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Case Report

Cutting through the complexity: caesarean section with simultaneous salpingo-oophorectomy for mature dermoid cyst at term: a case report

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ABSTRACT

Adnexal masses are identified in approximately 2 to 20 out of every 1,000 pregnancies a rate that is about 2 to 20 times higher than in non-pregnant individuals of the same age group. The most frequently encountered types during pregnancy include dermoid cysts (32%), endometriomas (15%), functional cysts (12%), serous cystadenomas (11%), and mucinous cystadenomas (8%). Malignancy occurs in about 2% of cases. Most adnexal masses in pregnancy can be safely observed, with nearly 70% resolving spontaneously. However, surgical intervention is occasionally required due to symptoms, suspected malignancy, or the risk of ovarian torsion. Ultrasound is the preferred imaging modality, valued for its safety, diagnostic accuracy, and widespread availability. Dermoid cysts, in particular, can present diagnostic and management challenges during pregnancy. When surgery is necessary, the second trimester is generally the optimal window, as it allows time for possible spontaneous resolution and offers better visualization conditions due to uterine size and anatomical positioning. Nevertheless, surgery should not be delayed solely based on gestational age when there is a clear clinical indication. When performed in a setting with appropriate obstetric, anaesthetic, and neonatal support, surgical management of adnexal masses during pregnancy is typically associated with favourable outcomes for both the patient and the fetus.

Keywords: Dermoid cyst, Pregnancy, Caesarean delivery, Salpingo-oophorectomy

INTRODUCTION

Ovarian tumours are not uncommon in pregnant women, with mature cystic teratomas being the most frequently occurring type. These tumours are found commonly between 16 and 20 weeks of gestation. The link between dermoid cysts and pregnancy has been recognized since 1918.[1-3]

Dermoid cysts constitute 10% to 25% of adnexal masses and are bilateral in 10% to 15% of cases. They are the most common non-functional benign ovarian tumours in premenopausal women, accounting for 70% of adnexal masses in this group.[4,5] These cysts form when totipotent germ cells undergo abnormal differentiation, developing characteristics similar to adult skin cells.[6]

Ovarian cysts are frequently detected during routine antenatal ultrasounds, with an estimated incidence of 1–5.3% in pregnancy.[7] While the majority of these cysts resolve spontaneously, some may persist, enlarge, or result in complications such as rupture, torsion, or concern for malignancy.[8]

Among ovarian cysts that require surgical removal during pregnancy or during caesarean section, dermoid cysts account for the largest proportion at 32%, followed by serous and mucinous cystadenomas at 19%, endometriomas at 15%, functional cysts at 12%, and

paraovarian or paratubal cysts at 6%. Malignancy is identified in approximately 2% of these cases.[9]

Most diagnoses are made in the first trimester through routine ultrasound.[10] However, tumour markers can be unreliable during pregnancy due to physiological changes, which may complicate clinical decision-making.[11] While ultrasound is generally sufficient for evaluating adnexal masses, magnetic resonance imaging (MRI) can be useful in further characterizing the mass and assessing the likelihood of malignancy.[12] The management of ovarian cysts in pregnancy remains a topic of debate, particularly regarding the best timing and surgical approach.[13]

This can pose significant risks to both the mother and the fetus. Most literature supports conservative management for adnexal masses measuring ≤5 cm. However, larger masses are associated with an increased risk of torsion and a greater likelihood of requiring surgical intervention. In such cases, the diagnosis of a dermoid ovarian cyst is often documented during the antenatal period.[14-16]

CASE REPORT

A 22-year-old primigravida (G1P0) presented at 20 weeks of gestation (five months' amenorrhea) for routine antenatal care. The patient was asymptomatic at the time of evaluation in the outpatient department. During a routine ultrasound examination performed as part of the antenatal assessment, an incidental finding of a left ovarian dermoid cyst was noted, measuring 9.5 × 6.1 cm, with mixed echogenicity (including both hypoechoic and hyperechoic areas). A confirmatory ultrasonography corroborated these initial findings.

Laboratory investigations, including CA-125 measurement, were within normal limits (CA-125: 30 mg/dl). There were no ultrasonographic features suggestive of ovarian torsion, cyst rupture, or malignant transformation. The patient was thoroughly counselled regarding the benign nature of mature cystic teratomas, as well as the potential risks of complications such as torsion or rupture. Shared decision-making resulted in a plan for conservative management, including regular serial monitoring of the ovarian cyst throughout pregnancy, unless symptoms developed or a significant increase in cyst size occurred.

Serial ultrasonographic evaluations throughout the course of pregnancy demonstrated a mild interval increase in the size of the cyst to 10 × 8 cm at term gestation. The patient remained asymptomatic, with no signs of pain, torsion, or rupture. At 39 weeks' gestation, she was admitted for an elective caesarean section. Intraoperatively, a left ovarian dermoid cyst measuring 10.1 × 8.4 cm was identified (Figure 1 and 2). A left salpingo-oophorectomy was performed concurrently with the caesarean section. The cyst fluid was aspirated, yielding mucoid material (Figure 3).

Both intraoperative and postoperative periods were uneventful. The patient's vital signs remained stable throughout, and she did not experience any active bleeding. Her postoperative recovery was uncomplicated, and she was discharged in stable condition (Figure 4).

