



Case Series

Diagnosis and management of a giant ovarian cyst during pregnancy and puerperium: Case series

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ABSTRACT

Background: In the pregnancy and puerperium phase, giant ovarian cysts are highly uncommon. It raises the risk of fetal and maternal morbidity. We describe three cases of large benign ovarian cysts diagnosed and treated at a rural medical college and hospital with limited facilities during the pregnancy and puerperium phase.

Case Presentation: Data were obtained by history analysis, clinical assessment, laboratory examination, radiological imaging, and histopathological analysis of the culled surgical specimen. Our first case was a 23-year-old primigravida who presented with pain in abdomen. Antenatal sonography confirmed a huge intact left ovarian cyst. She was managed at term by cesarean for obstetrical indication along with left ovarian cystectomy. Our second case, a 25-year-old woman, reported abdominal distention following uncomplicated vaginal delivery. After a complete workup, she was diagnosed with a benign serous ovarian cystadenoma. Laparotomy with left ovarian cystectomy was done. In our third scenario, a 20-year-old primigravida with a giant ovarian cyst at 34 weeks gestation who also delivered vaginally and underwent laparotomy with left ovarian cystectomy. Histopathological examination revealed benign ovarian serous adenoma in all three cases.

Conclusion: When a large ovarian cyst is present during pregnancy, it is unearthed that vaginal delivery is possible. In the postpartum period, surgical cyst treatment can be performed with satisfaction.

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1. Introduction

Ovarian cysts are uncommon during pregnancy, occurring in less than 5% of cases, and giant cysts in the gravid puerperium cycle are even rarer, occurring in less than 1% of these cases.¹ Most of these cysts are small benign and asymptomatic. These cysts are incidental findings generally observed during ultrasound surveillance of pregnancy. They are more common in the first trimester of pregnancy and usually resolve spontaneously before the third trimester.² Their persistence till the end of the pregnancy reflects the

cyst's organic origin. They can rarely grow large at the expense of the ovary. Therefore, adnexal masses that exist for a long time and have a solid portion in imaging are mostly non-functional.³

They are usually asymptomatic unless they are enormous, in which case they can cause complications such as rupture and torsion. During pregnancy, torsion is the most common and severe complication of benign ovarian cysts, particularly in the first trimester. Due to torsion, the cyst can rupture in the peritoneal cavity.⁴ Ovarian cyst rupture may also happen during labor, childbirth, the immediate postpartum period, and surgery.⁵ Infection and secondary changes in the cyst can also produce symptoms. Large

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ovarian cysts can adversely affect the intrauterine fetal growth and also may lead to mal-presentation, obstructed labor.⁶ During pregnancy, large cystic pelvic tumors are challenging to treat.

In this study, we present a case series of huge ovarian cysts in the pregnancy and puerperium period.

2. Case Presentation

2.1. Case 1

Our first case was a 23-year-old primigravida who was admitted to the high dependency unit of Obstetrics & gynecology department at Government Medical College and attached Hospital in Barmer, Rajasthan, with pregnancy-related lower abdominal pain. It was her first visit to our institution. She had been married for a year and had conceived spontaneously. She belonged to a low socioeconomic status. Her ultrasound revealed a single live intrauterine fetus of 24 weeks gestation, as well as a 12.9cm anechoic cystic mass emerging from the left adnexa. Her symptoms were alleviated by conservative care. Required investigations were done including tumor markers which came out to be normal. After that, she had regular antenatal visits at our hospital. At 38 weeks, sonography for fetal wellbeing was done, which showed a single live fetus with the corresponding gestation and with mild oligohydramnios (Figure 1). It was also found to be associated with a well-defined hypoechoic left ovarian cystic mass measuring 13×10.04cms without signs of internal septations or solid component (Figure 2). The fetus had a prominent cisterna magna, which measured 15.7mm in diameter, and a small vermis (Figure 3). There were no abnormalities found during the general and systemic examinations. Due to massive abdominal swelling, no fetal parts were palpable during an abdominal examination. Despite the patient's perception of fetal movements, it was not possible to locate the fetal heart sound. She had a poor bishop score of 6 on vaginal examination. Considering oligohydramnios and ovarian cyst, she was planned for elective LSCS followed by cystectomy. A live male baby of 2.8 kgs was delivered with a good Apgar score at one and five minutes. A massive left ovarian cyst with an intact capsule was removed after securing its pedicle (Figure 4). On exploration of the abdominal cavity, no other abnormality or sign of metastasis was noticed. For histopathology analysis, specimens and peritoneal washing were sent. Her pre- and postoperative period was unremarkable, and she was discharged satisfactorily on the eighth postoperative day. There was no abnormality found during the subsequent follow-up. Histopathology report revealed that she had a serous cystadenoma.



