MobileTrolleyUMT-100 with the linear Digitalultrasonic Diagnostic Imaging System Model[^] DP3300 sensor.

Chapter 3 Results of research

All girls were divided into 2 groups. The main group was composed girls who were on hospitalization in city hospital No. 1 and were executed a laparoscopic removal of a cyst. Control group composed girls, which were in the third maternity complexes at the department of gynecology, and they were performed laparotomic access (Table 3.1.).

Table 3.1. Dividing into groups.

Group	n	Access	Place of pursuance
Basic	20	Laparoscopic	City hospital №1
Control	25	Laparotomic	Gynaecology department of Maternity №3

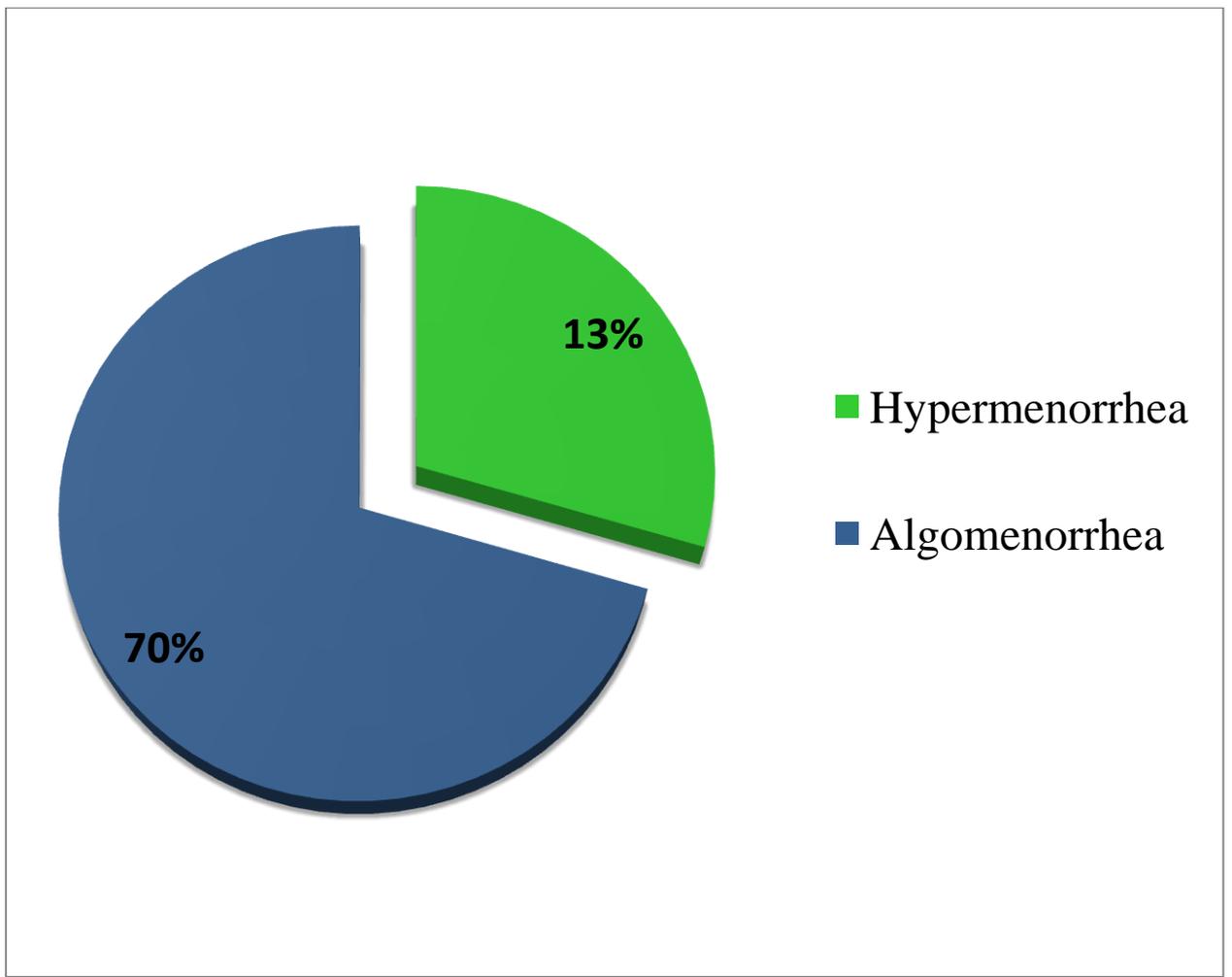
From the anamnesis of mothers of girls pregnancy at 28 of them proceeded against vomiting of pregnant women in the first trimester and catarrhal diseases in the second and third trimester of pregnancy. At the others 17 of them pregnancy proceeded without any pathology.

