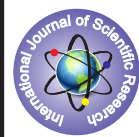


## Ovarian mass with Pregnancy.



## Gynaecology

**KEYWORDS:** Ovarian Mass, Mucinous cyst adenoma

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### ABSTRACT

The incidence of ovarian and adnexal masses in pregnancy appears to be apparently increasing with the expanding use of antenatal ultrasound. Persisting adnexal masses can lead to complications, and may (rarely) require emergency, or elective surgical resection. (the optimal surgical window being around 16 to 20 weeks of gestation). This is case study of ovarian mass and pregnancy. All 3 patients were operated at different time of pregnancy for ovarian mass. Histopathology and outcome of pregnancy was seen.

**Results:** Out of 3, 2 patients were diagnosed pregnancy with ovarian mass in 2<sup>nd</sup> trimester and 1 was diagnosed in 3<sup>rd</sup> trimester. Patients who were diagnosed in 2<sup>nd</sup> trimester were operated in 2<sup>nd</sup> trimester and who was diagnosed in 3<sup>rd</sup> trimester, was operated after delivery. All patients had mucinous cyst adenoma.

**Conclusion:** Risk of torsion, rupture, or obstruction, immediate surgery is preferable, considering gestational age, to make a provision for commensurate foetal growth, providing adequate space in peritoneal cavity, of course, with due risk of abortion or provoked prematurity and fetal morbidity, to be kept in mind.

The majorities of ovarian masses do not cause problems and most are functional cysts of the corpus luteum, which have not undergone, full involution. The incidence of ovarian and adnexal masses in pregnancy appears to be apparently increasing with the expanding use of antenatal ultrasound.<sup>[1]</sup>

- They usually, resolve by the second trimester of pregnancy.
- Persisting adnexal masses can lead to complications, and may (rarely) require emergency, or elective surgical resection. (the optimal surgical window being around 16 to 20 weeks of gestation).

### INCIDENCE

- The incidence of pelvic masses during pregnancy is between 0.5 and 2.2 %, depending upon the method of detection, and the definition of a mass.<sup>[2]</sup>
- Before, the use of ultrasound, the incidence of a pelvic mass, complicating pregnancy was reportedly, between 1 in 81 and 1 in 2200, as the diagnosis of an adnexal mass was made at the initial pelvic examination or not until the patient became symptomatic.<sup>[2,3]</sup>
- Most of the masses are arising out of pelvis, but can be an abdominal mass as well, that remains lower down, however, they are rare. Commonly they are pelvic masses, & , can be a lateral or a posteriorly situated fibroid, and an ovarian mass. Of these two, ovarian mass is a commoner entity.

### Incidence of adnexal mass during Pregnancy

Dermoid Cyst : 7-37%  
 Serous Cystadenoma : 5-28%  
 Mucinous Cystadenoma : 1-8%  
 Ovarian Malignancy: 1-7%  
 Leiomyoma : 2-4%  
 Endometrioma : 1.2-3%  
 Hydrosalpinx : 1.2-5%  
 Heterotopic Pregnancy: 1-3%

The clinical presentations also are common in many instances, but can be differentiated easily, with absolute certainty ensured by an ultrasound examination.

Ultrasound scanning detects an adnexal mass in about 1 in 200 early pregnancies.

Clinically detectable, adnexal masses are thought, to affect about 1 in

1,500 pregnancies.

The vast majority of these adnexal masses do not persist beyond the second trimester.

Ovarian malignancy is very rare, at approximately 7 cases per 10,000 pregnancies in one series.<sup>[4]</sup>

### Type of mass

#### Benign

Benign ovarian tumors are extremely common:

- Functional ovarian cysts.
- Benign cystic teratomas.
- Serous or mucinous cystadenomas.
- Fibromas.

#### Malignant

All ovarian cancers are rare and usually low-stage/low-grade.<sup>[5]</sup>

- Germ cell tumors,
- Borderline ovarian tumors,
- Epithelial tumors,
- Sex-cord stromal tumors.

### Presentation

- Most adnexal masses and fibroids are detected coincidentally during routine antenatal ultrasound.
- A small proportion of both pathologies may be large enough to detect clinically during bimanual palpation of the uterus.
- The mass may also cause complications, and the patient then presents with symptoms caused by this.

### Differential diagnosis

For ovarian tumors, the main question is whether the tumor is benign or malignant

### Investigations

The investigation of choice for uterine or ovarian masses in pregnancy is detailed ultrasound scanning including Doppler.<sup>[6]</sup>

This indicates the size, location, appearance and likelihood of any problems, to assist decisions on management. Morphological criteria can identify benign ovarian cysts compared with malignant masses relatively accurately.

