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Case Report

Mature cystic teratoma simulating caesarean scar pregnancy: a rare case report

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ABSTRACT

Mature cystic teratomas (dermoid cysts) are common benign ovarian germ cell tumours that usually demonstrate characteristic radiological features. However, coexisting pelvic pathology and altered postoperative anatomy may occasionally result in misleading imaging appearances, posing a significant diagnostic challenge. Caesarean scar pregnancy (CSP) is a rare but potentially life-threatening form of ectopic pregnancy that requires prompt recognition and appropriate management. We report the case of a 30-year-old multiparous woman with a previous lower segment caesarean section who presented with heavy prolonged menstrual bleeding and foul-smelling vaginal discharge. Initial ultrasonography suggested a left ovarian dermoid cyst with bilateral hydrosalpinx. However, magnetic resonance imaging (MRI) performed at a tertiary centre demonstrated an extrauterine gestational sac containing fetal skeletal structures communicating with the uterine cavity through a previous caesarean scar, raising suspicion of CSP. The absence of pregnancy-related symptoms and a negative serum β-human chorionic gonadotropin level prompted further clinical evaluation. Exploratory laparotomy revealed a left ovarian mature cystic teratoma densely adherent to the previous caesarean scar, bilateral pyosalpinx, extensive pelvic adhesions, and a uterine scar defect with scar endometriosis. Histopathological examination confirmed the diagnosis. This case illustrates an unusual diagnostic pitfall in which the combined presence of calcified components within the dermoid cyst, a previous caesarean scar defect, dense pelvic adhesions, bilateral pyosalpinx, and scar endometriosis created an MRI appearance closely resembling a CSP. Careful clinicoradiological correlation and integration of laboratory findings remain essential to avoid misdiagnosis and guide appropriate surgical management.

Keywords: Mature cystic teratoma, Dermoid cyst, Caesarean scar pregnancy, Magnetic resonance imaging, Diagnostic dilemma, Ovarian neoplasm

INTRODUCTION

Mature cystic teratomas (dermoid cysts) are the most common benign ovarian germ cell tumours, accounting for approximately 10-20% of all ovarian neoplasms in reproductive-age women.[1,2] These tumours are composed of well-differentiated tissues derived from two or three embryonic germ layers and are typically diagnosed by their characteristic imaging features, including the presence of fat, hair, sebaceous material, and calcifications.[3] Ultrasonography remains the first-line imaging modality for adnexal masses, while MRI provides superior tissue characterization in complex or indeterminate cases.[4]

CSP is a rare but potentially life-threatening form of ectopic pregnancy in which gestational sac implants within the myometrium and fibrous tissue of a previous caesarean scar.[5,6] Incidence of CSP is estimated at 1 in 1800 to 1 in 2500 pregnancies, and it correlates closely with the rising global caesarean delivery rates.[12] In India, National Family Health Survey (NFHS-5) reported a caesarean rate of

21.5%, contributing to an increased incidence of scar-related complications.[7,8] Early and accurate diagnosis of CSP remains paramount, as delayed recognition may lead to life-threatening haemorrhage, uterine rupture and progression to placenta accreta spectrum.[13]

Although both entities are well recognized individually, their imaging features may occasionally overlap when altered postoperative anatomy and coexisting pelvic pathology distort normal anatomical relationships. We present an unusual case in which a mature cystic teratoma densely adherent to a previous caesarean scar, in the setting of bilateral pyosalpinx, scar endometriosis, and extensive pelvic adhesions, produced MRI findings closely mimicking a CSP.

CASE REPORT

A 30-year-old woman (P1L1) presented to the Department of Obstetrics and Gynaecology at SGT Hospital with heavy and prolonged menstrual bleeding for one and a half years, associated with foul-smelling white vaginal discharge. She had undergone a lower segment caesarean section (LSCS) two years earlier for fetal distress, with an uneventful postoperative recovery. Menstruation resumed six months after lactational amenorrhoea, following which she experienced persistently heavy menstrual bleeding. Her medical and family histories were unremarkable, and general examination was within normal limits.

