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Case Report

A giant ovarian cyst in pregnancy managed by controlled decompression and cystectomy: a case report

Deepika Ravi*, Niranjan Chavan

Department of Obstetrics and Gynaecology, Lokmanya Tilak Municipal Medical College and Hospital, Sion, Mumbai, Maharashtra, India

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*Correspondence:

Dr. Deepika Ravi,

E-mail: deepika.ravi2805@gmail.com

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ABSTRACT

Adnexal masses complicate about 1-5% pregnancies. Timely evaluation and individualized management are crucial for an optimum maternal and fetal outcome. This case report deals with one such giant ovarian cyst detected in the second trimester of pregnancy during routine scan and further discusses the comprehensive clinical and radiographical evaluation to assess the condition and formulate an appropriate management plan. It underscores the need for balancing the risks of expectant management against those associated with surgical intervention, with decisions guided by gestational age, cyst characteristics, and patient-specific factors.

Keywords: Ovarian cyst, Pregnancy, Cystadenoma

INTRODUCTION

Adnexal masses occur in approximately 1-5% of pregnancies and are mostly benign functional cysts.¹ With the use of routine antenatal obstetric imaging, these lesions are increasingly diagnosed incidentally. The majority resolve spontaneously by the second trimester; however, persistently large cysts (>10 cm) require timely evaluation due to the high risk of complications such as torsion, rupture, obstructed labour, pressure symptoms and rarely malignancy.

The second trimester is considered the safest time for surgical intervention during pregnancy because a significant amount of organogenesis is complete and the risk of preterm labour is much lower compared to the third trimester.²

We hereby report a case of a giant ovarian cyst diagnosed during pregnancy, managed successfully with controlled cyst decompression and cystectomy. This case highlights the importance of timely intervention and meticulous

surgical technique in managing large ovarian cysts in pregnancy.

METHODS

A 30-year-old gravida 2, para 1, living 1 at 19+2 weeks of gestation was referred from a peripheral healthcare facility to our tertiary care centre following antenatal ultrasonography that revealed a large right ovarian cyst measuring approximately 23×14×16 cm.

She complained of progressive abdominal distension and mild discomfort over the preceding few weeks. No specific aggravating or relieving factors noted. There was no history of acute abdominal pain, vomiting, or vaginal bleeding.

The patient had no other known comorbidities. There was no significant past medical history, personal history, or family history.

On examination the patient was vitally stable. Systemic examination was within normal limits. Per abdominal

examination revealed uterine size more than the gestational age. A cystic mass was palpable occupying the right side of the abdomen extending above the umbilicus. The uterus corresponds to approximately 18–20 weeks gestation. No signs of acute abdomen or torsion were present.

Ultrasonography was suggestive of a well-defined hypoechoic lesion of 24×17×17 cm with few incomplete septations and 2 daughter cysts within with largest of size 7×4 cm noted in the right adnexa not separate from the ovary. Left adnexa was normal.

All routine preoperative investigations were sent and found to be within normal limits. Tumour markers were also sent and were all within normal limits.

After due consent MRI pelvis done for better characterization of the cyst. MRI report (Figure 1 and 2) was suggestive of a large 12.9×24.5×17.8 cm well defined thin walled multiseptated cystic lesion with few intralesional cysts in the pelvicoabdominal region in the midline from S1 to L1 vertebra arising from right adnexa with the right ovary likely serous cystadenoma (O-RADS – 3).

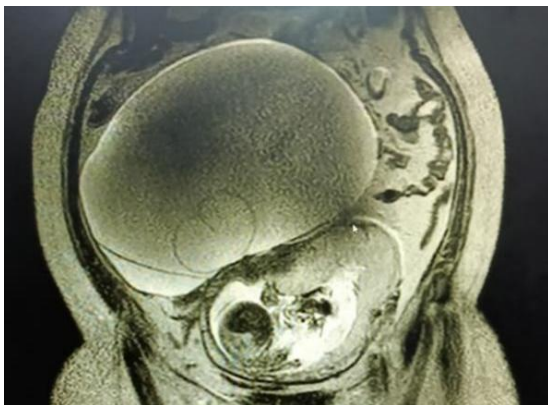


Figure 1: MRI depicting a thin-walled cystic mass with daughter cyst within and fetal head seen on coronal section.