When studying the anamnesis of girls, since first years of life we found out that most of girls very often were ill with what – that infectious diseases and stood on the account at the local pediatrician as the often ill children (OIC).

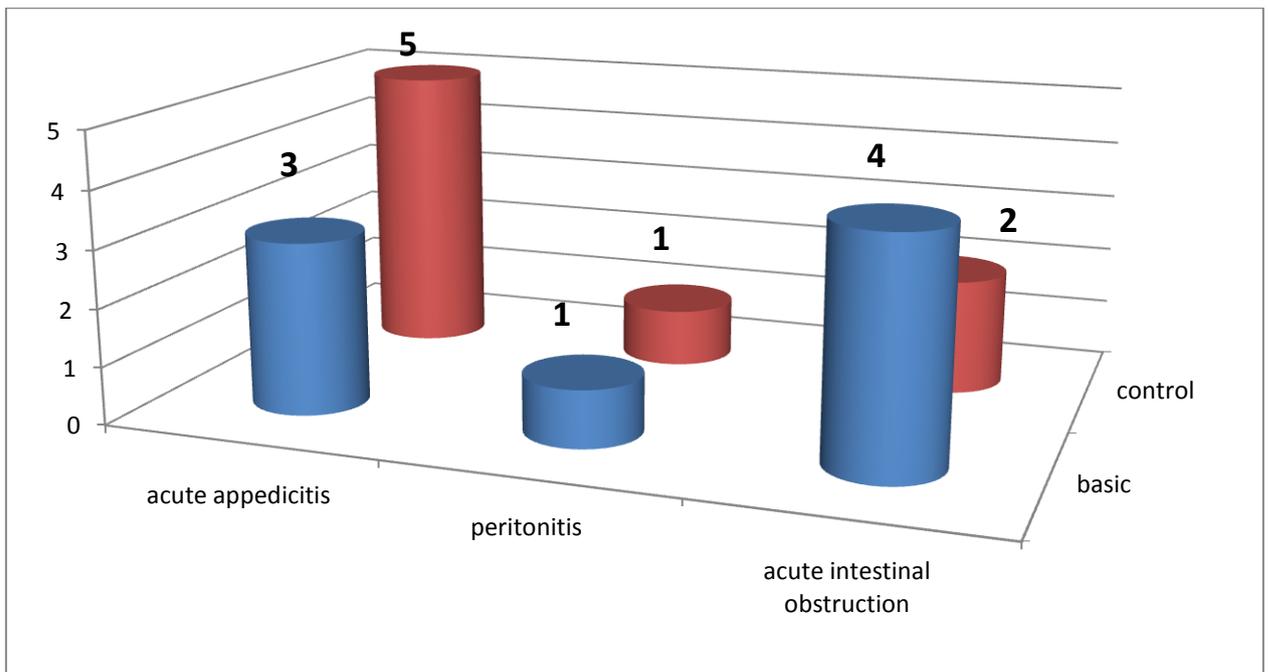
Most often TF arose in 1-3 years from menarche.

In our supervision at 6 (13%) girls from the main group there were complaints to violation of a menstrual cycle like hypermenorrhea, and at 3(31%) like algomenorrhea. (Pic. 2.8.).

Violation of a menstrual cycle



Among the girls observed by us there were girls already transferred in the childhood any surgeries in an abdominal cavity concerning acute inflammatory processes, such as an acute appendicitis-8 cases, peritonitis-2 cases and acuteintestinal impassability -6 cases. (Pic 2.9.).

