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PERINATAL PECULIARITIES IN WOMEN WITH BENIGN OVARIAN TUMORS

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ABSTRACT

Ovarian tumors may be found in women of any age and the period of pregnancy is no exception. Besides, this period is related to some specific adnexal tumors. A systematic use of ultrasonography in the first trimester of pregnancy has led to a wider detection of symptomless adnexal tumors.

The majority of adnexal tumors diagnosed during pregnancy are accidental findings of routine examinations of pregnancy.

According to various estimations, the incidence of adnexal neoplasms during pregnancy makes up from 0.19 to 8.8 %. Most of cases are diagnosed in the first trimester and their incidence gradually decreases as the period of pregnancy grows: Trimester 1 – from 21.4 to 75.7 %; Trimester 2 – from 10.9 to 44.4 %; Trimester 3 – from 4 to 22.2 %; after labor – from 0 to 7.1 %.

Most of adnexal tumors during pregnancy are benign and physiological and often regress spontaneously.

Depending on their size and location, ovarian tumors may be related to an adverse obstetrical result caused by mechanical influence. They increase the risk of abortion (from 0 to 6 %), preterm labor (from 5.8 to 10.4 %) and mechanical impediment to labor.

In view of the above mentioned considerations, one of the objectives of our research is to make a retrospective analysis of perinatal peculiarities in women with benign ovarian neoplasms.

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Introduction. According to various estimations, the incidence of adnexal neoplasms during pregnancy makes up from 0.19 to 8.8 %. Most of cases are diagnosed in the first trimester and their incidence gradually decreases as the period of pregnancy grows: Trimester 1 – from 21.4 to 75.7 %; Trimester 2 – from 10.9 to 44.4 %; Trimester 3 – from 4 to 22.2 %; after labor – from 0 to 7.1 % [3, 5].

Ovarian tumors during pregnancy usually present no symptoms and are diagnosed as ultrasonographic or surgical findings. At cesarean sections, adnexal tumors are found in approximately 0.3 % of cases [8]. Only a small part of women present symptoms, mostly pain, from 8 to 69 % according to various sources [1, 2]. In approximately 31 to 72 % of cases, there is a spontaneous regression. The most important predictors of persistence are visual morphological competence and a size of over 5 cm. Tumors that persist throughout pregnancy are usually pushed upwards from the small pelvis cavity as the size of the uterus increases. Sometimes they may compress adjacent organs, in particular the urinary tract and the lower part of the digestive tract, with subsequent symptoms in these organs. A tumor may also present a mechanical obstacle for labor by impeding fetal descent [4, 6].

Most ovarian tumors during pregnancy are benign and mainly represented by functional cysts (follicular cysts, corpus luteum cysts and lutein cysts), teratomas and cystadenomas. Various sources provide different data on the structure though [7, 9].

Research materials and methods.

One of the objectives of our research is to make a retrospective analysis of perinatal peculiarities in women with benign ovarian neoplasms.

The basic group comprises 88 case records of labor in women with benign tumors and tumor-like growths in the period of 5 years (from 2015 to 2020), the reference group includes 55 case records of labor in women without any ovarian neoplasms. The records were selected at the Regional Perinatal Center (Ivano-Frankivsk).

Research results.

The selected case records present the following distinction of patients depending on the time of detection of tumors (Fig. 1): before pregnancy: 8 patients (9.1%), first trimester of pregnancy: 48 patients (54.5%), second trimester: 31 patients (35.2%), third trimester: only 1 woman (1.1%).

