

# Management of incidental adnexal masses on caesarean section

Hüseyin Cengiz, Cihan Kaya, Murat Ekin, Ali Yeşil, Levent Yaşar

Department of Gynecology and Obstetrics, Bakirkoy Dr. Sadi Konuk Teaching and Research Hospital, Istanbul, Turkey

## ABSTRACT

**Background:** The reported incidence of adnexal masses during pregnancy vary from 1 in 81 pregnancies to 1 in 8000 pregnancies. There is still a debate on management of incidental adnexal masses during the caesarean section concerning the risk of this additional procedure on postoperative morbidity and mortality. The aim of our study was to investigate the management of incidental adnexal masses which were observed during caesarean section in a tertiary health care centre. **Materials and Methods:** The medical records of the patients who had incidental adnexal masses during caesarean section at Bakirkoy Dr. Sadi Konuk Teaching and Research Hospital, Department of Obstetrics and Gynecology from January 2006 to September 2011 were evaluated retrospectively. The data was processed with the SPSS 16.0 statistical software. **Results:** The number of total live births was 17341 and 6624 of them were done by caesarean section (31%). There were 38 cases of incidental adnexal masses which were discovered at caesarean section. The most common pathologic diagnosis of the masses were paraovarian-paratubal cysts with the rate of 23.7% (n=9). Cystectomy procedure during caesarean section did not alter the morbidity of the patient. **Conclusions:** In conclusion for detecting adnexal masses during pregnancy follow-up of growth rate of adnexal mass will be a useful reference during the observation period if ideally all pregnant women have a first-trimester ultrasound examination with regular adnexa check-up.

**Key words:** Adnexal diseases, caesarean section, ovarian cysts

### Address for correspondence:

Dr. Hüseyin Cengiz,  
Department of Gynecology and  
Obstetrics, Bakirkoy Dr. Sadi Konuk  
Teaching and Research Hospital,  
Tevfik Sağlam, Cad. No:11,  
Zuhuratbaba, İstanbul, Turkey.  
E-mail: obstetrik@gmail.com

## INTRODUCTION

The reported incidence of adnexal masses during pregnancy vary from 1 in 81 pregnancies to 1 in 8000 pregnancies.<sup>1</sup> This large variation is due to methods of detection, differences in the definition of clinically significant masses and delivering adequate health care to pregnant population. The incidence has been steadily increasing due to the widespread use of ultrasound, other imaging techniques and increasing rates of caesarean deliveries. Although most of the adnexal masses are pregnancy related and may resolve by the 16<sup>th</sup> week of gestation, the management of the masses that persist is still controversial.<sup>2</sup> There is still a debate on management of incidental adnexal masses during the caesarean section concerning the risk of this additional procedure on postoperative morbidity and mortality. The aim of our

study was to investigate the management of incidental adnexal masses which were observed during caesarean section in a tertiary health care centre.

## MATERIALS AND METHODS

The medical records of the patients who had incidental adnexal masses during caesarean section at Bakirkoy Dr. Sadi Konuk Education and Research Hospital, Department of Obstetrics and Gynecology from January 2006 to September 2011 were evaluated retrospectively. The ethics committee approval obtained by the local ethics committee. The data was collected from inquiry forms, operation records, pathology records and laboratory findings. Maternal age, gravidity, parity, caesarean indication, pre- and post-operative complete blood count, duration of hospitalization, intraoperative and pathological findings. Patients with adnexal masses identified preoperatively were excluded from the study. Mean diameter of the mass was calculated as the sum of three diameters divided by three. The data was processed with the SPSS 16.0 statistical software. Demographic data were expressed in means and Standard deviation and percentages.

## RESULTS

There were 17341 deliveries from January 2006 to

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September 2011. Among the 6624 (31%) caesarean deliveries, there were 38 (0.57%) reported case of adnexal masses at caesarean delivery. The mean age of patients was 29.8 years (range, 20-40). The mean gravidity was 2.73 (range, 1-9) and the mean parity was 2.43 (range, 1-8) [Table 1]. Previous caesarean delivery was the most common indication (29.7%), fetal distress (18.9%) was the second and nulliparous breech presentation (8.1%) was the third.

The mean diameter of the adnexal masses was 5,24±2,96 (range, 2 cm-17 cm) and there were 10 (27%) patients with dimension of ≥5.0 cm. Non-neoplastic masses ( $n=18$ ) constituted 47.4% of the entire study group. Neoplastic masses ( $n=20$ ) constituted 52.6% of the entire study group and 68% of these masses were >5 cm in diameter. Mucinous cyst adenomas (mean diameter, 11.3 cm) had the largest diameter within neoplastic group. The mean duration of the operations was 51,21 minutes (range, 30-105 minutes) and the mean hospital stay was 3.3 days (2-6 days). The histopathological results and dimensions are given in Table 2.

## DISCUSSION

The incidence of adnexal masses during pregnancy is about 1%.<sup>3</sup> The management of this rare condition during pregnancy is important. Patients usually present with abdominal pain in lower quadrants. It is hard to make a decision about operation in pregnancy because of postoperative early fetal loss. There are three reasons for surgery of adnexal masses during pregnancy; (i) eliminating of a possible distosia, (ii) danger of torsion, rupture or haemorrhage, (iii) risk of malignancy.<sup>4</sup> Earlier studies recommend excision of adnexal mass at 16-18 weeks gestation to avoid the risk of abortion that frequently occurs if surgery is performed in the first trimester.<sup>5</sup> Currently, advances in ultrasound technology enable us to detect more often adnexal masses during pregnancy. In contrast to early gestation, in the third trimester a gravid uterus may obscure the correct visualization and detection of an adnexal mass or focusing on the baby and placenta may keep us from the detection of adnexal pathology and moreover, there may be technical difficulties in evaluating velocimetric features during pregnancy, as the vessels and blood flow surrounding the gravid uterus mainly have high velocity and low resistance characteristics. In this study we have included the patients who refer to our clinic near term therefore, there were no data available about their antenatal follow-up and no information about adnexal masses in the examination before the surgery.