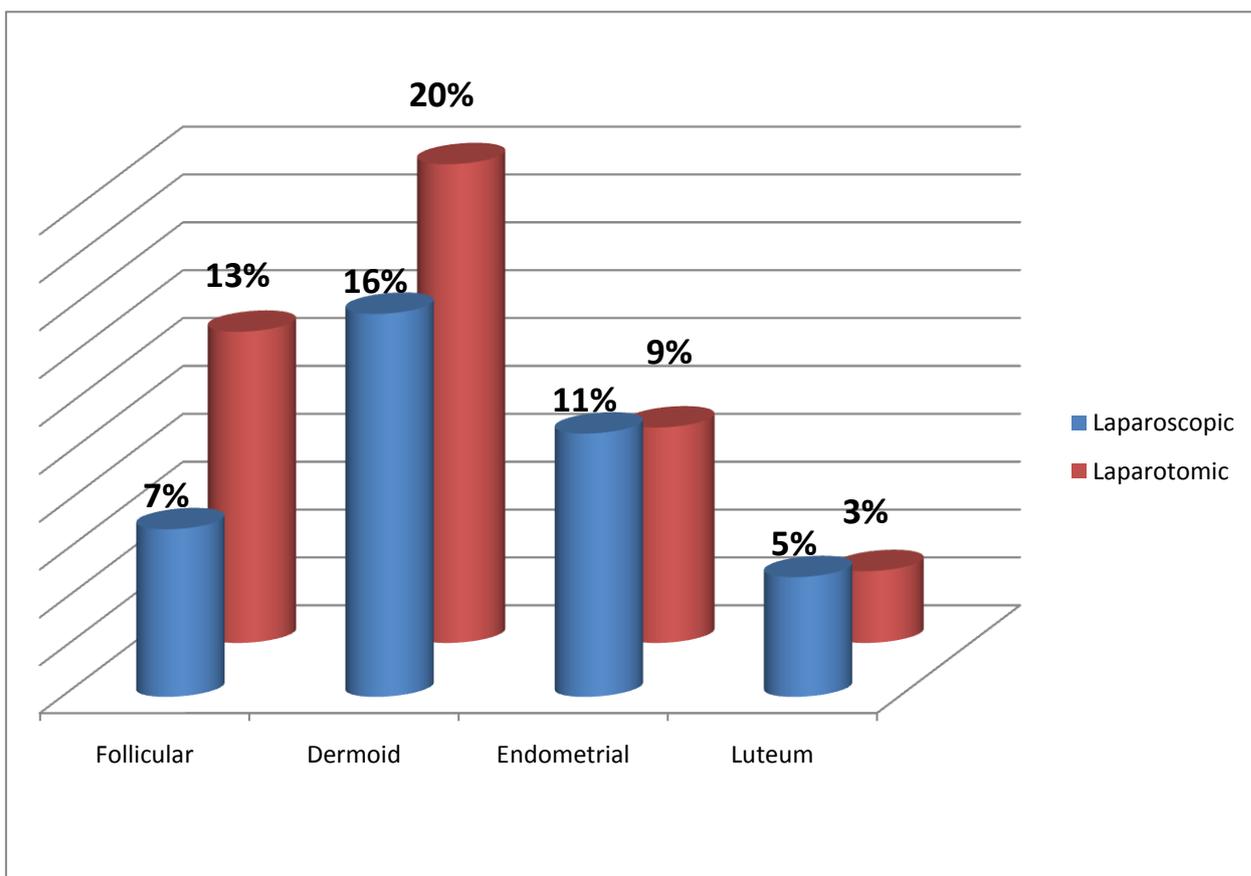


Pic.(2.9.) Transferred surgery.

False tumors or tumor-like formations of an ovary grow due to accumulation of liquid in a cavity. At accumulation of liquid in a cavity of a follicle appears follicular cyst, in a cavity of a yellow corpus – a luteum (hemorrhagic) cyst, in embryonic over the adnexes which is formed of an epithelium of mesonephron -paraovarian cyst of an ovary is formed.

Endometrial cysts of ovaries (external genital endometriosis of ovaries) are formed in a result of benign growth of tissue in morphologically and functional-similar mucous membrane of a body of womb (endometrium) in the area of ovaries.

Among the girls observed by us, in the main group there were revealed 3(7%) cases of follicular cysts, 7(16%) cases of dermoid cysts, 5(11%) cases of endometrial cysts and 5(11%) cases of luteum cysts of an ovary. And in the control group: 6(13%) cases of a follicular cyst, 9(20%) % - dermoid, 4(9%) – endometrial and 6(13%) – luteum cysts (Pic. 3.0.).



Pic.3.0. Types of cysts.

At inspection of girls there were found cysts of the different sizes, beginning from small 4-5 sm finishing big one to the 15-20sm (Table 3.2.) (Pic. 3.1.)

Table 3.2.

Sizes of cysts, sm	Basic group, n	Control group, n
4x5	10	8
6x8	3	5
10x12	2	3
10x15	5	6
15x20	1	2



Pic.3.1. Dermoid cyst of the right ovary size 15x 20cm.