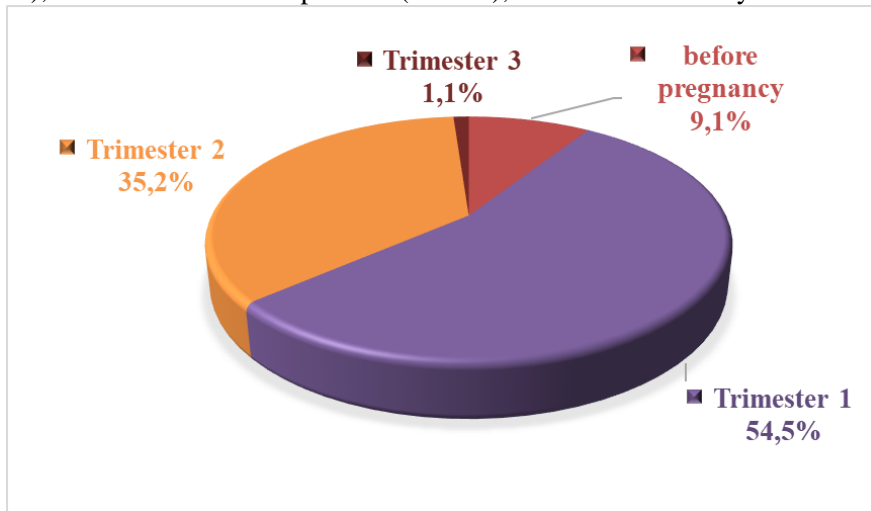


Fig. 1. Distinction of patients with ovarian neoplasms depending on the time of detection of tumors

25 patients (28.4%) underwent a surgery for ovarian neoplasms, including ovarian resection in 8 women (9.1%) and cystectomy in 18 women (20.5%). 16 women (18.2%) underwent a surgery during pregnancy, with the use of laparoscopy in 10 women (62.5%) and laparotomy in 6 women (37.5%); 9 women (10.2%) underwent a cesarean section.

More than half of the women operated during pregnancy (56.3%) underwent a surgery in the period from 17 to 24 weeks of pregnancy (Fig. 2), 37.5% of women were operated earlier (from 6 to 16 weeks) and 1 woman (6.35%) was operated in the 26th week of pregnancy.

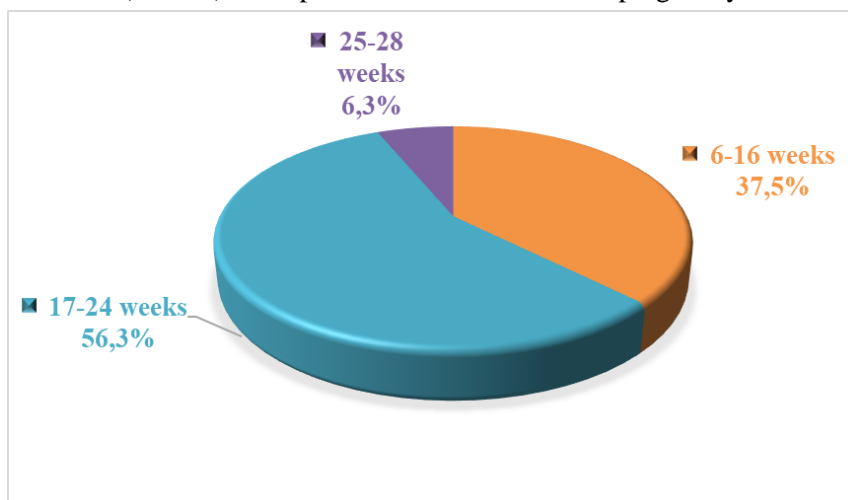


Fig. 2. Distinction of patients operated for ovarian neoplasms during pregnancy depending on the time of surgery

The analysis of age distinction of patients has found no significant difference in comparison with the reference group (Table 1): about a half of women were aged between 20 and 30 (44.3 % and 50.9 % in the basic and the reference group respectively, $p>0.05$), a little lower percentage of women were from 31 to 40 years old, about 10 % younger than 20 and only 3 women from the basic group and 1 woman from the reference group were older than 40 (3.4 % and 1.8 % respectively, $p>0.05$).

We have found no difference either in the distinction of the women from the researched groups by their social position (Table 2): the biggest number of women were employees (40.9 % and 36.4 % in the basic and the reference group respectively, $p>0.05$), about a third of women were unemployed, 20 % of women in the basic group and 25 % of women from the reference group were workers, 5.7 % and 1.8 % respectively were students ($p>0.05$).

