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RESEARCH PAPER

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Adnexal Masses in Pregnancy

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Abstract:
Adnexal masses are not uncommon in pregnancy. They are often discovered incidentally during routine ultrasound examinations. Adnexal masses are usually asymptomatic, but sometimes can be responsible for abdominal or pelvic pain. Transvaginal and transabdominal ultrasound is essential to define the morphology of pelvic masses.
Materials and Methods:
This was an observational study carried out at the Department of Obstetrics and Gynecology, at Government Lalla Ded Hospital , Government Medical College , Srinagar over a duration of 9 months from Jan 2022 to September 2022. 43 Pregnant females, irrespective of gestational age , with adnexal masses were included in the study.
Results:
Serous cystadenomas were the most common histopathologic finding followed by Dermoid cyst and Endometriomas.

1 | INTRODUCTION

Adnexal masses in pregnancy are not uncommonly encountered. The reported incidence ranges from 1 in 76 to 1 in 2328 pregnancies (1). In recent decades, the routine use of first trimester ultrasound has increased the diagnosis of adnexal masses in asymptomatic pregnant women (2). Most of the adnexal masses are ovarian in origin, however masses arising from fallopian tubes, uterus, and non-gynaecological tissues can also be seen (3,4). During gestation, many ultrasound ovarian findings are functional cysts, including corpus luteum and follicular cyst. These account for about 30% of masses in pregnancy and usually regress spontaneously during the first or early second trimester of gestation. The most common ovarian lesions encountered are benign masses such as cystic teratoma or dermoid cysts, ranging from 24% to 40%. Malignant ovarian masses complicating pregnancy generally involve 1%–8% of cases(5).

An adnexal mass in pregnancy can be complicated by torsion (5%), venous congestion, rupture, or bleeding/ infection, or labor obstruction. Malignancy is usually associated with the presence of symptoms; an abdominal mass is the most common complaint in patients with adnexal malignancy (6).

Most of the patients do not have any symptoms, the most common symptom described is abdominal Pain (7). The main features of the adnexal mass (size, location, consistency, and mobility) can be evaluated with rectovaginal and bimanual pelvic examination. The presence of cul-de-sac nodularity and shortened uterosacral ligaments could suggest endometriosis.

Ultrasound

Ultrasound is the most frequently used technique for a first assessment because of its safety. It has optimal sensitivity and specificity in defining the morphology of pelvic masses. Moreover, it is a useful first-choice method to distinguish between benign and malignant masses(8,9). The International Ovarian Tumor Analysis (IOTA) group established a list of useful rules in estimating the malignancy risk of an adnexal mass in premenopausal and postmenopausal women. In order to establish the nature of an adnexal mass, the IOTA group reported 5 benign and 5 malignant features (10,11). The characteristics listed in the IOTA model suggesting neoplasm are irregular solid tumor; multilocular and irregular masses of 10 cm or more; presence of septa with a thickness of 2–3 mm; presence of at least 3 papillary projections; increased vascularization; evidence of ascites; or peritoneal masses.

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Ultrasound is also used as an adjunct to clinical evaluation to rule out ovarian torsion when patients present with abdominal and an ovarian mass. Sonographically ,ovarian torsion is demonstrated by visualizing an enlarged, edematous ovary with a concurrent mass or cyst. In addition, Doppler interrogation fails to demonstrate arterial and/or venous blood flow to the ovary. The incidence of ovarian torsion during pregnancy varies widely depending on the size of the adnexal mass and its relationship to the gravid uterus making risk factors for torsion difficult to characterize. In a retrospective review assessing the risk of torsion among pregnant patients with adnexal tumors > 4 cm, 51% of torsions occurred in tumors measuring 6 to 8 cm in diameter with an overall incidence of 22% in this group of patients. Furthermore, the highest hazard rate of torsion occurred between 15 and 16 weeks' gestation with 60% of torsions occurring between 10 and 17 weeks (12). Tumor markers are typically measured among women with adnexal pathology to help distinguish as benign and malignant (12). CA 125 is secreted by 80-90% of epithelial ovarian tumors and as a result it can be useful in monitoring patients with epithelial ovarian cancers. During a normal pregnancy, CA 125 concentrations can be variable and often peak during the first trimester, return to within normal limits for the remainder of gestation and then again peak in the postpartum period. CA 125 is therefore of limited diagnostic utility in the antepartum and postpartum periods (13). In addition, other established tumor markers are synthesized and secreted physiologically during fetal development (14). For example, this is particularly true for inhibin, human chorionic gonadotropin (b-HCG), and a-fetoprotein (AFP) each considered markers for ovarian germ cell and sex cord stromal tumors of the ovary making them less useful during pregnancy. Furthermore, during pregnancy, aberrations in HCG, inhibin or AFP can be associated with fetal aberrations like Down's syndrome and growth restriction as well as noncancerous maternal conditions like preeclampsia (15,16). Collectively, these data point to the limited utility of serum marker evaluation during pregnancy.

2 | MANAGEMENT

Given that the overwhelming majority of adnexal masses in pregnancy are benign and a good percentage will spontaneously resolve, an appropriate option for management of adnexal pathology in pregnancy is serial observation with ultrasound performed each trimester. Evidence supporting this recommendation is found in studies evaluating the incidence of adnexal masses in the first trimester of pregnancy.

Zanetta et al found that 55% of masses resolve completely or significantly decrease in size (17). Multivariate analysis found that the best predictors of persistence were complex appearance and size greater than 5 cm(18] Consequently, a reasonable option for patients with simple or functional appearing small adnexal masses would be surveillance with ultrasounds every trimester.