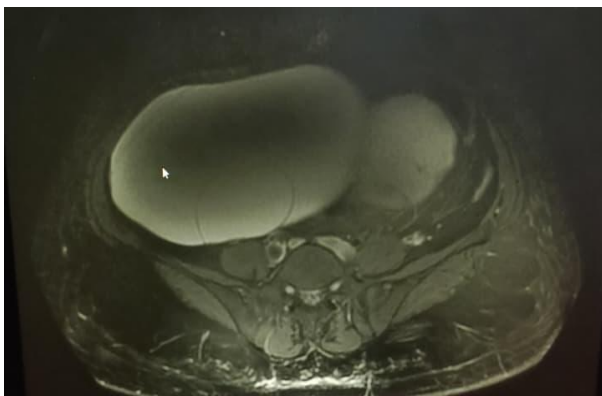


Figure 2: MRI depicting the thin-walled cystic mass with daughter cyst within.

Surgery was planned due to the following indications: 1) the cyst measured greater than 20 cm, significantly increasing the risk of complications, 2) large mobile cysts predispose to torsion, which could lead to acute abdomen and emergency surgery during pregnancy, 3) large cysts have a higher risk of spontaneous rupture causing chemical peritonitis further complicating the pregnancy, 4) the cyst was causing significant abdominal distension and pressure effects and 5) persistent large cysts may obstruct labour, necessitating emergency intervention later in pregnancy.

Since the patient was in the second trimester and in the correct window for surgery, the patient was prepared for exploratory laparotomy under general anaesthesia. Preoperative tocolytics and progesterone support were given. A right paramedian incision was taken to allow adequate exposure and to reduce uterine manipulation.

Intraoperative findings

A large right ovarian cyst was seen occupying most of the abdominal cavity. It had a smooth surface with no adhesions. The cyst wall appeared thin and intact. The uterus corresponded to approximately 20 weeks of gestation and deviated to left side. The left ovary and fallopian tube were found to be normal. No ascites, suspicious peritoneal deposits, or enlarged lymph nodes were seen.

Due to the large size of the cyst, removal without decompression was difficult. The following technique was used to prevent spillage. The cyst surface was isolated with abdominal packs to protect the peritoneal cavity. A purse-string suture was placed on the cyst wall. A small stab incision was made within the suture (Figure 3). A suction cannula was introduced, and cyst fluid was aspirated slowly. Approximately 2.5 litres of clear serous fluid were drained and sent for cytopathological examination and culture. This allowed the cyst to collapse and reduce in size, facilitating safe handling. After decompression, the collapsed cyst wall was gently delivered out of the abdominal cavity (Figure 4). Care was taken to avoid traction on the gravid uterus. An incision was made over the antimesenteric surface of the ovary. The cyst wall was carefully dissected from the normal ovarian tissue using sharp and blunt dissection. The cyst was completely enucleated and sent for histopathological examination (Figures 5 and 6). Haemostasis was secured using fine absorbable sutures. The remaining ovarian tissue was reconstructed to preserve ovarian function. The abdominal cavity was irrigated with normal saline. The postoperative period was uneventful. Fetal heart activity was normal. The patient received tocolytics and progesterone support. She was discharged in stable condition after suture removal.

Final diagnosis was made after the histopathology report which revealed serous cystadenoma. The patient had an uneventful antenatal period and delivered a male baby weighing 2.5 kg through C-section.

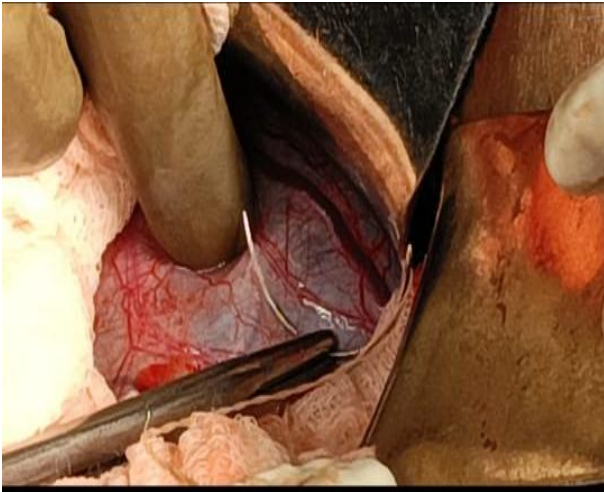


Figure 3: Stay suture taken for decompression of the ovarain cyst.



Figure 4: Decompressed ovarian cyst with daughter cyst within.



Figure 5: Postoperative specimen.



Figure 6: Ovarian cyst wall with 2 daughter cysts within.