Table 1. Age distinction of patients

Age, years	Basic group, n= 88		Reference group, n= 55	
	Abs. number	%	Abs. number	%
below 20	9	10.2	4	7.3
20-30	39	44.3	28	50.9
31-40	38	43.2	22	40.0
41 and more	3	3.4	1	1.8

Note. * - statistically significant difference with regard to the figure from the reference group ($p<0.05$)

It should be noted that 18.2 % of women from the basic group were not married, which is 3 times higher than the respective percentage in the reference group (5.5 %, $p<0.05$) and may be indicative of a certain adverse psychological effect on women.

Table 2. Social position of patients from the researched groups

Parameter	Basic group, n= 88		Reference group, n= 55	
	Abs. number	%	Abs. number	%
Social position:				
• workers	18	20.5	14	25.5
• employees	36	40.9	20	36.4
• students	5	5.7	1	1.8
• unemployed	27	30.7	19	34.5
unmarried	16	18.2*	3	5.5

Note. * - statistically significant difference with regard to the figure from the reference group ($p<0.05$)

The presence of a concomitant extragenital pathology may be one of the factors of development of the ovarian pathology itself and perinatal complications of pregnancy. According to our retrospective analysis, women with benign ovarian neoplasms present a significantly increased level of somatic morbidity. The most frequent concomitant pathologies are those of the digestive tract and the hepatobiliary system, which were found in the case records of over a third of the patients from the basic group (37.5 % vs. 10.9 % in the reference group, $p<0.05$). The incidence of autonomic dysfunction is four times higher than the respective incidence in the reference group (28.4 % and 7.3 % respectively, $p<0.05$).

Table 3. Extragenital pathology in patients from the researched groups

Pathology	Basic group, n= 88		Reference group, n= 55	
	Abs. number	%	Abs. number	%
Cardiovascular pathology	12	13.6*	3	5.5
Autonomic dysfunction	25	28.4*	4	7.3
Thyroid gland pathology	13	14.8*	2	3.6
Metabolic syndrome	11	12.5	3	5.5
Urinary system pathology	7	8.0*	1	1.8
Pathology of digestive tract and hepatobiliary pathology	33	37.5*	6	10.9
Allergy	15	17.0	6	10.9

Note. * - statistically significant difference with regard to the figure from the reference group ($p<0.05$)

A statistically significant difference between the researched groups was also found in the incidence of cardiovascular pathology (13.6 % vs. 5.5 %, $p<0.05$), thyroid gland pathology (14.8 % vs. 3.6 %, $p<0.05$) and urinary system pathology (8.0 % vs. 1.8 % respectively, $p<0.05$). The incidence of the metabolic syndrome in the basic group is twice as high as in the reference group, yet this difference is not statistically significant (12.5 % vs. 5.5 %, $p>0.05$).

According to the information contained in the medical records, women from the basic group present a significantly positive history of infectious diseases (Table 4), except for childhood infections: almost half of women from the basic group (44.3 %) and about a third from the reference group (30.9 %, $p>0.05$). Patients from the basic group suffered two times more frequently from flu and acute respiratory viral infections (29.5 % vs. 14.5 % respectively, $p<0.05$). What should be noted is the particularly high incidence of urinary system infections (42.5 % vs. 9.1 % in the reference group, $p<0.05$).

Table 4. History of infections of patients from the researched groups

Infectious diseases	Basic group, n= 88		Reference group, n= 55	
	Abs. number	%	Abs. number	%
Childhood infections	39	44.3	17	30.9
Frequent flu and acute respiratory viral infections	26	29.5*	8	14.5
Acute and chronic respiratory diseases	16	18.2	6	10.9
Infections of the urinary system	37	42.0*	5	9.1

Note. * - statistically significant difference with regard to the figure from the reference group ($p<0.05$)

The analysis of the peculiarities of the menstrual function in women from the researched groups (Table 5) has revealed a higher incidence of early menarche in the patients from the basic group (11.3 % vs. 3.6 % in the reference group, $p<0.05$), and the majority of such patients did not have a regular menstrual cycle in the beginning, in contrast to the women from the reference group (62.5 % vs. 5.5 %, $p<0.05$). Half of patients from the basic group complained of various menstrual irregularities, which is 5 times more than in the reference group (51.5 % vs. 9.1 %, $p<0.05$).