In patients that ultimately deliver via cesarean section, the adnexa should be evaluated at the time of surgery. In patients that undergo vaginal delivery, repeat imaging should be performed 6 to 8 weeks postpartum (19).

The timing of surgical interventions for adnexal pathology during pregnancy also requires careful consideration. There is evidence to support adverse pregnancy outcomes in patients undergoing abdominal surgery in the first trimester or after 24 weeks'; consequently, the ideal time for intervention is 14 to 22 weeks' gestational age

The majority of adnexal masses in pregnancy are benign. The most common histological diagnoses are dermoid cyst (37-50%), cystadenoma (20-24%), endometrioma (5-11%), and functional cysts (6-13%) (20). The reported malignancy rates of adnexal pathology in pregnancy ranges from 0 to 8.5%, with the most common invasive pathology being epithelial ovarian malignancies (serous or mucinous), tumors of low malignant potential (serous or mucinous), and germ cell/sex cord stromal tumors, respectively (20-22).

3 | METHODOLOGY

This was an observational study carried out at the Department of Obstetrics and Gynecology, at Government Lalla Ded Hospital, Government Medical College , Srinagar over a duration of 9 months from Jan 2022 to September 2022. Pregnant females with adnexal masses of all gestational ages were included in the study. A total of 43 patients were included in the study who presented to the Obstetrics OPD and Emergency with varying complaints related to pregnancy with adnexal masses. Patient's age, gravidity and parity, presenting symptom, pregnancy week in which mass was determined and size of the mass in this week, mass related antenatal problems developing during pregnancy, pregnancy week of the birth, weight of the new born, surgical intervention performed for the mass and histopathologic examination results were noted and evaluated with general statistical methods using the SPSS statistics program.

4 | RESULTS

A total of 43 patients were included in the study. The mean age of patients was 32.4years. 29 (67.44%) patients were primigravidas while 14 (32.56%) were multigravidas. 6 (13.95%) patients presented with symptoms of pain while remaining all were asymptomatic.

The various results are tabulated as follows:

Table1. Gestational Age at Diagnosis of Adnexal masses

Gestational Age	Number
<12 weeks	16
12-28 weeks	13
>28weeks	14

Table 2. Laterality Of Adnexal masses

Laterality	Number of Patients
Unilateral	35
Bilateral	8

Table 3. Timing Of Operation

Gestational Age at Operation	Number Of Patients
<12 weeks	1
12-28weeks	5
>28weeks	37

Table 4. Type Of Operation Performed

Type Of Surgery Performed	Number of Patients
Ovarian Cystectomy	32 (74.42%)
Oophorectomy	11 (25.58%)

Table 5. Histopathologic Results

Histopathologic Results	Results
Dermoid	10 (23.25%)
Serous	12 (27.91%)
Mucinous	6 (13.95%)
Endometrioma	8 (18.60%)
Follicular Cysts	7 (16.28%)

Serous cystadenoma was the most common histopathologic finding found in 12 (27.91%) patients while dermoid (10, 23.25%) and Endometrioma (8, 18.60%) were the second and third most common findings

5 | DISCUSSION

Adnexal mass is determined in nearly 1% of the pregnant women and generally they are in benign form. The most frequently seen types are mature cystic teratoma, cystadenoma and functional cysts, respectively (21). Histological distribution of the masses determined during pregnancy in our study are found in concordant ratios with literature. Dermoid cyst is the most frequent (22.2%)

pathology and then comes the serous cystadenom and mucinous cysts. In our study serous cystadenomas (27.91%) was the most common finding while dermoid cyst (23.25%) and endometriomas(18.60%) were the 2nd and 3rd most common cysts found.

Adnexal masses generally progress asymptomatically during pregnancy and most of them are resolved spontaneously before the 16th week; after the 16th week cysts are generally observed with complications. The complications of the masses seen in pregnancy include torsioned or ruptured cyst, infectious manifestation as a result of these, cyst's pressure on urinary system, In our study it has been observed that majority of the patients progressed asymptomatically, 6 patients presented with symptoms in First and 2nd trimester, 4 patients presented with pain only and 2 presented with pain and nausea.

Surgical intervention to adnexal cysts should be planned for malignity, persistent asymptomatic ovary cysts (>8-10 cm) and symptomatic masses (torsion, rupture, birth canal's being obstructed) (24,25). Approach to adnexal masses during pregnancy is determined according to patient's symptoms, pregnancy week, size and characteristics of the mass. Small ovary cysts (<6 cm) are generally functional and managed conservatively. If the mass is bigger than 6 cm, solid, bilateral or showing continuity in the second trimester, general approach is the performance of laparotomy. Adnexal mass requiring surgery in the first trimester is generally the cyst torsion causing emergency surgical intervention (7%). Elective surgery is delayed until the second trimester in order to decrease the risk of spontaneous abortions. In the pregnancies operated in the 18th week, a fetal problem is very rare.

So, 18th week is considered to be the most appropriate week for surgery (25,26). In this study, surgical intervention was performed on only 6 (13.95%) patients in the first and second trimester as the cysts were torsioned. Cystectomy was performed on 37 patients whose cysts were determined during caesarean and no complication developed in the postoperative period. Malignity wasn't determined in any of the patients in histopathological evaluation.

6 | CONCLUSION

Adnexal masses are common during pregnancy. In most cases, they are functional or benign, even though there could still be a chance of malignancy. Diagnosis is of paramount importance for management. Transvaginal ultrasound is the gold standard for studying adnexal masses. Abdominal ultrasonography can be used in addition in women who are in later stages of pregnancy or in the presence of large masses. The management of adnexal masses during pregnancy depends on the nature and type of the masses as well as any complications that may arise. In case of acute event, surgery is mandatory in any trimester, anyway, when feasible, surgery should be scheduled during second trimester.

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