The diagnosis of a tumor of an ovary is established on the basis of data of gynecologic, ultrasonic and histologic researches. At gynecologic research define the increased ovary, however considering that all girls whom we examined didn't lead sexual life and parents refused in carrying out rectoabdominal inspection, this method wasn't used. The big help in diagnostics, especially at small tumors, makes the ultrasonography allowing to establish precisely the sizes of ovaries and a tumor, their structure, capsule thickness.

According to the data obtained by us, when carrying out ultrasonography of bodies of a small pelvis the accuracy of diagnostics of TF equaled 98,5%. Preliminary diagnosis about character of a new growth exposed by the expert of functional diagnostics coincided with the diagnosis of histologic research in 44 cases, that is, specificity of a method made 98.5% (pic. 3.2.).



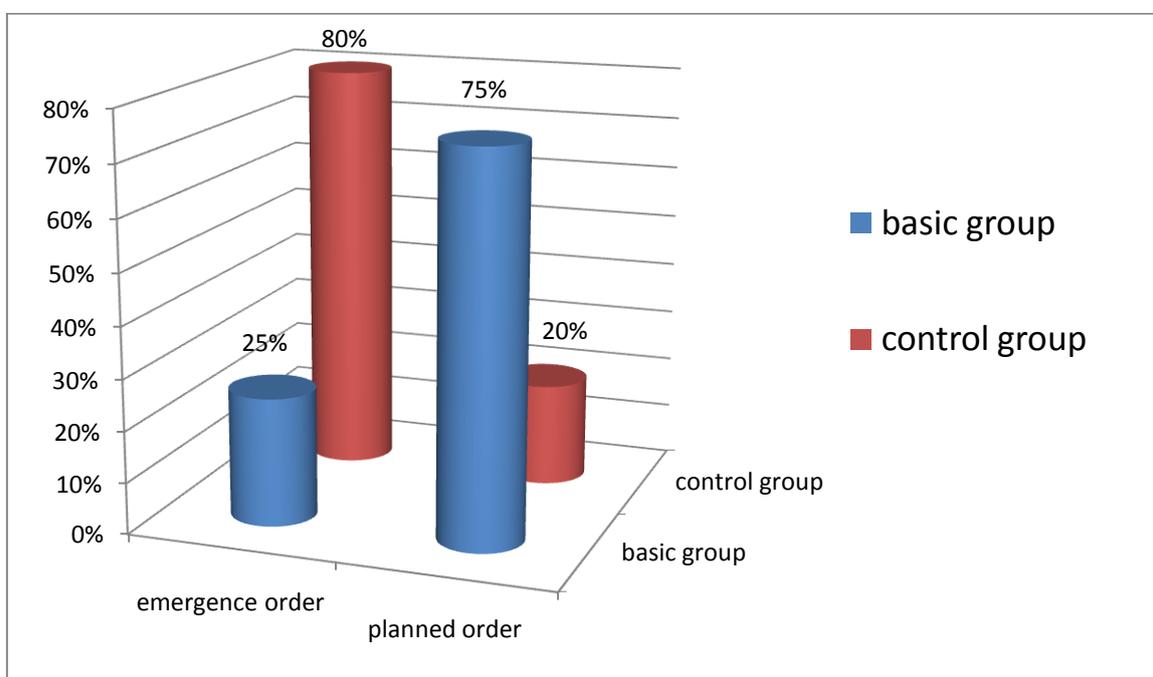
Pic. 3.2. Echographic picture of a luteum cyst of the right ovary. Co-perpendicular sections, in a cavity of a cyst is noted stratification of contents with formation of a hypoechogen component and echogen deposit.

At surgical treatment in girls with TF of ovaries irrespective of a type of operational access the preference was given to organ-preserving operations. The punctural method of treatment of cysts was applied only once at the emergency diagnostic laparoscopy when was revealed the follicular cyst of an ovary to 5 cm in the diameter. At identification of TF of ovaries of the big sizes we carried out a removal of a cyst with preservation even a small segment of an ovary. The resection of ovaries was carried out in cases when the capsule of a cyst was densely spliced with ovary tissue. At doubt in benign character of a new growth, tumors the sizes more than 10 sm when healthy ovary tissue was not manage to reveal, full torsion of ovary cyst legs with a necrosis of tissues of adnexes, we carried out an adnexectomy.