Table 5. Peculiarities of the menstrual function in women from the researched groups

Parameter	Basic group, n= 88		Reference group, n= 55	
	Abs. number	%	Abs. number	%
Menarche:				
• early	10	11.4*	2	3.6
• late	11	12.5	4	7.3
Irregular menstrual cycle in the beginning	55	62.5*	3	5.5
Menstrual irregularities	45	51.1*	5	9.1

Note. * - statistically significant difference with regard to the figure from the reference group ($p < 0.05$)

Only a quarter of the women from the basic group present no gynecological pathology in their medical history (26.1 %), which can be said about the majority of women from the reference group (83.6 %, $p < 0.05$). As Table 6 shows, the most frequent pathologies are inflammatory diseases of the uterus and the uterine appendages (40.2 % vs. 10.9 % respectively, $p < 0.05$). Other frequent pathologies are those affecting the cervix uteri (20.5 % vs. 5.5 %, $p < 0.05$) and endometrium (8.0 % vs. 1.8 %, $p < 0.05$) and infertility (12.5 % vs. 1.8 %, $p < 0.05$). The polycystic ovary syndrome (PCOS) was found in only 9.1 % of patients from the basic group. 4 women from the basic group present uterine fibroids in their medical history. More women from the basic group than from the reference group underwent gynecological surgeries. For instance, a fifth of them presents adnexal surgeries (ovarian resection/removal, tubectomy) in their medical history: 20.5 % vs. 1.8 % ($p < 0.05$). 14.8 % of patients underwent cold coagulation of the cervix uteri (vs. 1.8 % in the reference group, $p < 0.05$). 1 women (1.1 %) from the basic group presents myomectomy in her medical history and another one – cold coagulation of foci of endometriosis.

Table 6. Gynecological pathology and surgeries in patients from the researched groups

Parameter	Basic group, n= 88		Reference group, n= 55	
	Abs. number	%	Abs. number	%
Inflammatory diseases of uterus and uterine appendages	37	42.0*	6	10.9
Diseases of cervix uteri	18	20.5*	3	5.5
Uterine fibroids	4	4.5	-	-
Endometrial pathology	7	8.0*	1	1.8
PCOS	8	9.1	-	-
Infertility	11	12.5*	1	1.8
Cold coagulation of cervix uteri	13	14.8*	1	1.8
Cold coagulation of foci of endometriosis	1	1.1	-	-
Myomectomy	1	1.1	-	-
Adnexal surgeries (ovarian resection/removal, tubectomy)	18	20.5*	1	1.8

Note. * - statistically significant difference with regard to the figure from the reference group ($p < 0.05$)

According to the data of obstetrical history (Table 7), there are significant differences between the two researched groups: the basic group presents a significantly lower percentage of first pregnancies (42.0 % vs. 58.2 %, $p < 0.05$) and first labors (53.4 % and 70.9 % respectively, $p < 0.05$). At

the same time, women from the basic group present a significantly higher percentage of pregnancy losses in their medical history: accidental abortions (14.8 % vs. 5.5 %, $p<0.05$), medical abortions (19.3 % vs. 3.6 %, $p<0.05$), habitual non-carrying of pregnancy (8.0 % and 1.8 % respectively, $p<0.05$). The percentage of preterm labor in the medical history is significantly higher too (15.9 % and 7.3 % respectively, $p<0.05$).

