

A Typical Presentation and Surgical Management of a Migrated Ovarian Cyst During Cesarean Section: A Case Report

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Received: 18 Sep. 2025; Accepted: 11 Apr. 2026

Abstract- Ovarian cysts are a common occurrence during pregnancy and are typically benign and asymptomatic. Their treatment is based on size, symptoms, and possible complications. Most cysts can be limited to the adnexal region, but as the embryo grows, anatomical displacement may cause some unexpected intraoperative findings. We report the case of a 32-year-old primigravida with a progressively enlarging ovarian cyst, initially measured at 70 mm and later reaching 95 mm by term. Repeat prenatal ultrasounds consistently localized the cyst to the right adnexal area. During elective cesarean section, however, the cyst was not found in its expected location. Extensive intraoperative exploration revealed the mass in the upper abdomen, near the liver and adherent to the posterior abdominal wall. Due to its high position, removal through the standard Pfannenstiel incision was not feasible. A paramedian incision was performed, allowing successful excision of the cyst with no intraoperative or postoperative complications. This case highlights the potential for adnexal masses to migrate during pregnancy, complicating surgical management. It underscores the importance of thorough intraoperative exploration and surgical adaptability when imaging findings do not correlate with anatomical reality. The innovative use of a paramedian incision enabled safe and effective removal of the cyst, demonstrating a successful outcome in a complex scenario. This report contributes valuable insight into the management of atypically positioned ovarian cysts during cesarean delivery.

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Acta Med Iran 2026;64(8):545-549.

<https://doi.org/10.18502/acta.v64i8.22851>

Keywords: Ovarian cyst; Cesarean section; Surgical exploration; Adnexal mass; Paramedian incision; Pregnancy complication

Introduction

Cysts in the ovary are a well-known gynecological finding, and their presence in pregnancy poses a specific problem in the diagnostics and treatment. These sacs are usually fluid-filled and most of the times harmless and asymptomatic and usually develop as a result of the ovarian follicles or corpus luteum. But they are present in a gravid uterus causing complexities that require close clinical care. Behavior, location and symptomatology of the adnexal masses may be affected by the physiological changes of pregnancy, including uterine enlargement,

hormone changes, and change in intra-abdominal pressure (1-3).

The detection of ovarian cysts during pregnancy has become increasingly frequent due to the widespread use of routine prenatal ultrasonography. Although most of the cysts spontaneously regress, the persistent or growing cysts can lead to the concern of complication like torsion, rupture, bleeding, or obstruction during childbirth. Additionally, the risk of malignancy, in rare cases, will require close monitoring and surgical operation (4,5).

Surgical management of adnexal masses during pregnancy is typically reserved for symptomatic cases or

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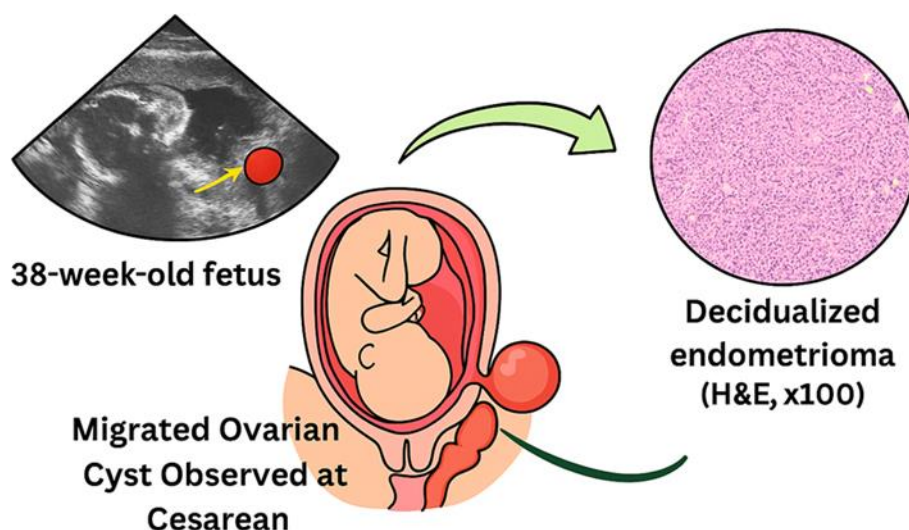
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those with suspicious features. The approach and time are critical, because both maternal and fetal outcomes must be considered. Laparoscopy is preferred in early gestation, while laparotomy may be required in later stages or during cesarean. Due to the gravid uterus, adhesions, or even to another part of the abdominal cavity, intraoperative localization of the cyst may be complicated by anatomical displacement. The dynamics of ovarian cysts during pregnancy is a point that obstetricians, gynecologists, as well as surgeons need to know. It must be multidisciplinary, incorporating imaging, clinical judgment and surgical skills. Literature is an ever-changing field that provides an insight into the most effective forms of management and sheds light on some of the rare demonstrations that do not conform to the usual anticipations.