Fig. 1: USG for fetal wellbeing showing mild oligohydramnios



Fig. 2: USG depicting well defined hypoechoic left adnexal cystic lesion of about 13×10.04cms

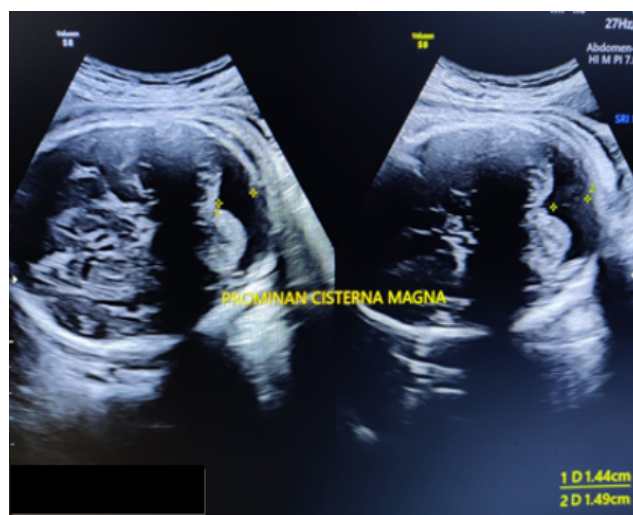


Fig. 3: USG for fetal wellbeing showing prominent cisterna magna with small size vermis.



Fig. 4: Intraoperative image of intact left ovarian cyst.

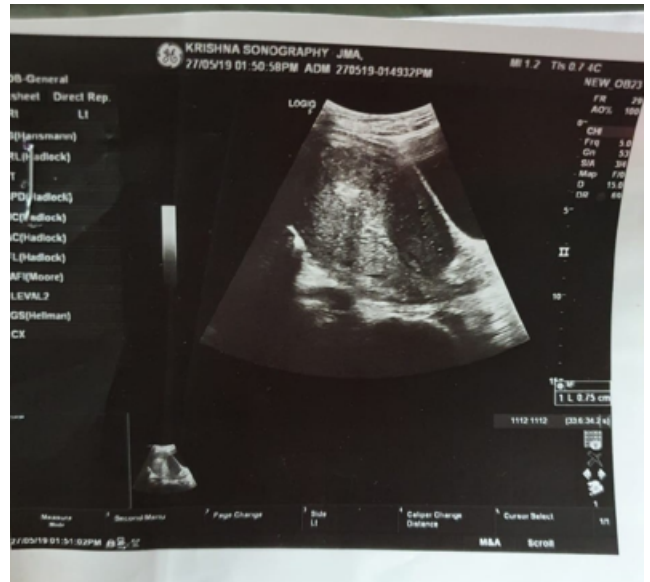


Fig. 6: USG film showing large concealed intraperitoneal collection s/o ovarian cyst



Fig. 7: Intraoperative externalization of the intact cyst.



Fig. 5: On per abdomen examination, the cyst was about 26cms×28cms.