Operations were performed in planned (on establishment of the diagnosis) and emergency order. When performing operations in the emergency order there were

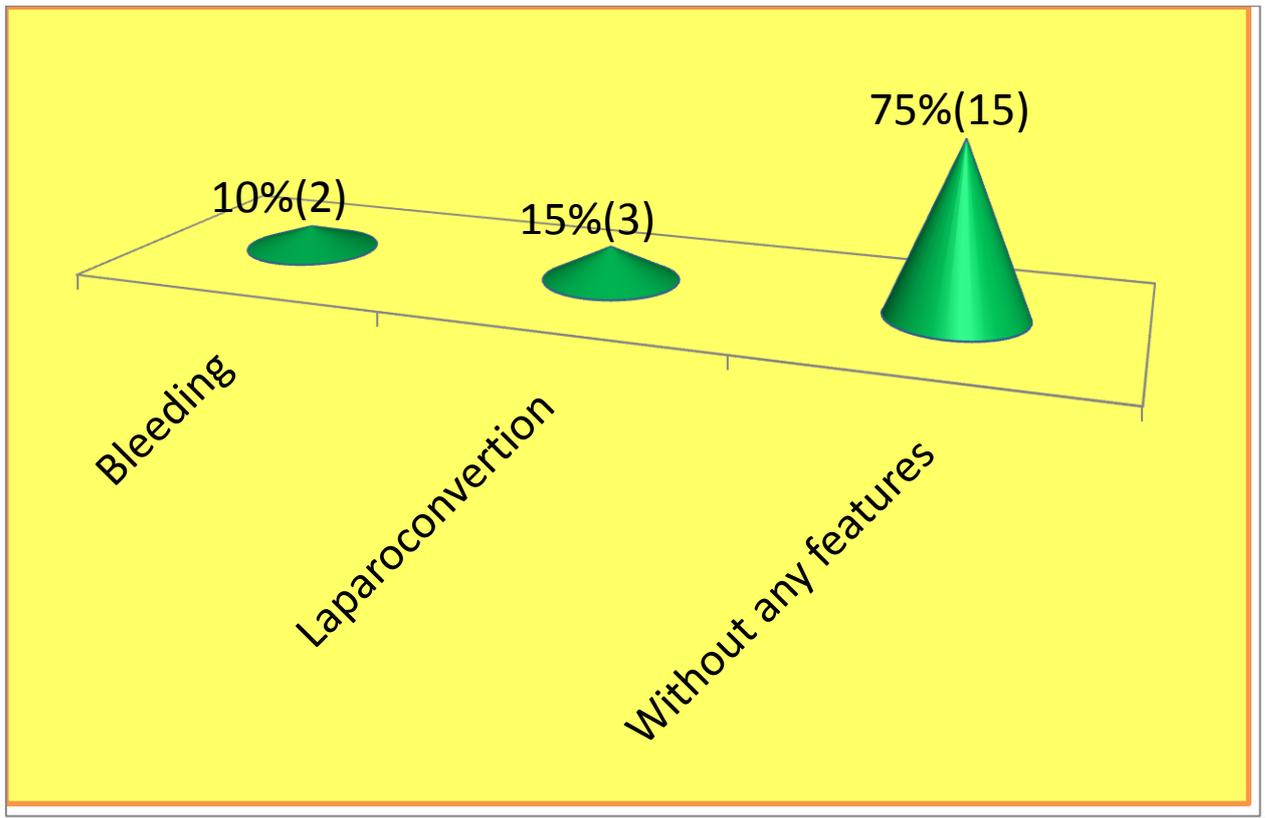
executed 20(80%) operations by laparotomic access, and 5 (25%)- by laparoscopic. In a planned order there were executed 5 (20%) operations by laparotomic access and 15 (75%)- by laparoscopic. (Pic.3.3.). As indications to the emergency surgery served pain syndrome, existence of peritoneal phenomena, suspicion on internal bleeding in an abdominal cavity. In a planned order operated girls who were repeatedly treated conservatively concerning an ovary cyst.

Terms of performance of operations.



Pic 3.3. Terms of performance of operations

At girls from the main group the intraoperative period proceeded as following: at 2(10%) girls operation was complicated by bleeding which was stopped by a bipolar coagulator, at 3(15%) girls operation ended with a laparoconversion, in connection with dense contents of a cyst and lack of opportunity to take it entirely, at the others 15 (75%) girls operation took place smoothly, without any features (Pic. 3.4.-3.5.).



Pic. 3.4. Current of the intraoperative period at laparoscopic access



Pic. 3.5. Localization of ports at laparoscopic access.