Histopathological findings

Microscopic examination of the excised ovarian cyst revealed a cyst wall lined by stratified squamous epithelium. The subepithelial layer demonstrated fibrocollagenous and fibroadipose tissue, numerous hair follicles, skin adnexal structures, and a few muscle bundles (Figure 5).

Final diagnosis

The overall histopathological features were consistent with a mature cystic teratoma (dermoid cyst).

Figure 1: Left sided dermoid cyst.

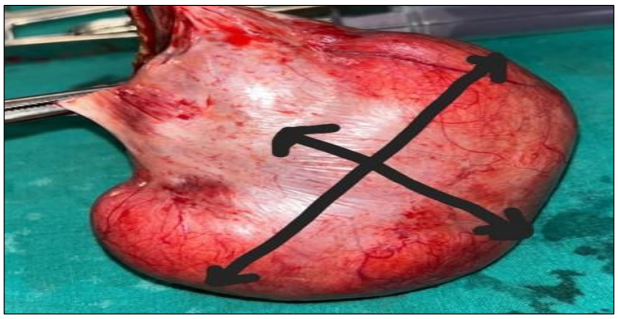

Figure 2: Measurement of cyst.

Figure 3: Mucoid collection in the cyst.

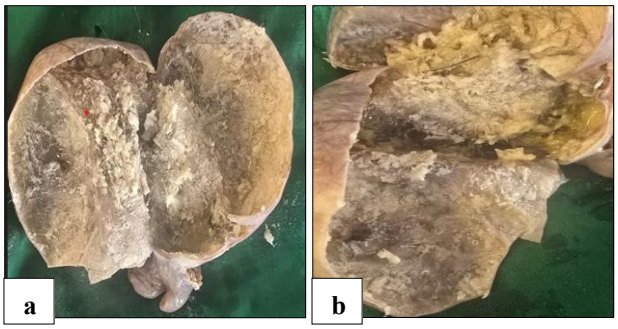

Figure 4 (a and b): Cut section of dermoid cyst.

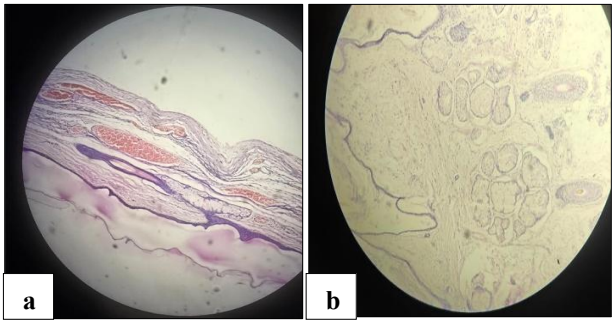

Figure 5 (a and b): Histopathological representation of cyst.

DISCUSSION

The management of ovarian dermoid cysts during pregnancy requires a careful balance between the risks associated with surgical intervention and the potential complications of conservative management. In this case, a large but asymptomatic dermoid cyst was treated with a simultaneous caesarean section and salpingo-oophorectomy at term, an approach that aligns with several strategies documented in the literature.

Some reports advocate for early surgical intervention, particularly in symptomatic cases or when imaging suggests a high risk of torsion or malignancy. For example, Dhobale et al reported an emergency laparotomy and oophorectomy at 14 weeks gestation due to acute torsion, highlighting that when complications occur, urgent surgery is often unavoidable. Current guidelines typically recommend that, if surgery is indicated during pregnancy, the second trimester is the safest window, balancing maternal well-being and fetal viability.[17,18]

On the other hand, for persistent but asymptomatic cysts, expectant management with regular ultrasound monitoring and planned surgical intervention at delivery is increasingly supported. Ntioudi et al describe a case similar to the present one, where a large ovarian cyst detected incidentally was successfully removed during an elective caesarean section.[18] This strategy, supported by recent studies, offers several advantages.

Single procedure

Combining the caesarean section and cystectomy limits the patient to one surgical event, thereby reducing anesthesia exposure, hospital stay, and overall surgical risk.

Lower emergency risk

Prevents potential complications such as torsion or rupture that could necessitate emergency surgery postpartum.

Timely histopathological diagnosis

Immediate tissue analysis enables early detection of any malignancy.

Nonetheless, this combined approach can be technically complex, requiring surgical expertise and thorough multidisciplinary planning. The literature notes increased risks of haemorrhage, injury to nearby structures, and possible loss of ovarian tissue, which may have implications for future fertility if oophorectomy is performed. In the current case, the procedure was completed without complications, aligning with the favourable outcomes reported in other elective cases managed by experienced surgical teams. Compared with emergency surgeries prompted by acute complications, this planned, combined strategy during caesarean section offers reduced maternal and fetal morbidity and avoids the challenges of managing the cyst in a staged or reactive manner.

CONCLUSION

This case report demonstrates that performing a simultaneous salpingo-oophorectomy for a mature dermoid cyst during term caesarean section can be a safe, effective, and patient-focused approach when conducted in a suitable clinical environment. This strategy reduces procedural risks, eliminates the need for a separate surgery, and helps prevent postpartum emergencies such as torsion or rupture. Achieving optimal outcomes requires thorough imaging, informed patient counselling, careful case selection, and coordinated multidisciplinary care. While management should always be tailored to the individual, this combined approach is increasingly supported by current evidence and expert guidelines for the treatment of persistent, asymptomatic adnexal masses during pregnancy.

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