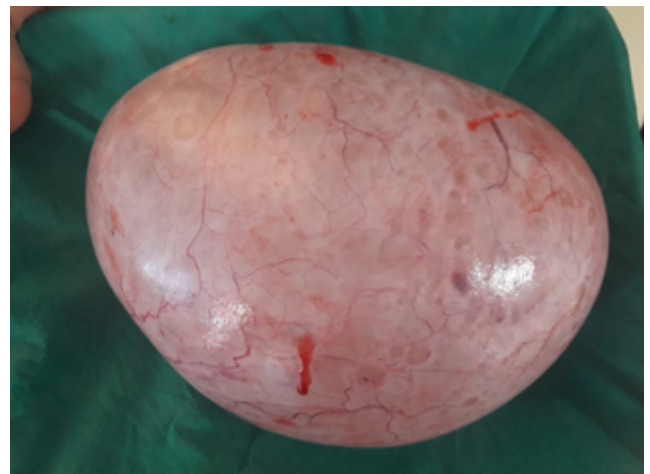


Fig. 8: Specimen with size 32×28cms

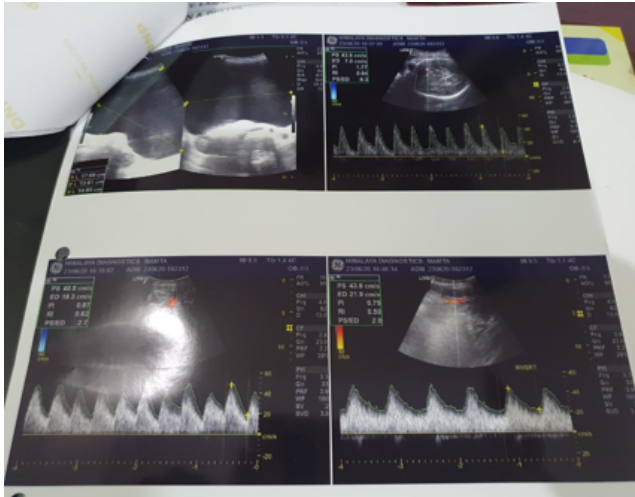


Fig. 9: USG for fetal well being showing normal color Doppler study.

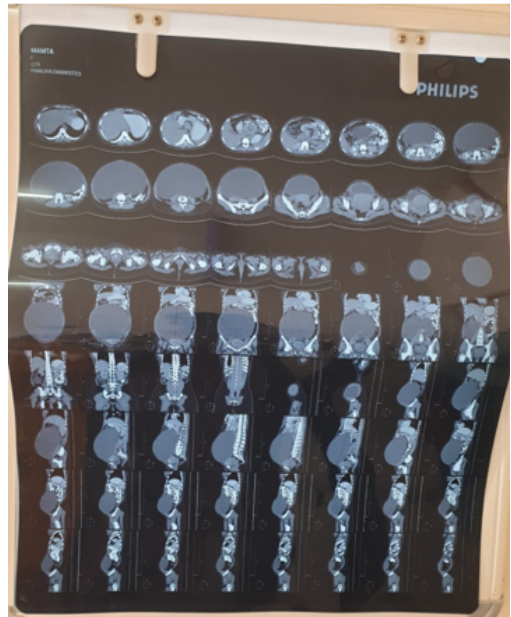


Fig. 12: CT scan of abdomen and pelvis showing 25×16×27cms non-enhancing cystic lesion anterior to the uterus and superior to the bladder.

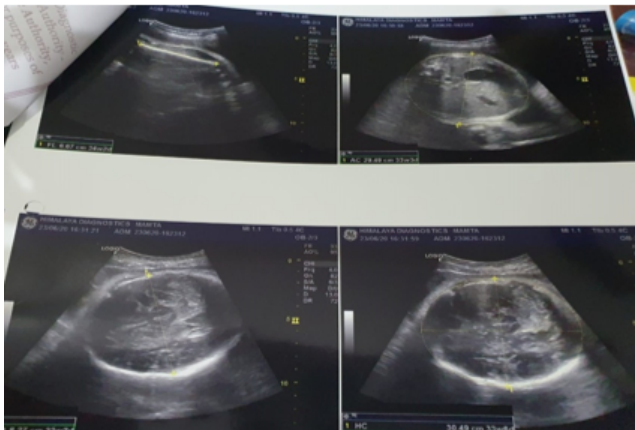


Fig. 10: USG showing 17.6 ×13.6 ×14.8cms sizes of the right ovarian cystic lesion.

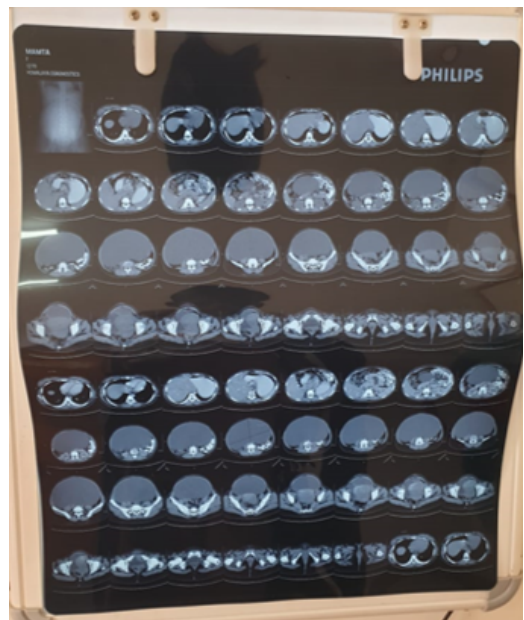


Fig. 13: CT scan showing right ovarian cystic mass with no evidence of solid enhancing foci within the lesion.