Ovarian tumor markers are used mainly to monitor disease status

during treatment, rather than as a diagnostic test, due to low specificity. Several markers can be elevated due to pregnancy itself – e.g. CA 125, beta human chorionic gonadotrophin (beta-hCG) - and their use in pregnant cancer patients is not recommended.<sup>[5]</sup>

In confirmed malignancy, investigations to stage the tumor, such as MRI scanning of the pelvis, may be used but CT and positron emission tomography (PET) should be avoided.<sup>[7]</sup>

### Management

- The major questions to be answered, once an adnexal mass is discovered during pregnancy, are:
- What is the nature of the mass?
- Secondly, is there a possibility that the mass may regress?
- Will the mass undergo torsion, possible rupture, or will it cause obstruction during delivery?
- Can it result in hampering the fetal growth, by its sheer size, occupying most of the space in peritoneal cavity?
- What is the likelihood that it is malignant?

Early in pregnancy, ovarian enlargement, less than 6 cm diameters, is usually due to corpus luteum cyst formation. Resection of all suspected cysts, at risk of rupture, or undergoing torsion is recommended.

Cysts measuring, 10 cm in diameter should be resected,

- For unimpeded fetal growth,
- To prevent pre term delivery,
- To rule out possibility of cancer in the large cysts, though the incidence is very low. While cysts less than 5 cm could be left alone, and indeed, most undergo spontaneous resolution.

Management of cysts between 5 and 10 cm in diameter remains controversial. Some clinicians recommend that these cysts be managed expectantly if they have cystic appearance.

Others believe that, if they contain septae, nodules, papillary excrescences, or solid component, resection is recommended.

If the mass is thought to be benign and unlikely to cause complications, expectant management and follow-up scans are recommended.

There is little evidence to support the use of laparoscopic surgery in the management of presumed benign ovarian tumours,<sup>[8]</sup> during pregnancy.

Surgery after 15 weeks of gestation, is indicated for large (greater than 5-10 cms. in diameter), and/or symptomatic tumours, and those, that appear highly suspicious for malignancy (solid or mixed solid and cystic) on ultrasound.<sup>[9]</sup>

Surgery should never be postponed, if deemed to be crucial, particularly once the time of 25 weeks of gestation has been reached.<sup>[7]</sup>

The extent of surgery is decided by the intraoperative findings, whether the tumour is benign/malignant:

- Conservative surgery is indicated for benign masses/borderline ovarian tumours.
- More extensive surgery (including staging biopsies) is indicated for confirmed higher-grade malignancies

### Complications

- Torsion, presenting as acute abdomen,
- Rupture, presenting as acute abdomen.
- intrauterine growth restriction,
- Preterm labour,
- Obstruction of labour, when the tumour remains in pelvis.
- Malignant transformation causing peritoneal spread (may lead to ascites and peripheral edema).

### Prognosis

The outcome is very good for the majority of patients with fibroids and ovarian masses during pregnancy.

Elective surgery for an adnexal mass in the second trimester appears to be safe for both the woman and her baby.<sup>[10]</sup>

Prognosis in cases of ovarian malignancy is related to tumour histology and stage but one series shows 70% maternal survival and relatively good fetal outcomes:<sup>[11]</sup>

Earlier diagnosis gave a better prognosis.

The question that sometimes arise in clinical practice is—what should be the management of a mass that is too big, about the size of 15 cms, across, that is likely, to still grow, & become bigger? Can it become bigger still, occupy more space in abdominal cavity, cramping the foetal growth?

Is it prudent to remove it after 16 weeks, & carry the pregnancy to term, to deliver a well developed foetus? Or to let it remain in, possibly grow in size still further, & possibly face a problem of a growth retarded foetus, due to shortage of space?

Following are two cases, with such situations, wherein we chose to operate, & remove the ovarian mass, & carry the pregnancy to term. 3<sup>rd</sup> one case diagnosed in 3<sup>rd</sup> trimester and operated after delivery.

### Case 1

24 years old, G<sub>3</sub>P<sub>1</sub>L<sub>1</sub>, patient, with 9 MOA came to OPD for routine checkup.

### Per abdomen examination:

- Abdomen was unduly enlarged
- Fundus of the uterus could not be differentiated
- Fetal parts were not palpable

### USG findings:

- Large cystic lesion, measuring 25\*13\*14 cm, seen in abdomen, with multiple internal septation, and debris.
- S/o complex ovarian cyst.
- At time of sonography examination, patient was 35 wks 4 days pregnant, so surgery was deferred at that time, & was operated after the delivery.

