

MANAGEMENT OPTIONS FOR ENLARGED OVARIES DETECTED IN THE FIRST TRIMESTER OF PREGNANCY

FURĂU Cristian^{1,2}, FURĂU Gheorghe^{1,2}, TATARU Ana Liana^{1,2}, ONEL Cristina^{1,2}, STĂNESCU Casiana^{1,2}, CRAINA Marius^{3,4}, DIMITRIU Mihai⁵

¹ Western University „Vasile Goldis” of Arad

² Obstetrics and Gynecology Department of the Emergency Clinical County Hospital of Arad

³ „Victor Babes” University of Medicine and Pharmacy Timisoara

⁴ Bega Clinic for Obstetrics and Gynecology Timisoara

⁵ „Carol Davila” University of Medicine and Pharmacy Bucharest, Obstetrics and Gynecology Department

ABSTRACT. Ovarian cysts have a reported incidence in pregnancy between 1:81 and 1:2500. The development of ultrasound in the first trimester of pregnancy revealed a much higher incidence and although complications are not very frequent, early diagnosis of ovarian cysts is very important for their management. To analyze the incidence and possibilities of management for first trimester enlarged ovaries in pregnancy in Arad County for a period of 5 years. A five year prospective survey on incidence of ovarian enlargement was conducted between 2008 and 2012 in the Obstetric Department of Emergency Clinical County Hospital of Arad. The data obtained from the patient's study registry and the records from hospitalization were analyzed using Epi Info 7 and GraphPad Software. From the 1566 women that corresponded to inclusion criteria, 313 were found with enlarged ovaries (19.99%). 40 patients (12.78%) needed surgical treatment, 18 during pregnancy and 22 during cesarean section; 18 cystectomies, 11 partial ovariectomies, 5 ovariectomies and 4 adnexectomies were performed. Dermoid cysts, revealed in 21 cases (52.50%), were the most common histopathologic finding. Close follow-up and progesterone supplementation should be the first line of treatment in the management of ovarian pathology associated to pregnancy. Laparoscopy versus open surgery for the surgical treatment of ovarian tumors in pregnancy depends on early detection of enlarged ovaries and appearance of complications; while exteriorizing the uterus in cesarean section is useful for diagnosis and treatment.

KEYWORDS: ovarian cyst, pregnancy, laparoscopy, ultrasonography, cesarean section

INTRODUCTION

Ovarian tumors represent the most frequent pathology for women during their fertile period that requires surgical treatment is also common during pregnancy. The wide incidence spectrum of ovarian tumors in pregnancy (1:81 to 1:2500) and the rising incidence can be explained by worldwide increased ultrasound examination of the pregnancy in the first trimester, especially for genetic screening. Most cysts regress spontaneously, but complications can appear during pregnancy as well, like: torsion, hemorrhage, rupture, compression of the nearby organs, the most feared one being the ovarian cancer. Surgical treatment is then necessary and the choosing between laparoscopy and open surgery depends on the clinics good praxis and individualized management. Ultrasound assessment of the ovaries is a safe non-invasive procedure, very useful in guiding for a conservative or surgical management. It can orient for a neoplasm transformation, but only histopathology can establish that for sure. Although, there is no correlation

between size of the tumor and its prognostic, a positive correlation can be established between cysts larger than 5 cm and the need for surgical management. (1-16).

Current guidelines for options in the management of ovarian tumors during pregnancy are not yet supported by large studies, as this pathology was considered to be a rare one until recently. (5) Progesterone supplementation, used for more than 50 years in threatened miscarriage, has been proved recently to have a substantial benefit, and can be administered when enlarged ovary is detected, with good results. (17) The other non-surgical interventions for threatened and recurrent miscarriages, like: supportive care, bed rest, avoidance of sexual intercourse, vitamins supplementation, can be recommended, with limited scientific evaluation possibility of their efficacy. (17, 18).

Conservative management is recommended for most of the ovarian cysts during pregnancy, but in several cases surgical management is required: non reassuring ultrasound characteristics, growing cyst in

consecutive examinations, torsion, pain. The decision will take into consideration: age of the patient and of the pregnancy, the experience of the clinic with laparoscopy procedures in pregnancy, anesthetic particularities, possibility for ovarian cancer. Most of the recent studies promote laparoscopy with good results for both mother and fetus, except for malignancy. The increase of cesarean section index correlated positively with increased incidence of ovarian tumor findings. Recent studies proved that exteriorizing the uterus during cesarean section can increase the incidence rate and is helpful in subsequent surgical management of ovarian pathology. (3, 5, 7, 19-25).