DISCUSSION

Adnexal masses in pregnancy are increasingly diagnosed due to the use of routine antenatal ultrasonography. The incidence ranges from 1% to 5% of all pregnancies, although only a small proportion require surgical intervention. Most of the adnexal masses detected in early pregnancy are functional cysts such as corpus luteum cysts, which typically resolve spontaneously by the end of the first trimester. However, persistent masses, particularly those more than 10 cm in diameter, warrant further evaluation and often require surgical management due to the increased risk of complications.¹ Ultrasonography remains the primary imaging modality for evaluating adnexal masses in pregnancy due to its safety. Features suggestive of benign pathology include a unilocular cyst, thin walls, absence of solid components, and lack of papillary projections. On the contrary, the presence of solid areas, septations, papillary excrescences, or increased vascularity may raise suspicion of malignancy.³ In the present case, the cyst was large, thin-walled, and unilocular, without solid components or septations, strongly suggesting a benign lesion, which was later confirmed histopathologically to be serous cystadenoma.

Risks associated with large ovarian cysts in pregnancy

Although many adnexal masses can be managed conservatively, large ovarian cysts pose several potential risks during pregnancy.² Torsion is the most common complication associated with adnexal masses during pregnancy, occurring in approximately 10–20% of cases. The risk is highest in masses measuring 6–10 cm, particularly during the first trimester and early second trimester when the uterus is enlarging rapidly and displacing the adnexa.² Large cysts are prone to rupture, which may lead to acute abdominal pain, intraperitoneal haemorrhage, or chemical peritonitis, depending on the cyst contents. Very large cysts may occupy the pelvis and

obstruct the birth canal, potentially leading to obstructed labour or malpresentation. Giant ovarian cysts may produce significant abdominal distension, respiratory compromise, gastrointestinal symptoms, and urinary frequency due to compression of surrounding structures.⁴ Although rare, malignancy must always be excluded when evaluating persistent adnexal masses in pregnancy. Delayed diagnosis could adversely affect maternal prognosis.³

Given the large size of the cyst (23 cm), the risk of torsion, rupture, and future obstetric complications was considered significant, and surgical management was planned.

Timing of surgical intervention

Surgery in the second-trimester (16–20 weeks) is considered optimal due to lower risk of miscarriage, better uterine size for surgical access, and reduced chances of preterm labour. In the present case, surgery was performed at 19+2 weeks' gestation within the recommended window.

Surgical approach

Both laparoscopy and laparotomy have been routinely used for the management of adnexal masses in pregnancy.

Laparoscopy offers advantages such as reduced postoperative pain, shorter hospital stay, quicker recovery, and fewer wound complications.⁶ However, it may be technically challenging in large cysts, where reduced operative space and risk of cyst rupture make the procedure difficult. Laparotomy hence remains the preferred approach for giant ovarian cysts, particularly those exceeding 15–20 cm, as it provides better exposure, safer handling of large masses, and adequate exploration of the abdominal cavity.⁶ In the present case too, due to the massive size of the cyst, laparotomy was considered the best approach.

Removal of a large ovarian cyst without decompression may be challenging and could require a larger incision. Controlled aspiration of cyst fluid allows reduction in cyst size, improving surgical visibility, and permitting the use of a smaller incision. However, uncontrolled rupture may result in chemical peritonitis (particularly with dermoid cysts) or peritoneal dissemination if malignancy is present. Therefore, controlled decompression techniques, such as purse-string sutures around the puncture site with suction aspiration, are recommended to minimize spillage.⁷

Table 1 comparing similar such cases and their presentation and management technique.

Table 1: Comparison of cases and their presentation and management technique.

Case	Gestational age	Presentation	Size of mass (cm)	CA 125 (IU/ml)	Management	Histopathology
Josef et al ⁸	34 weeks	Abdominal discomfort	35	Normal	Elective section at 38 weeks	Mucinous cystadenoma
Acharya et al ⁹	26 weeks	Pain and heaviness	28	Normal	Exploratory laparotomy	Mucinous cystadenoma
Present case	20 weeks	Pain	23	Normal	Exploratory laparotomy	Serous cystadenoma

CONCLUSION

Giant ovarian cysts in pregnancy are rare and cause significant diagnostic and management challenges. Timely evaluation with appropriate imaging techniques and individualized treatment plan is imperative to optimize both maternal and fetal outcomes. Surgical intervention can be performed safely as and when indicated, especially for symptomatic, enlarging, or suspicious masses. This case highlights that even very large ovarian cysts can be successfully managed during pregnancy with careful perioperative planning, resulting in favorable outcomes for the mother as well as the baby.

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Ethical approval: Not required

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