

A PROSPECTIVE STUDY OF OVARIAN TUMORS IN EARLY PREGNANCY - THEIR COURSE AND OUTCOME

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ABSTRACT: AIM: Ovarian tumors of all types are identified in pregnancy in first trimester. This study focuses on the incidence, nature, symptoms, ultrasound and doppler detailing of ovarian masses identified by USS, and aims to understand what happens to the ovarian tumor and its effect on the pregnancy. **SETTINGS AND DESIGN:** This was a prospective study where 5000 ladies consecutively attending antenatal outpatient clinic of Department of Obstetrics & Gynecology, Government Medical College, Kozhikode, Kerala (which is a tertiary health center) in their first trimester for registration were included, USS was done and those with ovarian cysts of size more than 3 cm were followed up in their subsequent visits. Those patients who needed surgery were evaluated for the indication, type of procedure done; any post-operative complications; histopathology was collected and analyzed. Non operated patients were examined either at caesarean or in postpartum period. **RESULTS:** Of the 5000 patients who were included for study, 92 had ovarian tumors more than 3 cm in first USS in first trimester. Second USS done at 14 weeks to assess the tumor for persistence showed that of the 92 cases, 44(47.83%) ovarian cysts had regressed. Of the remaining 48 patients with persistent cysts 4 (8.33%) presented as acute torsion. 23 patients (47.91%) needed surgery for ovarian cysts- either laparoscopy or laparotomy. All patients tolerated surgery well. There were no pregnancy complications. Histopathology of resected tissue showed benign nature of ovarian cyst in all except for one report of borderline tumor. Conclusion-High incidence of asymptomatic ovarian tumors identified in early pregnancy due to widespread use of USS , about half will regress on its own; a few of them present as acute torsion needing emergency surgery. Some patients require surgical intervention in pregnancy due to mass abdomen or persistent pain abdomen. Both laparoscopy and laparotomy are well tolerated by these patients when done at 14-16 weeks of gestation. Most ovarian tumors are of benign nature. **Sample size:** 5000 ladies registered in OP in consecutive manner. **Study Area:** Tertiary health centre- Medical College, Kozhikode, Kerala. **Participants:** 5000 ladies who attended the OP consecutively were evaluated and first trimester scan or pervaginal examination followed by USS was done. Ovarian cysts greater than 3 cm were included in this study.

KEYWORDS: First trimester, ovarian tumors, ultrasound (USS), doppler, laparoscopy, laparotomy.

MeSHTerms: Index terms using the following medical subject headings terms (MeSH) words 'C' code - Gynecological disorders, 'c-13'. 371 08—adnexal mass; 'C' 13.703 – Pregnancy Complications; 'C' 13 371.820.800.418.685 - Ovarian neoplasm Laparoscopy; Laparotomy.

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INTRODUCTION: Ovarian masses can occur in early pregnancy and increasing use of USS in first trimester helps in early diagnosis. Katz⁽¹⁾ and colleagues (1999) found an incidence of 1 in 200 pregnancies. Many of these cysts undergo spontaneous resolution as evidenced by absent cyst at repeat scan as reported by Veda M; Veki M.⁽²⁾ Whitecar et al⁽³⁾ (1999) described 130 adnexal masses in pregnancy. Those cysts that persisted into 2nd trimester, presented as mass abdomen. Few cases presented as acute torsion and needed emergency laparotomy.

MATERIALS AND METHODS: 5000 pregnant ladies coming to antenatal OP consecutively were analyzed for any ovarian masses by USS or USS after a suspicious mass was identified at pervaginal examination. Masses less than 3 cm were excluded. Patients were asked to report if they had any signs of acute abdomen or features of torsion. A repeat USS was done at 14 weeks to assess the ovarian mass and doppler was also done in persistent masses. Laparotomy was done in those with acute torsion as an emergency procedure. In patients with large masses and those with persistent pain with ovarian tumors underwent surgical intervention either laparotomy or laparoscopy as elective procedure at 14- 16 weeks gestation. Postoperative period was monitored, histopathology of tissue was collected and analyzed. In those patients who did not undergo surgery and had ovarian masses were followed up till delivery. In those who had caesarean, ovaries were inspected. Those who had vaginal delivery had pervaginal examination or USS to assess the ovarian mass.