Fig. 11: Per abdomen examination of the mass (abdominal circumference of 95cms)



Fig. 14: Intraoperative image of the ruptured ovarian cyst

2.2. Case 2

This patient was a 25-year-old primigravida from low socioeconomic status. She attained menarche at the age of sixteen. Her menstrual cycles were regular, and she had no relevant family history. In her present pregnancy, she conceived spontaneously and took antenatal visits at a primary health center near her village. No USG was done throughout her pregnancy. She presented to our hospital with labor pains during her term pregnancy. Within an hour of admission, she delivered a live male baby of 2.5 kg vaginally with a good Apgar score at 1 and 5 minutes. No complications emerged during the time and following the childbirth. She was discharged from the hospital after two days of delivery in a satisfactory state. During the days following her childbirth, she observed a gradual rise in the volume of her abdomen. Therefore, she was admitted to the medical emergency ward on the fourth postpartum day with a complaint of abdominal distension. She was stable on general and systemic examination. On inspection, the abdomen appeared to be enlarged. On palpation, it showed a tender abdominopelvic mass of about 24 weeks with a dull note on percussion (Figure 5). Ultrasound found

a cystic abdominopelvic mass probably of ovarian origin, with no signs suggestive of malignancy (Figure 6). The tumor markers were normal. An exploratory laparotomy had been performed. A midline incision made from the lower abdomen to the umbilicus of about 27 cms, allowing the cyst in the left ovary to be externalized intact. (Figure 7). The uterus and contralateral ovary were grossly normal. After that, we carried out left cystectomy. No abnormality in any other intraperitoneal organ was found during the remainder of the abdomen's exploration. There were no ascites or signs of metastases. The removed cyst measured 32 cm long-axis and weighed 4.5 kg (Figure 8). The patient was sent home on the eighth postoperative day after an uneventful intraoperative and postoperative period. On follow-up, till forty-two days of delivery, no complication was observed. The cyst was diagnosed as a benign serous ovarian cystadenoma on histopathological examination.

2.3. Case 3

Our third case was a 20-year-old primigravida with a middle-class socioeconomic background and no significant family history. She had a regular antenatal check-up at a local primary health center after conceiving spontaneously within a year of marriage. After her labor pains began, she went to a private nursing home, where sonography revealed a single live intrauterine pregnancy at 33 weeks and five days. The liquor was adequate, and the placenta was in the upper posterior. The Color Doppler study was normal (Figure 9). There was a 17.6×13.6×14.8cms size right ovarian cystic lesion found in sonography (Figure 10). She had a spontaneous, uncomplicated vaginal delivery at a private hospital. She was then referred to our institute's high dependency unit of Obstetrics for further management of the ovarian mass. Per abdomen examination confirmed a massive cystic swelling with an abdominal circumference of about 95cms and an abdominal height of 35cms (Figure 11). Her general and systemic examinations were normal. Following a thorough evaluation of the ovarian mass, she was planned for laparotomy and cystectomy. A CT scan of the pelvis revealed a 25×16×27cm non-enhancing cystic lesion anterior to the uterus and superior to the bladder, extending up to the superior mesenteric artery, most likely of ovarian origin, with no signs of solid enhancing foci within the lesion. The cyst had preserved fat planes with adjacent structures (Figures 12 and 13). A massive tensed solid cystic right ovarian mass measuring 28×25cms was noticed on laparotomy. The cyst ruptured during externalization due to its large size. After cystectomy, an exploration of the abdominal cavity was performed, which showed no signs of metastasis. The left ovary and uterus seemed to be normal. Histopathological analysis of peritoneal washings and ovarian cyst reported a serous cystadenoma with no metastasis. The immediate postoperative period was uneventful. No complication was observed during follow-

up until six weeks postpartum.