Table 7. Obstetrical history of patients from the researched groups

Parameter	Basic group, n= 88		Reference group, n= 55	
	Abs. number	%	Abs. number	%
First pregnancy	37	42.0*	32	58.2
First labor	47	53.4*	39	70.9
Accidental abortions	13	14.8*	3	5.5
Medical abortions	17	19.3*	2	3.6
Habitual non-carrying of pregnancy	7	8.0*	1	1.8
Cesarean section	11	12.5	3	5.5
Preterm labor	14	15.9	4	7.3

Note. * - statistically significant difference with regard to the figure from the reference group ($p<0.05$)

Pregnancy and labor in women with benign ovarian neoplasms are characterized by a high incidence of complications (Table 8). For instance, a quarter of the women from the basic group presented exacerbation of urogenital infections (25.0 % vs. 7.3 %, $p<0.05$). A third of cases (31.8 %) were characterized by a threat of miscarriage, and the percentage of a threat of preterm labor is still higher (37.5 % vs. 3.6 %, $p<0.05$). A third of cases from the basic group are characterized by placental dysfunction (31.8 % vs. 10.9 % in the reference group), which corresponds with a significantly higher percentage of intrauterine growth restriction (20.5 % vs. 3.6 % in the reference group, $p<0.05$) and fetal distress (20.5 % vs. 5.5 %, $p<0.05$). One has also found a significantly higher percentage of preterm labor (28.4 % vs. 5.5 % in the reference group, $p<0.05$) and abnormal labor (14.8 % vs. 1.8 %, $p<0.05$). A third of the women with benign ovarian tumors had to undergo a cesarean section to deliver their babies (31.8 % vs. 9.1 %, $p<0.05$).

Table 8. Course of pregnancy and labor in patients with benign ovarian neoplasms

Parameter	Basic group, n= 88		Reference group, n= 55	
	Abs. number	%	Abs. number	%
Early gestational toxicosis	16	18.2	6	10.9
Acute respiratory viral infections during pregnancy	5	5.7	2	3.6
Exacerbation of urogenital infections	22	25.0*	4	7.3
Threat of miscarriage	28	31.8*	4	7.3
Threat of preterm labor	33	37.5*	2	3.6
Anemia	13	14.8	4	7.3
Placental dysfunction	28	31.8*	6	10.9
Intrauterine growth restriction	18	20.5*	2	3.6
Preeclampsia	11	12.5*	1	1.8
Fetal distress	18	20.5*	3	5.5
Abnormal labor	13	14.8*	1	1.8
Preterm labor	25	28.4*	3	5.5
Cesarean section	28	31.8*	5	9.1

Note. * - statistically significant difference with regard to the figure from the reference group ($p<0.05$)

2 patients (2.3 %) from the basic group had a non-developing pregnancy and 1 woman (1.1 %) had a stillbirth. 85 women from the basic group and all 55 from the reference group had a live birth. According to the data from the medical records, almost a third of the babies from the basic group were born in a state of asphyxia (28.2 % vs. 5.5 % in the reference group, $p < 0.05$), with 7.1 % of cases of severe asphyxia (Table 9). 28.2 % of cases were characterized by prematurity (vs. 5.5 %, $p < 0.05$) and 17.6 % by hypotrophy (vs. 1.8 % ($p < 0.05$)).

Table 9. Condition of the newborn babies of patients from the researched groups

Parameter	Basic group, n= 88		Reference group, n= 55	
	Abs. number	%	Abs. number	%
Asphyxia at birth	24	28.2*	3	5.5
- moderate	18	21.2*	3	5.5
- severe	6	7.1*	-	-
Prematurity	24	28.2*	3	5.5
Hypotrophy	15	17.6*	1	1.8
Complicated course of the early neonatal period	14	16.5*	2	3.6

Note. * - statistically significant difference with regard to the figure from the reference group ($p < 0.05$)

Conclusions. Pregnancy and labor in women with benign ovarian neoplasms are characterized by a high incidence of complications. For instance, a quarter of the women presented exacerbation of urogenital infections (25.0 %), a third of cases (31.8 %) are characterized by a threat of miscarriage and the percentage of a threat of preterm labor is still higher (37.5 %). A third of cases are characterized by placental dysfunction (31.8 %), which corresponds with a significantly higher percentage of intrauterine growth restriction (20.5 %) and fetal distress (20.5 %). One has also found a significantly higher percentage of preterm labor (28.4 %) and abnormal labor (14.8 %). A third of the women with benign ovarian tumors had to undergo a cesarean section to deliver their babies (31.8 %).

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