### Intra operative findings:

A cyst of about 30\*20 cm size was found and mucinous fluid was drained. Upper part of cyst was solid.

Uterus was in post partum state.



Fig 1: Intra operative Mass with post-partum uterus

### Histo-pathology Report :

#### Gross Examination:

On cut section multiple cystic cavities were seen. Brownish mucinous material came out.

**Microscopy:** Presence of cystic spaces lined by tall columnar cells with basal nuclei.

The lumen contains pools of mucin.

**Impression:** Mucinous Cystadenoma

## Case 2

25 years old, G<sub>3</sub>P<sub>2</sub>L<sub>2</sub> patient, with 4 MOA came to OPD for routine checkup.

### Per abdomen examination:

A mass with variegated consistency, solid areas with cystic mass, felt above the umbilicus

### USG findings:

Large cystic lesion, with septation & solid component was seen arising from pelvis extending upto epigastric region. The lesion measured more than 10\*15\*20 cm. The lesion displaced bowel loops towards periphery.

### Precautions:

Inj. 17 – alpha Hydroxy Progesteron caproate, 500 mg IM stat was given before surgery.

Inj. Tidilan, 20 mg, IM 12 hrly was given.

**This was done to maintain uterine quiescence during & after surgery, so premature delivery may not be the result.**

### Intra Operative Findings:

- Gravid uterus of about 14-16 weeks size was present.
- A huge cystic mass of approximately 20\*10 cm, arising from right ovary, occupying abdominal cavity was seen.
- It was impossible to deliver the tumor out of abdomen without extension of incision. This was unnecessary, as mass was benign.
- Small nick was made in mass & approx. 1.5 liter of mucinous fluid was suctioned out.
- The size of mass gradually reduced, and then the mass was delivered out of abdominal cavity.
- A clamp was applied on pedicle of cyst, cut & transfixed.
- The mass along with fluid was sent for histo-pathological examination.
- During the entire operative procedure, care was taken to avoid handling of the pregnant uterus, so as, to prevent any pregnancy accidents.



**Fig 2: Purse String suture before reduction of size**



**Fig 3: Mass size reduction by suction cannula**



**Fig 4: Huge Mass (approx. 20\*10 cm)**

### Histo-pathology Report:

**On gross examination:** Whitish mucinous fluid came out & multiple cystic areas seen On cut section of multiple cysts whitish jelly like mucinous material came out & there is presence of papillary excrescences. The cyst wall doesn't show surface nodules or rupture.

**On microscopy:** Presence of cystic spaces lined by columnar cell with basal nuclei & apical mucus forming papillary structures. Lumen contains pools of mucin, focal areas of hemorrhage & acute inflammatory infiltrate areas were seen.

**Impression:** Papillary Mucinous Cystadenoma

## Case 3

28 years old G<sub>3</sub>P<sub>2</sub>L<sub>2</sub> patient with 18 weeks 5 days came to OPD for routine antenatal check up.

### Per abdomen Examination:

- 26 wks size, cystic consistency
- Uterine fundus could not be differentiated
- External ballotement +nt

### Pervaginal examination:

- Uterus: 16 weeks size, soft consistency
- Large cystic mass was palpable in left adnexa

### USG Findings:

- Well defined cystic lesion measuring 15\*10 cm, arising from left adnexa extending into abdomen with few internal echoes.
- p/o left ovarian cyst
- Single live intra uterine fetus of 18 wks 2 days +/- 2 wks.



**Fig 5: Mass with Pregnancy seen On Ultrasound Imaging**

### Precautions:

- \* Inj. Hydroxy Progesteron caproate, 500 mg IM stat was given before surgery.
- \* Inj. Tidilan, 20 mg, IM 12 hrly was given.

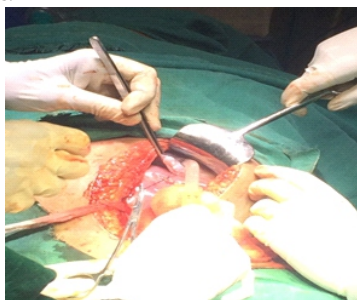
### Intra Operative Findings:

- Gravid uterus of about 20-22 weeks size was present.
- A huge cystic mass of approximately 15\*10 cm, arising from left ovary, occupying abdominal cavity was seen.
- It was impossible to deliver the tumor out of abdomen, without

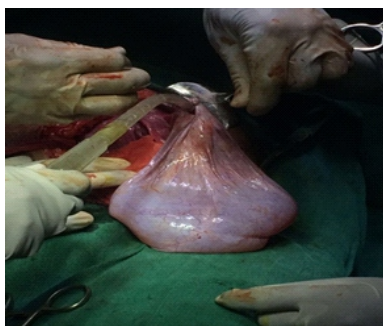


extension of incision. This was un-necessary, as mass was benign.