Ethics: Procedures followed were in accordance with ethical standards of responsible committee on human experimentation instituted and with Helsinki Declaration of 1975 - Revised in 2000.

OBSERVATION AND RESULT: Of the 5000 antenatal ladies, 92(1.84%) had ovarian masses (more than 3cm) in first trimester. Of this 48(0.96%) had persistent mass at repeat USS at 14 weeks. Of the persistent masses, 20 had cyst size less than 5cm (41.67%) and 28 had cyst size more than 5cm (58.33%). Of the persistent cysts 39(81.25%) had simple cyst and 9(18.75%) had complex cysts. Doppler showed increased vascularity in 3 cases (6.25%) of which one was complex cyst. 4 cysts were bilateral (8.33%). 23 of 48 patients underwent surgical intervention (47.92%). Of the remaining 25 cases of persistent ovarian mass, 14(56%) had cesarean for other indications. At CS, only 2 cases had ovarian cyst.

1. Bilateral cyst-5x3 and 2x2cm - bilateral cystectomy done along with CS. HPR - serous cystadenoma.
2. Severe endometriosis with both ovaries adherent to back of uterus 9 cases (36%) had vaginal delivery 6 patients went home with no complaints. They were advised to return to OP with USS after 6 weeks 3 patients had USS in postpartum period of which 1 had a unilateral ovarian cyst of 6 cm-patient got discharged on request.

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Acute torsion	4	17.40%
Persistent palpable mass	14	60.87%
Persistent abdominal pain	4	17.39%
Doppler vascularity with complex cyst	1(HPR-Luteoma)	4.35%
TOTAL	23	100%

TABLE I: INDICATIONS FOR SURGICAL INTERVENTION (23 cases)

PROCEDURE	NUMBER OF CASES	% of CASES
Laparoscopic cystectomy	7	30.40
Laparoscopic ovariectomy	1	4.35
Endometriotic cyst wall excision	2	8.69
Laparotomy and ovarian cystectomy	10	43.48
Laparotomy and ovariectomy	3	13.08
TOTAL	23	100

Table II: METHOD OF SURGICAL INTERVENTION - 23 of 48 cases

Simple serous cyst/serous cystadenoma	13	54.52%
Benign cystic teratoma	5	25.74%
Borderline tumor	1	4.35%
Endometriotic cyst wall	2	6.60%
Luteoma of pregnancy	1	4.35%
Mucinous cyst	1	4.35%
TOTAL	23	100%

Table III: HISTOPATHOLOGY OF SPECIMEN - 23 CASES

DISCUSSION: Prospective study was conducted in IMCH, Government Medical College, Calicut.

Majority of ovarian masses were detected by USS 86.6% of cases were identified by USS, Similar rate was reported by Bernhard, Klebba, Gray et al (1999).⁽⁴⁾ Of the total of 92 cases, 44 (47.83%) cases had spontaneous resolution. Lee GY, Shin JC et al (2004)⁽⁵⁾ reported that most ovarian masses are less than 5 cm. Most of the patients had surgical intervention around 16-18 weeks. Similar gestational age was reported by Schmeler KM, Moyo-Smith WW, Peipert JE et al (2005).⁽⁶⁾ Laparoscopic cystectomy was done as elective case in 6 cases. Laparotomy was done mainly as emergency cases like torsion. None of the cases who had surgery had any adverse pregnancy outcome in this study. Gordon B Sherard, Hodson et al (2003)⁽⁷⁾ also did not report any adverse outcome in their study. Histopathologic examination of operated specimens showed that most tumors are benign, except one case of borderline malignancy. UsuiR, MinakamiH, Kosuge S⁽⁸⁾ also reported similar results in their study.

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CONCLUSIONS: Majority of ovarian tumors in pregnancy are detected by USS.

Spontaneous resolution is seen as pregnancy advances in many cysts especially those with size less than 5 cm.

Nature of mass is best assessed by USS and color doppler. Some patients present with features of acute torsion and need emergency surgery. Time of surgical intervention is preferred at 14-16 weeks.

All patients withstood surgery well with no adverse effect on the ongoing pregnancy.

Both laparoscopy and laparotomy are well tolerated by pregnant patients at 14- 16 weeks gestation.

Histopathology of specimens was mainly benign. In this study majority showed serous cystadenoma, followed by benign cystic teratoma. One case showed borderline tumor who is on follow-up (patient is para 1).

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