This article is intended to record and discuss an unusual intraoperative dilemma with the sudden

migration of an ovarian cyst in a pregnancy necessitating a departure from the general surgical procedures in order to have a successful result. By presenting this case, we would like to create the awareness of a possibility of adnexal masses changing their location in the course of gestation, highlight the limitations of preoperative imaging in such scenarios, and underscore the importance of surgical adaptability.

This is a case where intra-operative identification of a migrated ovarian cyst in the upper abdomen was rare during a cesarean section, and the excision necessitated a novel paramedian application to achieve success. This report contributes to the clinical knowledge by realistic understanding of the decision-making, operative procedure, and anatomical details which will eventually inform clinicians in managing similar complex presentations with confidence and precision.



Graphical abstract: Migrated Ovarian Cyst Diagnosed During Cesarean: Management and Histology This composite visual summarizes the atypical presentation and surgical management of a migrated ovarian cyst during cesarean section

Case Report

The patient was a 32-year term, primigravida, who was referred because of obstetric indications to have an elective cesarean section. Another notable aspect of her prenatal course is that she unexpectedly had an ovarian cyst which was accidentally found during regular ultrasonography in the first trimester. The cyst was initially 70 mm in size, but continued to grow to 95 mm in size by the third trimester. Serial imaging always showed the cyst to be localized to the right adnexal area with no torsion, rupture or malignancy.

She has no history of past abdominal or pelvic surgery and her pregnancy had been uneventful. Physical therapy showed a normal gravid uterus without any masses. The laboratory results were not concerning and fetal monitoring provided encouraging parameters.

A cesarean delivery was done through an ordinary Pfannenstiel incision during which the adnexal area was examined thoroughly. Unexpectedly, the cyst was not seen where it was supposed to be. Close examination of the pelvic area, including cul-de-sac, uterine walls, and fishing ground, was done, but still the mass was elusive. The uterus was temporarily exteriorized, and dissection

extended toward the left upper quadrant, including the splenic area, without success (Figure 1).

After further investigation of the right upper abdominal area, the cyst was discovered as close to the hepatic margin as it was attached to the posterior abdominal wall. Its elevated location made it impossible to remove it using the first incision. A paramedian incision was thus made, which gave enough exposure and safe excision of the cyst. The mass was closely adherent and it had to be dissected well to prevent damage to surrounding structures.

The surgery was successfully done without any intraoperative issues. The patient did not have any complications during the procedure, and the vital signs were stable. The postoperative recovery was without any incident and both the maternal and neonatal outcomes were good. Histopathological diagnosis proved a benign serous cystadenoma (Figures 2, 3).

This case highlights not only the diagnostic

complexity posed by anatomical displacement during pregnancy but also the importance of surgical adaptability. The effective detection and successful excision of the cyst through an alternative incision illustrate the importance of observing during the operation and being able to adapt the approach in the best way possible.

Microscopic description and diagnosis

Sections show cyst wall lined by endometrial-type epithelium composed of cuboidal to columnar cells. The underlying stroma resembles endometrial stroma and is expanded with large polygonal decidualized cells having abundant eosinophilic cytoplasm and round nuclei, consistent with pregnancy-related decidual change. Areas of hemosiderin-laden macrophages are present within the stroma. No atypia or evidence of malignancy is identified (Figure 3).