Although mature cystic teratoma is the most commonly encountered neoplastic adnexal mass during pregnancy, paratubal-paraovarian cysts 23.7% ( $n=9$ ) were the most common adnexal masses in our study.<sup>6-8</sup> The histopathological types of the masses were mature cystic teratoma and serous cystadenoma with rate of 21.1%

**Table 1: Demographic characteristics of the patients with adnexal mass**

Patient demographics	Mean±SD	Minimum	Maximum
Age	29,84±4,83	20	40
Gravidity	2,73±1,68	1	9
Parity	2,43±1,44	1	8

**Table 2: Pathologic results and the mean dimensions of the operation materials**

Adnexal mass	n	%	Mean diameter (cm)	Range (cm)
Non neoplastic group				
Paratubal-paraovarian cyst	9	23.7	3.9	2-6
Simple serous cyst	7	18.4	4.5	3-6
Corpus luteum	1	2.7	3	3
Endometrioma	3	7.9	3.6	3-4
Neoplastic group				
Mature cystic teratoma	8	21.1	5.2	3-7
Serous cystadenoma	7	18.4	5.8	2-12
Mucinous cystadenoma	3	7.9	11.3	5-17

( $n=8$ ) and 18.4% ( $n=7$ ) respectively. In the literature if an adnexal mass which is unilateral, uniloculated and less than ≤6 cm; it is recommended to follow up by ultrasound during the pregnancy.<sup>9</sup> As a tertiary referral clinic, in our daily practice we excise the paratubal-paraovarian cysts even they are smaller than 5 cm because of the common risk of tubal torsion.

In some studies there is correlation between adnexal mass and distosia or arrest of descent in the labor.<sup>10</sup> In our study we have three patient with cephalopelvic disproportion and the data was not enough to propose any correlation between adnexal mass and progress of the labor or presentation anomalies. There is an incidence of malignancy for adnexal masses during pregnancy between 1/12000 and 1/47000 in the literature.<sup>11</sup> In the literature there are some studies about incidental adnexal masses at caesarean section. The rates of adnexal masses removed at the time of caesarean sections varies between 1/122 and 1/447.<sup>6,12-14</sup> Dede *et al.*<sup>12</sup> evaluated adnexal masses >5 cm in size during surgery. By contrast, Koonings<sup>13</sup> and Ustunyurt<sup>14</sup> and Ulker<sup>6</sup> evaluated all masses regardless of diameter. In our study, the incidence of incidental adnexal masses was 1 / 179 and the rate of malignancy was similar with Koonings<sup>13</sup> *et al.* The incidence of incidental adnexal masses at the time of caesarean section and the percentage of malignant tumors encountered from published series are summarized in Table 3.

We had limited information about the progression of the cysts which is an indicator for malignancy and the adnexal masses were found incidentally during caesarean section. Many authors have investigated adnexal masses during pregnancy and suggested expectant management in which the mean diameter of the mass was <5-6 cm. Grimes *et al.*<sup>1</sup> reported 185 adnexal masses; 111 cysts were diagnosed

**Table 3: Review of published series of incidental adnexal masses during caesarean section**

Authors	Patients with adnexal mass	Incidence per C/S	Incidence per live births	No. of malignant tumors (%)
Koonings <i>et al.</i> <sup>13</sup>	91	1/197	1/1634	–
Ustunyurt <i>et al.</i> <sup>14</sup>	92	1/447	1/1387	1 (1.1)
Dede <i>et al.</i> <sup>12</sup>	68	1/122	1/517	1 (1.5)
Ulker <i>et al.</i> <sup>6</sup>	119	1/329	1/1060	2 (1.7)
Present study	38	1/179	1/469	–

during pregnancy and managed expectantly. Almost all of the cysts (94%) which were <6 cm resolved spontaneously. In his series, the largest in the literature, Thornton *et al.*<sup>15</sup> reported that all the cysts <5 cm in size resolved. The mean dimension of the adnexal masses was 5.24 cm and this can be acceptable as a cut-off value for malignant adnexal masses according to the literature.<sup>12</sup> Therefore detecting an ovarian malignancy potential was low in our cases.

In our study the mean duration of surgeries was 51.21 minutes (30-105 minutes) and mean length of hospital stay was 3.3 days (2-6 days). Roman *et al.* reported a study comparing caesarean myomectomy with non-complicated caesarean deliveries.<sup>16</sup> They found no statistical difference between two groups and the mean duration of surgery was 51 minutes and the mean postoperative hospital stay was 3.4 days in non-complicated caesarean delivery group. Our results are acceptable comparing with the durations of Roman *et al.*'s study. The durations of our study is also acceptable if we think about the co-morbidity and mortality of a second operation for adnexal mass comparing with the patients with caesarean section without adnexal mass. We did not observe any complication or increased morbidity-mortality related to surgical removal of adnexal masses.

In conclusion for detecting adnexal masses during pregnancy follow-up of growth rate of adnexal mass will be a useful reference during the observation period if ideally all pregnant women have a first-trimester ultrasound examination with regular adnexa check-up. In this study we had the limitations of characteristics of retrospective chart reviews, particularly unrecorded information and problematic verification of the data. Collection of data in a prospective manner, including multiple institutions, is preferable and may allow for successful completion of a trial evaluating adnexal masses during pregnancy.

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