Рис.3.6. Evacuation of cyst content by means of suction

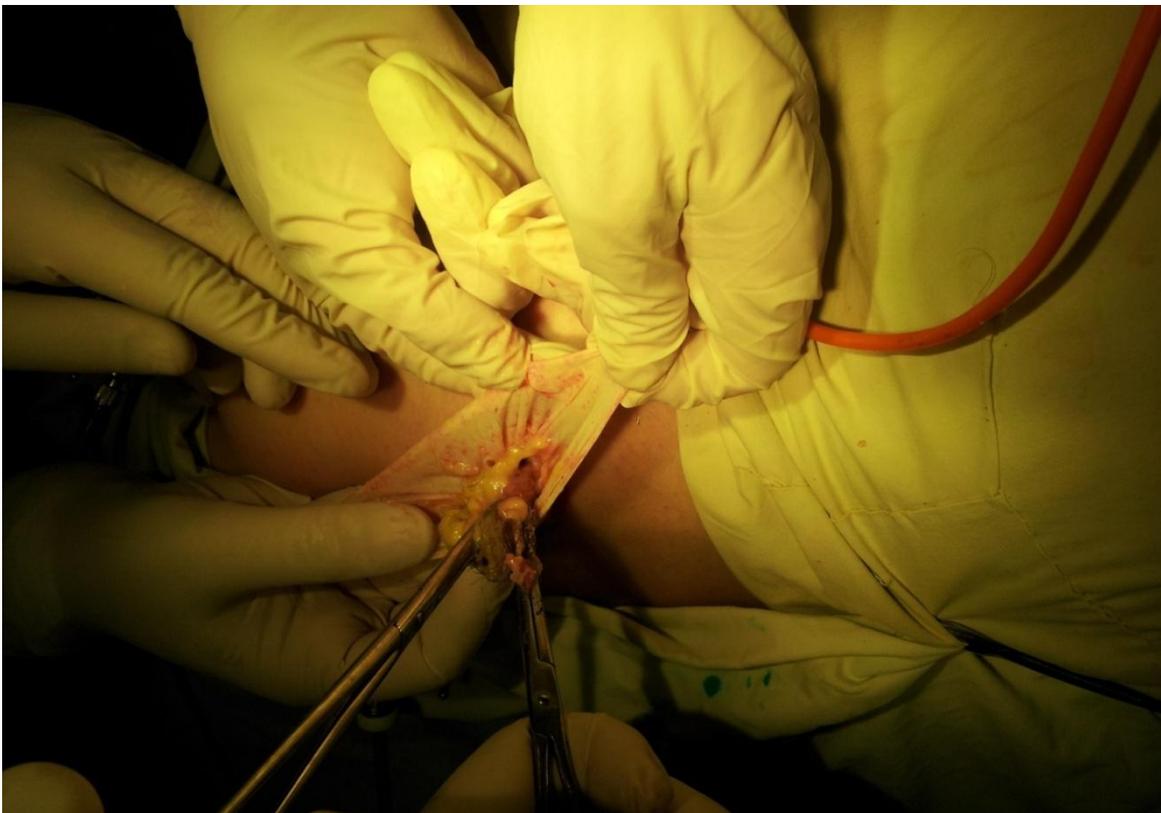
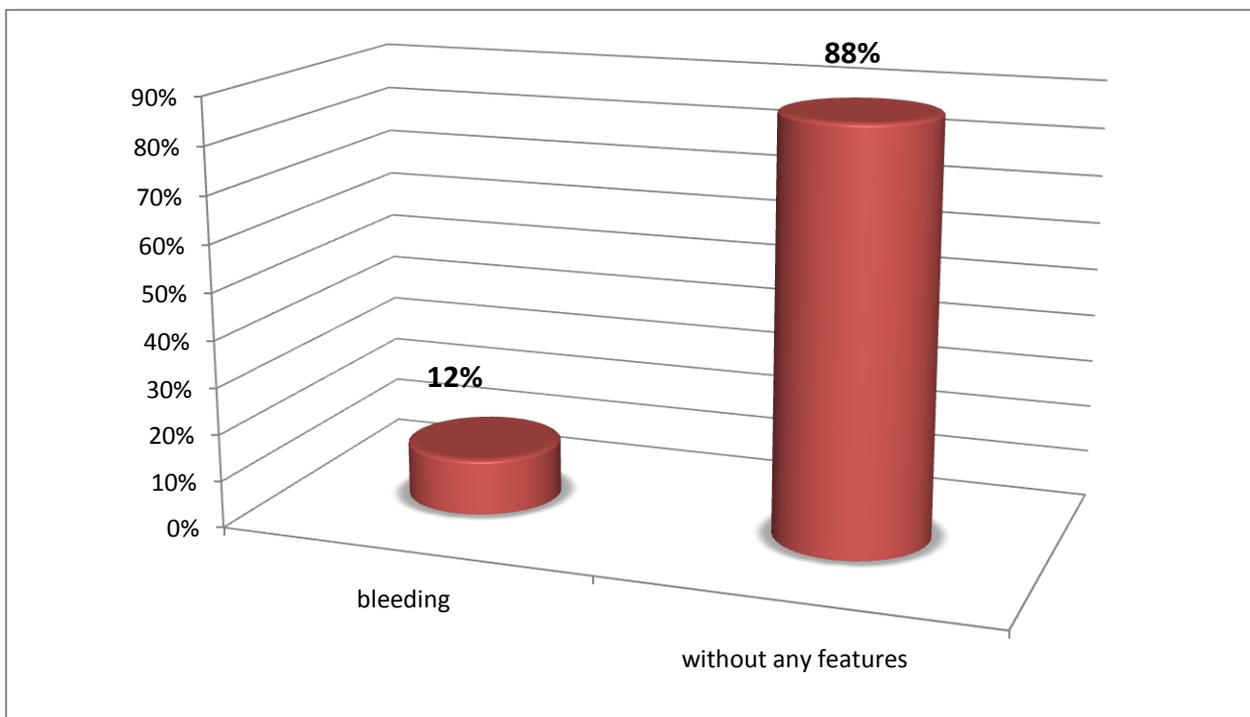


