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ORIGINAL ARTICLE

Management of adnexal masses recognized incidentally during the cesarean: Our 5 years only central experience

[1]Özlem GÜL
[2]Hilmi Baha ORAL

[1]Department of Gynecology and Obstetrics, Afyonkarahisar State Hospital, Afyonkarahisar, Turkey

[2]Department of Gynecology and Obstetrics, Süleyman Demirel University Faculty of Medicine Hospital, Isparta, Turkey

ORCID ID
ÖG : 0000-0002-3929-2851
HBO : 0000-0003-4544-2833

ABSTRACT

Objective: The objective of the study was to review our approach to adnexal masses detected incidentally during cesarean section and the data in the literature.

Material and Methods: This study was carried out by retrospectively scanning the files of patients who delivered by cesarean section between January 2015 and February 2020 in Süleyman Demirel University Faculty of Medicine Gynecology and Obstetrics Clinic. Patients with adnexal mass found in pre-operative examinations were excluded from the study. A total of 111 patients were included in the study.

Results: January 2015–February 2020 in our hospital between 3700 cesarean deliveries was realized one of them in their 111 (3% of cesarean births); adnexal mass was detected during cesarean section. Main patient age was 32.26±6.03 (18–43) and the mean pregnancy number was 1.95±1.07 (1–6). Cephalopelvic disproportion is the most common (32.4%) cesarean indication; previous cesarean (21.6%) was followed up in the second frequency. Mean week of gestation performed by cesarean was 37.09±2.39. The mean adnexal mass size was 2.77±1.73 (1–10 cm). Fifty (45.1%) of the adnexal masses were observed in the right adnexal area, 55 (49.5%) in the left adnexal area, and 6 (5.4%) were followed them bilaterally. While cyst excision was performed in 110 patients, oophorectomy was performed in one patient. Pathology of 1 (0.9%) patient was reported as malignant.

Conclusion: In pregnant women in the first trimester, obstetric ultrasonography performed routinely since both adnexal and should be examined in detail. Pelvic masses determined dimensions during cesarean section increases, whereas above 5 cm, especially torsion, hemorrhage or rupture must be removed because they have a risk of malignancy development.

Keywords: Cesarean section, incidental adnexal mass, ovarian cyst.

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Correspondence: Özlem GÜL, MD. Afyonkarahisar Devlet Hastanesi, Kadın Hastalıkları ve Doğum Kliniği, Afyonkarahisar, Turkey.
Tel: +90 537 255 22 75 **e-mail:** ozlemdagsalguler@gmail.com

INTRODUCTION

With the obstetric ultrasonography (USG) becoming a part of routine pregnancy follow-up, there has been an increase in the rates of adnexal mass detected during pregnancy. With this increase, the number of adnexal masses detected incidentally during cesarean section is too high to ignore due to the fact that the number of pregnant women without follow-up is still high. The incidence of adnexal masses detected during pregnancy varies between 1/100 and 1/8000.[1,2] The incidence of malignant adnexal masses detected during pregnancy is approximately 3%.[3] In this study, we aimed to reveal the characteristics of adnexal masses detected during cesarean section in our clinic in the past 5 years and their relationship with the pathology results and the literature.

MATERIAL AND METHODS

Data for adnexal masses detected during cesarean section in our clinic between January 2015 and February 2020 were retrospectively reviewed. The current clinical information of the patients was accessed using outpatient clinic notebooks, surgery notes, pathology records, and laboratory data. Demographic and clinical data such as maternal age, parity, laboratory findings, gestational week during cesarean section, cesarean indication, size and location of adnexal mass, intraoperative CA-125 value of patients with cyst, pathology result of the mass, pre-operative and post-operative hemoglobin values, and hospitalization time properties were recorded. Data analysis was done with SPSS for Windows 21.0 package program. Data of variables with normal distribution were presented as mean±SD.

RESULTS

Between January 2015 and February 2020, 3700 cesarean deliveries took place in our hospital, and in 111 of them (3% of cesarean deliveries), adnexal mass was detected during cesarean section.

The mean patient age was 32.26±6.03 (18–43), and the mean parity was 1.95±1.07 (1–6). Mean week of gestation performed by cesarean was 37.09±2.39. The mean post-operative hospital stay of the patients was 3.68±2.57 (1–19) days. The mean intraoperative CA-125 value requested from pregnant women with adnexal mass was 2.59±8.45 (0–50.2). The mean diameter of the incidentally detected adnexal mass was 2.77±1.73 (1–10 cm). The demographic characteristics and laboratory findings of the patients are presented in Table 1.

Cephalopelvic disorder is the most common (32.4%) cesarean indication; previous cesarean (21.6%) was the second and acute fetal distress was the third. The cesarean indications of the patients are presented in Table 2.