MATERIALS AND METHODS

A five year clinical prospective study for establishing ovarian tumors and enlargement during pregnancy and their management was conducted in the Obstetrics Department of the Emergency Clinical County Hospital of Arad. Patients were enrolled among the ones attending our hospital for follow-up of the pregnancy and the ones wanting to end a pregnancy by abortion. Out of the initial 1671 patients enrolled in the study, 1566 met all inclusion criteria: age between 15-45 years old, pregnancy in its first trimester, informed consent and willingness to participate in the clinical study, ultrasound examination of the pregnancy and of the ovaries. Ultrasound was performed by obstetricians with competence for ultrasound in pregnancy using trans-abdominal transducer or trans-vaginal transducer, depending on the possibility of assessing the pregnancy, the ovaries and patients approval. Data was recorded on a personal patient's study sheet, were also future information was added. This also contained information regarding: socio-economical status, weight, height, obstetrical history, presents pregnancy, ovaries, follow-up, modality of ending the pregnancy (delivery/abortion), etc. Data was also collected from other records during the hospitalization of any of the patients (abortion registry, birth registry, cesarean section registry, histopathology registry). Epi Info 7 and GraphPad Software were used for statistical analysis.

RESULTS

313 (19.99%) out of the total of 1566 patients were diagnosed with enlarged ovaries in the first trimester of pregnancy. Annually distribution of the patients revealed: 54 cases in 2008 (17.25%), 83 cases in 2009 (26.52%), 86 cases in 2010 (27.48%), 71 cases in 2011 (22.68%) and 19 patients in 2012 (17.43%). 2 patients were under 18 years old (0.64%), 31 (9.90) were aged between 18-20 years, 70 (22.36%) between 21-25

years, 87 (27.34%) between 26-30 years, 75 (23.95% between 31-35 years and 48 (15.81%) were older than 35 years. Mean age was 28.79, with standard deviation (std dev) of 6.06; minimum age was 16 and maximum was 44 years. Majority of patients came from Arad County (91.05%), other counties and nationalities represented 28 cases (8.95%). 173 patients belonged to urban environment (55.27%) and 188 were employed (60.06%). Education level showed 2 picks: high school (37.06% and higher education 36.74%. Mean height was 162.48cm with std dev of 7.94cm. Mean weight was 63.47kg with std dev of 10.62kg. For 59 patients (18.85%) this was the first gestation, 77 (24.60%) were at their second gestation. 93 patients were nuliparous, 72 had a previous delivery, while the rest had more gestations and deliveries. 311 patients (99.36%) obtained the pregnancy naturally and 2 were obtained using in vitro fertilization and artificial insemination. Only 2 pregnancies were multi fetal. 202 patients were examined using trans-vaginal transducer (64.54%).

100 patients had only one examination and no check-ups, 54 had one re-evaluation, 29 had 2 further exams and 130 had more than 3 ultrasound examinations registered.

The outcome of the pregnancies was: 17 pregnancies stopped in evolution (5.61%), 12 missed abortions (3.95%), 87 abortions on request (28.62%), 65 natural deliveries (21.45%), 122 cesarean sections (40.13%) and we lost from evidence the outcome of pregnancy in 10 cases (3.21%). Most common indications for cesarean section were: dystocia and negative labor trial (20.33%), previous cesarean section (20.33%), low insertion of placenta (14.63%), fetal distress (13.01%). From the 188 newborns, 95 were male (50.53%) and 2 came from a multiple pregnancy. One stillborn was registered (uterine apoplexy). Mean weight was 3473.14g with a std dev of 571.53g; minimum weight was 1750g and maximum was 5150g. Mean APGAR score was 8.88.

We defined the enlarged ovaries as at least an ovary with one of the measurements higher than 30x20x20 mm, but smaller than 50 mm for maximum length. 313 cases (19.99%) had at first check-up higher values. Out of the 222 patients with enlarged ovaries (70.92), 117 were represented by the left ovary- 52.70% and 105 by the right ovary- 47.30%. From the 80 cases that were above 50mm (22.55%), 38 had an enlargement of the left ovary- 47.50% and 42 of the right ovary- 52.50%. Bilateral enlargement was described in 11 cases (3.53%). Mean size of enlarged ovaries are presented in table 1, the P value=0.46 shows no statistically significant difference between the part of the body where enlarged ovaries were found.