Pelvic ultrasonography performed in August 2025 revealed a 6.5×6 cm left adnexal solid-cystic lesion, suggestive of a mature cystic teratoma, along with bilateral hydrosalpinx. Serum tumour markers showed CA-125 of 83 U/mL, while β-hCG was 1.14 mIU/mL, excluding pregnancy. Serum CEA, AFP, and inhibin levels were within normal limits.

Subsequent MRI performed at a tertiary care centre in December 2025 suggested an extrauterine gestational sac containing fetal skeletal structures and placenta within the left adnexa, communicating with uterine cavity through a previous LSCS scar defect, raising suspicion of CSP. However, the MRI findings were inconsistent with the patient's clinical presentation and negative β-hCG level.

On examination at our institution, white mucoid discharge was noted on per speculum examination. Bimanual examination revealed a retroverted uterus with a 5×5 cm firm mass palpable in the anterior and left lateral fornix, along with left adnexal fullness and tenderness. Cervical cytology showed an inflammatory smear, while endometrial biopsy demonstrated acute inflammatory infiltrates without granulomatous disease. Acid-fast bacilli testing was negative. Following a course of antibiotics, her abdominal pain and vaginal discharge improved.

Considering discrepancy between radiological findings and clinical evaluation, a provisional diagnosis of left ovarian dermoid cyst with associated hydrosalpinx was made. After informed consent, exploratory laparotomy was undertaken.

Extensive pelvic adhesions were encountered intraoperatively. The omentum, urinary bladder, and uterovesical fold were densely adherent to a cystic pelvic mass. Adhesiolysis revealed a thick-walled left ovarian cyst densely adherent to the anterior uterine wall near the previous LSCS scar (Figure 1). A 3-cm uterine scar defect was identified, excised, and repaired. Bilateral fallopian tubes were markedly dilated and tortuous, consistent with pyosalpinx. Bladder integrity was confirmed with a methylene blue dye test.

A left ovarian cystectomy with bilateral salpingectomy was performed. The cyst contained sebaceous material, hair, calcified bony fragments, and a tooth, consistent with a mature cystic teratoma (Figure 2). Bilateral salpingectomy was performed because of severe tubal disease (Figure 3). Postoperative recovery was uneventful.

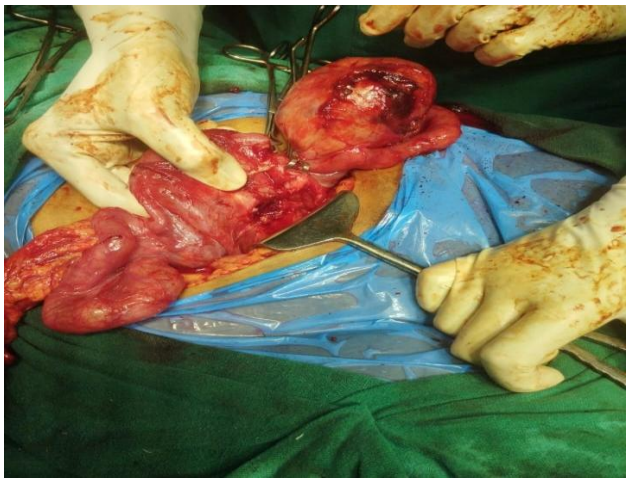

Figure 1: Intraop photograph showing extensive pelvic adhesions with a thick-walled left ovarian cyst densely adherent to the anterior uterine wall near the previous LSCS scar.