Thirty-nine (35.1%) of adnexal masses are in the left paratubal area, 30 (27%) of the mass are in the right paratubal area, 20 (18%) of them are in the right ovary, 16 (14.4%) of them are in the left ovary, and 6 (5.4%) of them are in the bilateral adnexal area mass watched. While cyst excision was performed in 110 patients, oophorectomy was performed in one patient. The pathology of 1 (0.9%) patient was malignant. No complications developed in any patient during post-operative follow-up. Considering the possibility of peritoneal spread of adnexal masses in all cases, the existing mass was removed without bursting. According to histopathological diagnoses, the most common cyst paramesonephric (paratubal) cyst was observed in 71 patients (64.5%). Afterward, mature cystic teratoma in 8 (7.3%) patients, serous cystadenoma in 8 (7.3%) patients, mucinous cystadenoma in 6 (5.5%) patients, corpus luteum cyst in 4 (3.6%) patients, hemorrhagic cyst in 3 (2.7%) patients, 3 inclusion cysts were observed in (2.7%) patients, endometrioma in 2 (1.8%) patients, fibroma in 2 (1.8%) patients, and mixed-type seromucinous cysts in 2 (1.8%) patients. Pathology result was reported as malignant mucinous borderline tumor in only 1 (0.9%) patient. The patients were followed up in the hospital for an average of 3 days. Post-operative antibiotic treatments were continued. The pathology results of the patients who were found to have an adnexal mass during cesarean section and were operated are shown in Table 3.

Table 1: Sociodemographic characteristics and laboratory findings of the patients

	Mean	Median	Min.	Max.	SD
Age	32.26	32.00	18.00	43.00	6.03
Day of lying	3.68	3.00	1.00	19.00	2.57
Parity	0.95	1.00	0.00	6.00	1.07
Pregnancy week	37.09	38.00	25.00	40.00	2.39
Ca125	2.59	0.00	0.00	50.20	8.45
Pre-operative hemoglobin	12.06	12.20	7.60	15.20	1.63
Post-operative hemoglobin	10.91	11.20	7.60	13.70	1.36
White blood cell	10.94	10.50	1.80	22.00	3.37
Cyst diameter (cm)	2.77	2.00	1.00	10.00	1.73

Min: Minimum; Max: Maximum; SD: Standard deviation.

Table 2: Cesarean indications

Indications	n	%
Repeated cesarean section	15	13.5
Old cesarean	24	21.6
CPD	36	32.4
NPL	10	9.0
IUGR	3	2.7
Placenta previa	2	1.8
AFD	18	16.2
Grand repeated cesarean	2	1.8
PUS	1	0.9

CPD: Cephalopelvic disorder; NPL: Non-progressive labor; IUGR: Intrauterine growth retardation; AFD: Acute fetal distress; PUS: Previous uterine surgery.

Table 3: Distribution of incidentally detected adnexal masses during cesarean section according to histopathological results

	n	%
Paramesonephric cyst	71	64.5
Luteal cyst	4	3.6
Mature cystic teratoma	8	7.3
Serous cystadenoma	8	7.3
Inclusion cyst	3	2.7
Mucinous cystadenoma	6	5.5
Mucinous borderline	1	0.9
Endometriotic cyst	2	1.8
Fibroma	2	1.8
Mixed serous+mucinous	2	1.8
Corpus hemorrhagicum	3	2.7

DISCUSSION

USG is a valuable diagnostic tool in detecting and evaluating adnexal masses during pregnancy. In contrast to early gestational weeks, the uterus in a pregnant woman in the third trimester may prevent accurate imaging and diagnosis. Adnexal pathologies can be missed because the assessment is focused on the fetus and placenta. While most of the adnexal masses are diagnosed in the first trimester during pregnancy, their frequency decreases as they approach the time of delivery.[4] It has been reported that adnexal masses occur at a rate of 1% during pregnancy.[1] Most of these masses are simple cysts or corpus luteum cysts, usually under 5 cm and disappear spontaneously until the 16th week of pregnancy.[5] However, some adnexal masses can persist and 1–3% of them can be malignant. Most of the adnexal masses seen during pregnancy are asymptomatic and the most common symptom is pain. With the advancement of gestational age, adnexal masses can also be pushed upward in parallel with the growth of the uterus or they may rarely cause dystocia at birth by squeezing in the pelvis.[6] In the study conducted by Baser et al.,[7] 61.6% of women with adnexal mass during pregnancy came to regular pregnancy follow-ups, and more than half were diagnosed with adnexal mass incidentally during cesarean section. In our study, patients who applied to our hospital in the term period close to birth, who were indicated for cesarean due to obstetric reasons, and who were found to have an adnexal mass incidentally during cesarean were included in our study. Therefore, there was no information in their files about prenatal antenatal follow-ups and pre-operative adnexal masses.