- Small nick was made in mass & approx. 1 liter of serous fluid was suctioned out.
- The size of mass was gradually reduced, and then the mass was delivered out of abdominal cavity.
- A clamp was applied on pedicle of cyst, cut & transfixed.
- The mass along with fluid was sent for histo-pathological examination.
- During the entire operative procedure, care was taken to avoid handling of the pregnant uterus, so as, to prevent any pregnancy accidents.



**Fig 6: Mass size reduction by suction**



**Fig 7: Mass containing Mucinous Material**

#### Histo pathology Report:

- **Gross Examination:** Received cut open ovarian cyst measuring 15\*10 cm.
- **Microscopy:** The section studied show cyst wall lined by columnar epithelium along with goblet cells beneath which there is presence of fibrocollagenous stroma.
- Malignancy is not seen.
- Overall features were suggestive of benign mucinous cystadenoma.
- **Impression:** Ovarian cyst: Benign mucinous Cystadenoma.

#### DISCUSSION

	CASE 1	CASE 2	CASE 3
AGE	24 yrs	25 yrs	28 yrs
PARITY	G <sub>2</sub> P <sub>1</sub> L <sub>1</sub>	G <sub>3</sub> P <sub>2</sub> L <sub>2</sub>	G3P2L2
GA AT TIME OF DIAGNOSIS	35 wks 4 days	15 wks	13 wks 1 day
GA AT TIME OF SURGERY	Post partum day 3	16 wks	18 wks 2 days
SIZE OF MASS AT SURGERY	25*13*14 cm	10*15*20 cm	15*10 cm
PATHOLOGY	Mucinous Cystadenoma	Papillary Mucinous Cystadenoma	Benign Mucinous Cystadenoma
OUTCOME	ND/F/2.3 KG	ND/F/2.5 KG	CS/F/3.3 KG
COMPLICATION	None	None	None

- In present case series, of pregnancy with Ovarian mass, 2 patient were diagnosed in 2<sup>nd</sup> trimester and 1 patient, in 3<sup>rd</sup> trimester.
- 2 patients were operated in 2<sup>nd</sup> trimester and 1 was operated on

day 3 post partum, because it was diagnosed in 3<sup>rd</sup> trimester, and it was difficult to operate it in 3<sup>rd</sup> trimester, because of enlarged uterus.

- In histo-pathology report, all patients had mucinous cyst-adenoma.
- Abortion is a common complication of abdominal surgery in first trimester, and in second trimester preterm labor can occur.
- In present case series, both patients were operated in 2<sup>nd</sup> trimester under coverage of 17-alpha hydroxy progesterone caproate and isoxuprine for uterine quiescence to prevent pre term labour pain.
- Patient who delivered by Cesarean Section(SC) only due to previous 2 CS not due to laparotomy.

#### Why mucinous cyst should be removed?

- Chances of IUGR are more common with mucinous cyst, as mucinous cyst can not be compressed like serous cystadenoma, by growing fetus.
- In present case series, 2 patients who were operated in 2<sup>nd</sup> trimester has better outcome in terms of intrauterine foetal growth, as compared to 1 patient who was diagnosed in 3<sup>rd</sup> trimester and was operated after delivery.
- Big mass, which occupies more space in abdominal cavity, uterus gets less space to grow, resulting in decrease in intrauterine space and results in restriction of fetal growth.
- As such a big mass also elevates the diaphragm and lungs, it results in respiratory embarrassment in pregnant women. So it is very important to relieve, this reduction in vital capacity of lungs, by such a big mass.
- In mucinous cyst-adenoma, it is difficult to operate it by laparoscopy, because, mucin, if it leaks, causes dense adhesions, resulting in pain in abdomen, post operatively, as well as chronic abdominal pain.
- So in present case series, all patients were operated by laparotomy & in each patient warm saline wash was given to reduce the possibility for adhesion formation later on.

#### CONCLUSION

- Ovarian masses are frequently diagnosed during pregnancy. The majority of these are functional or physiological ovarian cysts, which resolve spontaneously by the second trimester. Ideal time for scheduled surgery is beginning of second trimester.
- Given the risk of torsion, rupture, or obstruction, immediate surgery is preferable, considering gestational age, to make a provision for commensurate foetal growth, providing adequate space in peritoneal cavity, of course, with due risk of abortion or provoked prematurity and fetal morbidity, to be kept in mind.

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