Table 1: Distribution of cases by side of the body

	Cases Observed	Mean (mm)	Std Dev (mm)	M in	M ax	30-49 mm	>50 mm
Right Ovary Length	313	36,5112	10,425	2	7	105	42
Left Ovary Length	313	37,1022	9,6378	1	0	117	38

There were 40 cases- 12.78% that were surgically managed: 22 cases during cesarean section, 16 during pregnancy by laparoscopic approach and 2 during pregnancy by open-surgery approach. Surgery during pregnancy was performed between 16-18 weeks of gestation for 17 patients (the best time for surgical treatment as recommended), 1 case was an emergency (torsion) and was operated at 14 weeks of gestation. (5)

For the rest of 273 patients we had conservative management. Dydrogesterone, an orally-active progestogen with no androgenic effects, was offered to 167 patients (54.58%) until at least 14 weeks of gestation. We observed 131 cases with regression of ovarian size (47.99%) at following ultrasound check-ups, but we can't make any relevant statistically observations between this and the use of progestogen agents. Regarding the rate of persistent ovarian cyst at term, there were 22 cases described and surgically removed during cesarean section out of the total of 122 cases that delivered by this procedure (18.03%).

Histopathology revealed: 21 cases of dermoid cysts (52.50%), 7 mucinous cysts (17.50%), 6 serous cysts (15.00%), 2 serous cyst adenoma (5.00%), 2 borderline tumors (5.00%), 1 mucinous cyst adenoma (2.50%) and 1 cyst adenocarcinoma (2.50%). Malignancy rate is 0.96% for the total number of ovarian enlargement. For the 2 out of the 3 malignancy cases we followed up the persistence of malignancy using CA125 marker, with no recurrence detected. One of the patients dropped from our study.

The surgical procedures performed at the 40 patients operated for ovarian pathology in pregnancy were: 19 cystectomies (47.50%), 12 partial resection of the ovary (30.00%), 5 unilateral ovariectomy (12.50%) and 4 unilateral adnexectomies (10.00%). Postoperative follow-up was possible for 34 cases. We had no related mortality or morbidity to ovarian surgery during pregnancy or cesarean section.

DISCUSSION

The development of ultrasound and its increased use for screening the pregnancy in the first trimester modified the follow-up of pregnancy, revealing situations that were only suspected in the past. As its increase will continue due to its many advantages and reliability, we are sure that older theories need furthermore studies and reevaluation; ovarian cysts associated with pregnancy being a good example. Older studies reflect an incidence 10 times smaller than in recent ones and we are confident that the real incidence isn't yet reflected in studies. The incidence of 19.99% for enlarged ovaries in the first trimester of

pregnancy proven by our study is two times higher than the adnexal masses detected by Alpha M Nick and almost 10 times higher than the results of Sergent, but different inclusion criteria were used. (1, 5) An accurate and real incidence of ovarian cysts during pregnancy could be established only by creating a large multicentre group, who would first need to create a standardized protocol, which is lacking at the moment. Furthermore guidelines for management should be reevaluated as the quality of evidence is III in most of the studies and actual protocols.

Based on our study we found two possible hypotheses for populations at risk of developing ovarian cysts in pregnancy (obese women and use of human reproductive techniques), but not enough patients with these characteristics were among our studied population.

Conservative management has proven to be a good solution for uncomplicated cases or for patients without a clear indication for surgery. Supplementation with progestogen agents has been proven to be of aid in threatened miscarriages and although our group is not large enough for statistical power, we saw fewer cases needing surgical procedures in the group that received this supplementation.

Surgery for ovarian cysts in pregnancy should be performed in the second trimester if indicated, but for uncomplicated cases during the cesarean section the exploration of ovaries is compulsory, this being a good and safe moment for cystectomy. Laparoscopy performed by a skilled team has better results than open surgery during the second trimester of pregnancy and should be taken into consideration as the first line of surgery for planned ovarian surgery during pregnancy. Comparing our clinics results for cesarean section (in almost all cases uterus is exteriorized during cesarean section) with other clinics that don't exteriorize the uterus, it is obvious that incidence of accidental or followed-up ovarian cysts is higher.

CONCLUSIONS

- Increase of ultrasound use in first trimester of pregnancy increased the reported incidence of ovarian cysts.
- Most of the ovarian cysts will regress spontaneously during pregnancy and although few will generate complications, close follow-up is recommended.
- Progestogen supplementation is advised, as it causes no major side effects, but further studies about its efficiency are needed.

- Surgical management for ovarian cysts during pregnancy should be reserved for suspect cases, constant growth and complications, best time-frame being 16-18 weeks of gestation.
- Cesarean section is a good moment for removing persistent ovarian cysts and exteriorizing the uterus during the procedure is helpful.

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Corresponding author: MD Furău Cristian,
No 109, Clujului Street, Arad, Arad County, PO:
310057; Tel: + 40 722 981 369
Email: cristianfurau@gmail.com