Рис.3.7. Evacuation of dermoid cyst by laparoscopic access

At girls from control group the intraoperative period proceeded as follows: at 4 (16%) girls operation was complicated by bleeding which was stopped, at the others 21 (84%) of girls operation proceeded without features(Pic. 3.8.)



Pic.3.8. Current of intraoperative period by laparotomic access.



Pic. 3.9. Minilaparotomic section



Pic. 4.0.. Resection of a cyst by laparotomic access.

All girls were under our supervision during 6 month.

At time of observation there were no cases of recurrences of TF of adnexes in girls neither in basic group, nor in control one.

It is known that the follicular cyst of an ovary arises from an unexploded follicle in which cavity there is an accumulation of transparent liquid, death of an ovum and a degeneration of a granular layer of cages. Developing of a follicular cyst is caused by violations of hipothalam-hypophysial regulation of function of an ovary or inflammatory processes in them, and also an endointoxication. Quite often

follicular cysts are followed by violations of a menstrual cycle as a dismenorrhea (irregular, painful, plentiful, long periods) or juvenile uterine bleeding.

Hormonal correction of menstrual function after surgical treatment

There were appointed the microdosed combined oral contraceptives within 3 months to all girls with hypermenorrhea. This preparation contains ethinilestrodiol (0.02mg) and drospirinon (3mg). However only 2 girls accepted this medicine then they restored a menstrual cycle, from other 4 girls again addressed to us 2 girls with hypermenorrhea. Them was also appointed COC, afterwhat themenstrual function was restored.

In the analysis of features of a current of the postoperative period, depending on the access applied by us, it was revealed that most hard it proceeds at the girls operated with laparotomy access. It can be explained with difficult character of pathology and respectively large volume of surgery.

The current of the postoperative period after laparoscopic access was less heavy. Insignificant excess of duration of a pain syndrome, dyspepsia and an asthenic syndrome after endoscopic operations, most likely, is explained by a residual pneumoperitoneum and irritation at the expense of it the diafragmalnykh and wandering nerves.

Table 3.2

	Basic group	Control group
Quantity of bed-days	3 days	6 days
Taking antibiotics	3 days	5 days
Taking not steroid antiinflammatory	2 days	3days

remedies		
Size of wound	От 3мм- 5см	8см

Discussion of results

Recently the majority of operations at tumors and cysts of an abdominal cavity and appendages of a uterus are carried out endoscopic not only in our country, but also abroad and the size of a new growth isn't the limiting factor [Krieger A.G., 2009; Manukhin I.B., Vysotsky M. M., 2010; Dronov A.F., Poddubny I.V., 2012; Chisov V. I., Novikova E.G., 2012; V. I Fists: Adamyan L.V., 2010; Cass D.L., Hawkin E.N., 2011].