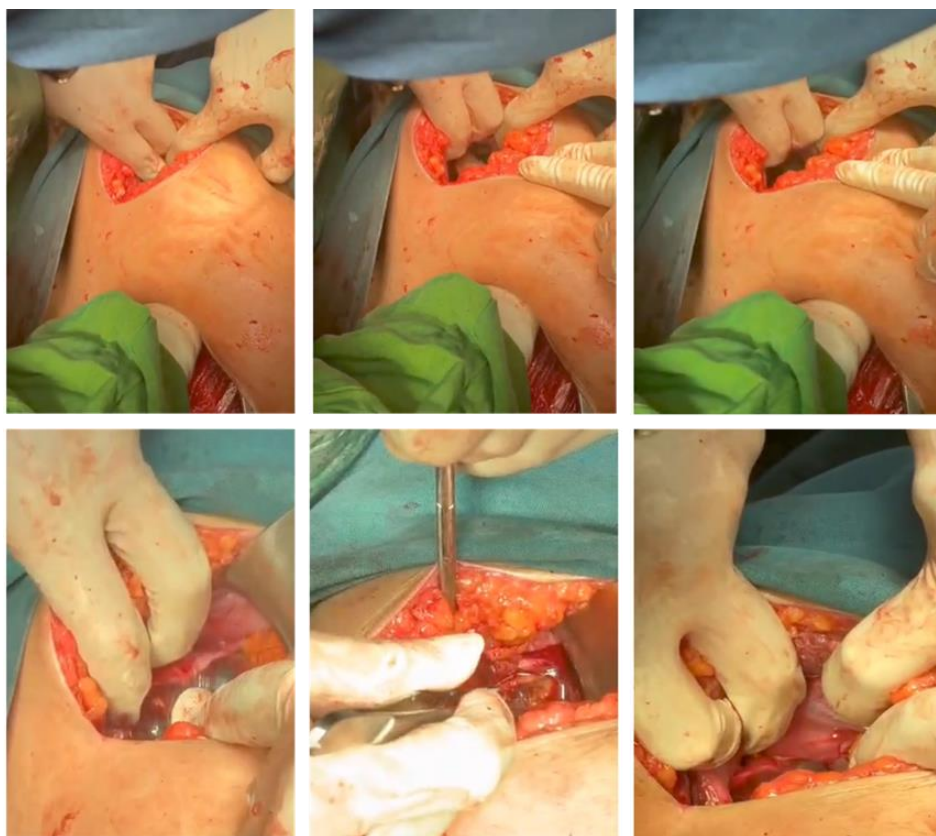


Figure 1. Intraoperative findings demonstrating the unexpected location of the ovarian cyst. Contrary to preoperative ultrasonography, which suggested a right adnexal mass, the cyst was identified intraoperatively just below the liver in the upper abdomen. The mass appeared as a smooth-walled cystic structure, adherent to surrounding tissues, consistent with migration of the adnexal cyst during pregnancy. This displacement illustrates the diagnostic challenge posed by gravid uterine enlargement and altered pelvic anatomy



Figure 2. Gross of the excised ovarian cyst. The cyst appears as a unilocular mass with a smooth external surface and dense adhesions. On sectioning, the cavity contained altered blood products consistent with an endometriotic cyst

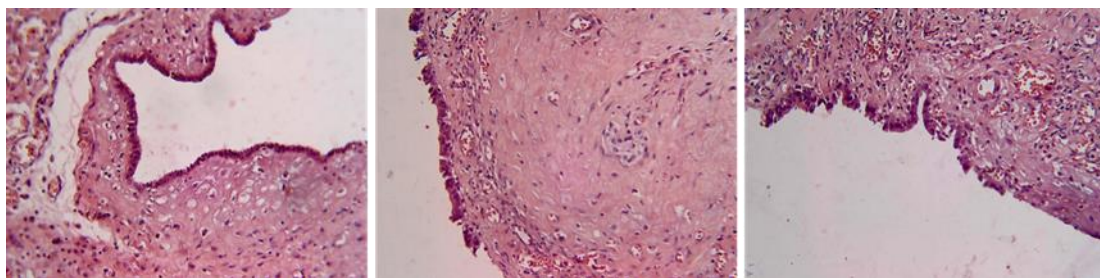


Figure 3. Histopathological features of the excised ovarian cyst (H&E stain). The cyst wall is lined by endometrial-type epithelium composed of cuboidal to columnar cells. The underlying stroma is densely cellular and resembles endometrial stroma, exhibiting prominent decidualization with large polygonal cells containing abundant eosinophilic cytoplasm and round nuclei—features consistent with pregnancy-induced hormonal changes. Scattered hemosiderin-laden macrophages are present, indicating chronic hemorrhage. No cytologic atypia or malignancy is observed. These findings confirm the diagnosis of a benign endometrioma with stromal decidualization, a pregnancy-related phenomenon that can mimic malignancy both macroscopically and radiologically