3. Discussion

Most ovarian cysts that develop during early pregnancy are asymptomatic and are typically detected accidentally by sonography. The incidence of giant types of ovarian cysts in pregnancy is less than 1%.¹ Cyst in most cases are asymptomatic and spontaneously regress. Symptoms associated with them are usually nonspecific, like abdomen discomfort, constipation, abdominal pain, and vomiting, which may be confused with symptoms related to pregnancy.² These ovarian cysts in pregnancy may cause serious maternal and fetal complications, such as torsion or rupture, resulting in an emergency.⁷ When it enlarges, it can compress the gravid uterus and cause fetal complications such as intrauterine growth restriction, preterm labor, or abnormal fetal presentation. In the postpartum period, the risk of hemorrhage increases with giant cysts.⁸

Imaging plays a significant role in diagnosis. Asymptomatic cysts are usually discovered by chance during routine antenatal sonography. The better imaging methods for cyst detection are magnetic resonance imaging (MRI) and computed tomography (CT).⁹

Management is determined by the gestational age, symptoms, and nature of the cyst. Asymptomatic small-size functional cyst without features of malignancy is managed conservatively. In the larger size, symptomatic or malignant cyst surgical intervention is contemplated in the second or third trimester or an emergency if required.

Gynecological and non-gynecological causes are included in the diagnostic criteria of an abdominal mass.¹⁰ The definitive management of giant ovarian cyst is laparotomy followed by cystectomy. Aspiration of the cyst should be avoided because it increases the risk of infection, bleeding, cyst rupture, and peritoneal adhesion.¹¹ Cysts that are not too large can also be removed laparoscopically. Aspiration followed by cystectomy is done during laparoscopy.¹² However, when a cyst is suspected to be malignant, aspiration is not recommended due to the possibility of spreading malignant cells.^{11,12} Owing to the large size of the cyst in our case, laparoscopy surgery was not feasible.

The findings of substantial ovarian cysts during pregnancy or after delivery are rare in the medical literature. In 2002, Qublan et al. removed a 6300-gm ovarian mucinous cyst following cesarean section at 38 weeks of pregnancy. The fetus was growth retarded and had malpresentation.¹³ Noreen et al. in 2011 reported a giant ovarian cyst which was discovered at 32 weeks of gestation and removed by laparotomy at 38 weeks of gestation following vaginal delivery.¹⁴ Hota BM et al. in 2015 documented a term post-cesarean pregnancy in a 25-year-old multigravida with a 29x20 cm left ovarian cyst weighing 4.9 kg.¹⁵ In 2017, Baradwan et al. performed laparoscopic surgery to remove

an ovarian serous cystadenoma measuring 16.5x26.3x22.4 cm during the postpartum phase.¹⁶ Kiemtoré et al. in 2019 described a large ovarian cyst measuring 42cms long axis and weighing 19.7kg which was removed by laparotomy after vaginal delivery at 38weeks of pregnancy.²

The majority of cysts observed during the gravid- puerperium cycle are functional and thus benign. The most common ovarian cysts identified during pregnancy are luteoma, benign teratomas, mucosal adenomas, rete ovarian tumors, and endometriotic cysts.¹⁷ A serous cystadenoma is the most common benign epithelial tumor, accounting for 60–75 percent of all ovarian cysts. They are generally unilateral and uni-ocular in nature with an unknown etiology. Their prevalence tends to peak between the ages of 20 and 40.² Mucinous cystadenoma is another benign epithelial tumor that presents as a multilocular thin-walled cyst filled with mucinous fluid. It accounts for 12 to 15% of all ovarian cysts.⁵

Intraabdominal adhesions and decreased fertility with the early onset of menopause due to ovariectomy are possible complications following surgery for these massive ovarian cysts.² This case report demonstrates that vaginal delivery is possible in pregnancy with a giant ovarian cyst. Early detection and thorough evaluation with systematic ultrasound during the antenatal period should be encouraged, especially in resource-constrained developing countries.

4. Conclusion

Pregnancy with a huge ovarian cyst is a rare entity. The diagnosis of ovarian cysts in pregnancy has increased in tandem with the increased use of antenatal sonography during the first trimester of pregnancy. Since the prognosis is uncertain, it must be closely monitored during pregnancy. Early identification, rapid intervention, and comprehensive treatment are essential to achieving a better fetomaternal outcome. Early surgical intervention is necessary in presence of complications to ensure a favorable outcome and effective care.

5. Conflict of Interest

The authors declare that there are no conflicts of interest in this paper.

6. Source of Funding

None.

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