According to I.B. Manukhin (2000), I.V. Fedorova (2011), A.F. Dronova, I. V. Poddubny (2012), JI.B. Adamyan (2010) contraindications to laparoscopic access a serious somatic illness and suspicion on malignant growth generally serve. At the same time, in practice at girls with volume formations of an abdominal cavity of the big sizes at the solution of a question of access most of authors prefer a laparotomy [Vishnevskaya E.E., 2011; Sazhin V.P., Fedorov A.V., 2010; Gumerov A.A., Mamleev I.A., 2012; Chisov V. I., Novikova E.G., 2012]. According to I. A. Kiselyova, M. A. Strizhakova, E.A.Bogdanovoy . (2010), the “open» section was executed only to children with formations of the big and huge sizes (5,4% of all operations). Serve as the reasons of a choice of laparotomic access fear of damage of a capsule of formation during primary entry into an abdominal cavity and its obsemeneniye, complexity of high-quality audit for establishment of a nosology of formation, difficulty at manipulation and evacuation from abdominal cavity.

We met publications in which it is mentioned laparoscopic treatment of adults and children with huge formations of an ovary (Tsivyan B. L., Maklyak A.N., 2010; Gumerov A.A., Mamleev I.A., 2011; Galustyan S. A., Belkina N. V., 2009;

Markova E.A., Kuznetsova T.A., 2012), but there given a small amount of supervision.

It should be noted that the standard generalized; classifications of new growths of appendages of a uterus and an abdominal cavity depending on the size aren't present therefore their division into the big and huge is conditional: In; I. Kulakov, JLB. Adamyan (2011), B.H.: Serov, L.I. Kudryavtseva (20010) big calls tumors more than 8 cm in the diameter, A.A. Gumerov and coав. (2012) - more than 10 - 15 cm. In a number of articles of formation of ovaries are treated as huge or big without indication of the exact sizes (Nosenko E.N., Chaika A.V., 2012; Kiselyova I.A., Strizhakova M. A., 2010).

For the first time in Samarkand it is carried out, questioning of the operated girls with gynecologic pathology according to quality of life that allowed to be convinced of advantages of minimal-invasive technologies.

Possibility of carrying out endoscopic manipulations under optical increase allows to execute an enucleation of tumors of ovaries with observance of the principles of an ablative and the maximum preservation of an ovarian reserve.

By means of laparoscopic techniques it is possible to achieve reliable improvement of such indicators, as duration and intensity of use the NSAID of means, antibiotics, terms of activation of patients and duration of postoperative stationary stay.

Questioning of the operated girls on estimates of quality of life and monitoring promote identification and timely correction of late postoperative complications, and also violations of the psychosomatic status of girls.

The carried-out comparative analysis of results of surgical treatment the tumor-like formations and benign tumors of ovaries at girls confirms advantages of a laparoscopy before traditional surgery

Conclusions.

1. As showed our observations, the intraoperative period slightly differed both at laparoscopic, and at laparotomic access, irrespective of the sizes and arrangement of cysts. Respectively application of minimal-invasive laparoscopic technology is the most suitable method of a choice at surgical treatment of tumor-like formation of adnexes at girls - teenagers.
2. Radicalism of the intervention which is carried out by laparoscopic access doesn't differ from the operation performed in the laparotomic way that is confirmed in a lack of cases of recurrence in the groups of patients analyzed by us.
3. Irrespective of operative access, menstrual function at girls with hypermenorrhea was restored only in 2 girls. Other 4 girls were necessary to take the microdosed oral contraceptives during 3 months for complete recovery.
4. By means of laparoscopic techniques it is possible to achieve reliable improvement of such indicators, as duration and intensity of using the NSAID of means, antibiotics, terms of activation of patients and duration of postoperative stationary stay.

Practical recommendations

- At identification of tumor-like formation of adnexes at girls in the conditions of policlinic, is necessary to send them to hospitals where used a modern diagnostic equipment and the equipment for carrying out surgical treatment at the modern level.
- At identification of the complicated tumor-like formation of adnexes it is preferable to begin surgery with diagnostic laparoscopy as in the presence of the skilled endoscopic surgeon in most cases it is possible to finish operation by means of endoscopic equipment. Besides, only the endoscopic equipment allows to carry out full audit of abdominal organs and small pelvis.
- At girls with violation of menstrual function it is necessary to apply complex treatment, i.e. a combination of surgical intervention and reception of the microdosed oral contraceptive during 3 months to complete recovery of menstrual function.

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