Discussion

During pregnancy ovarian cysts are usually harmless and may resolve on their own. Nonetheless, once they continue or grow, they may be complicated to treat through obstetric processes and require surgical intervention. The common practice of adnexal masses in pregnancy uses the imaging techniques of ultrasonography and MRI extensively to inform diagnosis and surgery. However, as this case illustrates, imaging may not always accurately predict intraoperative findings, particularly in the context of anatomical shifts caused by the gravid uterus.

The displacement of adnexal structures during pregnancy is a well-documented phenomenon. The expansion of the uterus causes pressure on other organs and tissues and may cause changes in the location of the ovarian masses. It may cause confusion in diagnosis particularly in cases whereby a cyst has moved into an unusual area like the upper abdomen. Past surgeries and

adhesions as well as the mobility of the cyst itself could also be the cause of its unexpected location (6,7).

The histopathological examination in the case showed the presence of an endometrioma containing stromal decidualization, which is a pregnancy related variation, with big polygonal decidualized cells in the stroma. During pregnancy, decidualization of the endometriotic tissue is a known fact stimulated by high levels of progesterone. Although benign in nature, the changes may present like malignancy both radiologically and macroscopically and in some cases, cause intraoperative concern. Hemosiderin-containing macrophages also confirm that the lesion is chronic. Of significance, no atypia or malignancy was identified, confirming the benign nature of the mass.

Intraoperative challenges arise when the cyst is not found in its supposed location. The surgeons should then rely on a systematic and thorough exploration of the abdominal cavity, extending beyond the pelvic region. This is not only limited to anatomical knowledge but also

flexibility in the surgery. The resolution to prolong the incision beyond a standard Pfannenstiel to a paramedian one in the described case played a critical role in success of excision. This flexibility is necessary in dealing with complicated or unusual presentations.

The difficulty in separating the cyst due to adhesions also underscores the importance of gentle tissue handling and meticulous dissection. The avoidance of trauma is vital in pregnant women to prevent damage to the uterine integrity and fetal health. The joint efforts of obstetricians and general surgeons could be useful in that situation, especially in case the mass does not lie within the typical gynecological domain. (2,8).

This case therefore contributes to the growing body of literature emphasizing two key points: first, the possibility of adnexal tumors moving in pregnancy to make localization during surgery more challenging; and second, that the presence of decidualized endometriomas is a benign, pregnancy-related phenomenon that can mimic malignancy. Collectively, these results highlight the importance of vigilance, flexibility, and the involvement of multiple disciplines in the management of adnexal masses during pregnancy.

This case exemplifies the complexity and unpredictability of managing adnexal masses during pregnancy. The fact that a large ovarian cyst changed its usual position in the adnexa and relocated to the upper abdomen was also a great intraoperative challenge. Although preoperative imaging was limited and an ordinary cesarean cut restrictive, the surgical team was flexible and accurate and applied the approach to paramedian incision and eventually got successful excision.

This innovation is in the identification and removal of a cyst in an unusually inappropriate place as well as the strategic decision-making and flexibility of the surgery that brought maternal safety and preserved reproductive anatomy. This result indicates the significance of a wide differentiated diagnosis, intraoperative exploration, and readiness to change surgical plans when run into unforeseen circumstances.

These cases help to emphasize the importance of increased attention to anatomical variability in the case of pregnancy and justify the importance of interdisciplinary cooperation. This report will make a valuable addition to

the literature and provide useful advice to clinicians who face such situations effectively, because the patient experienced a rare presentation and was successfully managed.

Acknowledgements

We would like to thank all participants in this study for their utmost cooperation and interaction with us. We also appreciate the cooperation that the employees of Sayad Shirazi Hospital provided to our team.

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