USG; it is the first-line imaging method used in the diagnosis and follow-up of adnexal masses in pregnancy. With transabdominal or transvaginal ultrasound, we can monitor the size of the mass, as well as vascularization, examination of other ovarian and peritoneal structures, and findings that support malignancy such as the presence of acid.[8] Color Doppler USG can help us differentiate between malignant and benign by evaluating the vascularization of adnexal mass. However, magnetic resonance imaging is helpful in understanding the mass originating from the uterus or ovary, evaluating its relationship with surrounding tissues, and evaluating the retroperitoneum or lymph nodes due to the difficulties created by the enlarged uterus in differential diagnosis, especially after the 20th week of gestation.[9]

Tumor markers are not very helpful in diagnosing adnexal mass in pregnancy. Because markers such as lactate dehydrogenase, alpha fetoprotein, β-human chorionic gonadotropin and cancer antigen 125 (CA-125) already increase physiologically during pregnancy and their diagnostic values decrease. Especially, CA-125 physiologically increases up to 1250 U/mL in the first trimester of pregnancy and regresses to 35 U/mL at term.[10]

In a retrospective study conducted by Ulker et al.[11] in 2010, adnexal mass was found incidentally during cesarean in 119 patients, and the incidence of these masses was reported as 1/329.In our study, the rate of adnexal mass detected and excised during cesarean section is 3/100 and is more common than in the literature. Because in our study, cysts were detected and removed in the paratubal area in 71 patients (64.5%).

Most of the adnexal masses detected during pregnancy regress spontaneously as they approach the term. However, growing and persistent masses have a rare risk of torsion, hemorrhage, rupture, and malignancy.[12] Cyst rupture and torsion are acute complications that require urgent surgery during pregnancy. Struyk and Treffers[13] performed emergency surgery in 9% of 90 pregnant women who were followed up with adnexal mass due to cyst rupture and 12% due to torsion. They reported that the rates of preterm birth and abortion in pregnant women who underwent emergency surgery were higher than those who underwent planned surgery. They emphasized that for adnexal masses that do not regress for 10 cm or more, surgery should be planned between 16 and 18 weeks of pregnancy and the cysts should be removed without waiting for the term period. In our study, the largest of the adnexal masses detected incidentally during cesarean section was 10 cm in size and none of the patients had complications such as torsion, rupture, or hemorrhage, and cesarean was planned for obstetric reasons. In addition, when the pre-operative and post-operative hemoglobin levels of the patients are compared; none of the patients had bleeding that was more than expected or at a level that would require blood transfusion. There are many approaches in the literature regarding the management of adnexal masses detected incidentally during cesarean section.

In the study of Thornton and Wells, it has been shown that all ovarian cysts 5 cm and below regress spontaneously.[14] They emphasized that the cystectomy performed simultaneously during the cesarean section did not cause any additional complications to the patient.[15]

In a comprehensive study by Bernhard et al.,[16] adnexal masses detected during pregnancy were followed up with serial ultrasound and examinations, and it was observed that only 6% of masses of 6 cm and below did not regress spontaneously and continued to exist until term. They found this rate around 40% for masses of 6 cm and above. They concluded that the size of the mass and its complex content are the most important factors in the persistence of adnexal mass until the end of pregnancy.

In the literature, functional benign cysts (follicle cyst, corpus luteum cyst, and theca lutein cyst) and mature cystic teratoma are the

most common histopathological types in adnexal masses detected during cesarean section.[17] In our study, in accordance with the literature, the most common histopathological type in adnexal masses removed during cesarean is mature cystic teratoma (7.3%). Serous cystadenoma (7.3%) is the second most common histopathological type, consistent with the literature. Since pregnant women are younger and most of the cysts seen during pregnancy are physiological cysts, the risk of malignancy is lower in pregnancy compared to normal women. The incidence of malignant adnexal mass during pregnancy varies between 0% and 9%.[18,19] In our study, mucinous borderline malignant tumor was detected in 1 patient (0.9%), and the patient underwent oophorectomy. In the study conducted by Ulker et al.,[11] 5% of the adnexal masses they detected during pregnancy were detected bilaterally. In our study, bilateral cysts were detected in 6 (5.4%) patients, and the pathology of four of them was mucinous cystadenoma.

The frequency of surgery for adnexal mass in non-pregnant women is approximately 10%. Laparoscopy is the most preferred method today.[20] Our study is about the management of incidentally detected masses in women who have undergone laparotomy for cesarean delivery. They should be removed due to clinical risk of developing torsion, hemorrhage, rupture, or malignancy or requiring additional surgical procedures in the future.

CONCLUSION

Simultaneous cystectomy did not cause additional complications, morbidity or mortality in any patient. In addition, in addition to evaluating the fetus in obstetric USG performed in pregnant women starting from the first trimester, both adnexa should be examined routinely and in detail.

Statement

Informed Consent: Written informed consent was obtained from patients who participated in this study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – ÖG, HBO; Design – ÖG; Supervision – ÖG, HBO; Resource – ÖG; Materials – ÖG, HBO; Data Collection and/or Processing – ÖG, HBO; Analysis and/or Interpretation – ÖG, HBO; Literature Search – ÖG; Writing – ÖG; Critical Reviews – ÖG, HBO.

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