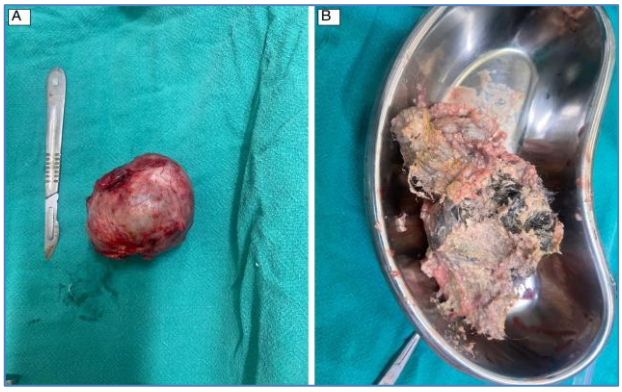

Figure 2: (A) Gross specimen of the excised left ovarian cyst. (B) Cut section showing characteristic dermoid contents including sebaceous material, hair, and calcified bony fragments.

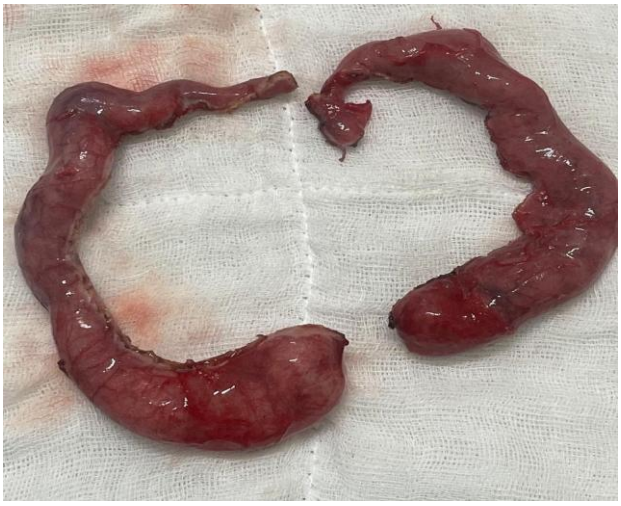

Figure 3: Gross specimen of bilateral fallopian tubes following salpingectomy demonstrating marked dilatation and tortuosity, consistent with chronic pyosalpinx.

Operative findings

Exploratory laparotomy revealed extensive pelvic adhesions. The omentum was densely adherent to a bulging suprapubic cystic mass, while the uterovesical fold and posterior wall of the urinary bladder were firmly adherent to the lesion (Figure 1).

Careful adhesiolysis delineated the pelvic anatomy and revealed a thick-walled cyst arising from the left ovary, densely adherent to the anterior uterine wall near the previous LSCS scar. Following adhesiolysis, a 3-cm defect was identified at the previous uterine scar. The scar margins were excised for histopathological examination, and the defect was repaired with interrupted sutures. Bilateral fallopian tubes were markedly dilated, tortuous, and retort-shaped, consistent with pyosalpinx. Bladder integrity was confirmed intraoperatively by methylene blue dye testing.

A left ovarian cystectomy with bilateral salpingectomy was performed. On sectioning, the cyst contained sebaceous material, hair, calcified bony fragments, and a tooth, consistent with a mature cystic teratoma (Figure 2). Bilateral salpingectomy was performed because of severe tubal disease (Figure 3).

Histopathological findings

Gross examination of the ovarian cyst demonstrated characteristic dermoid contents, including sebaceous material, hair, calcified bone, and a tooth.

Microscopic examination confirmed a mature cystic teratoma (dermoid cyst) of the left ovary. Histopathological evaluation of the excised uterine scar margins revealed scar endometriosis, while both fallopian tubes showed features consistent with chronic pyosalpinx.

DISCUSSION

Mature cystic teratomas are the most common benign ovarian germ cell tumours and are usually diagnosed accurately because of their characteristic imaging features, particularly the presence of fat, sebaceous material, and calcifications.[1-3] Ultrasonography remains the first-line imaging modality, whereas MRI provides superior tissue characterisation in complex adnexal masses.[4] However, recent studies have highlighted that atypical MRI presentations of dermoid cysts-particularly those lacking a dominant fat component or demonstrating predominantly solid or calcified elements-may be misinterpreted as other pelvic pathologies.[14] Furthermore, the diagnostic accuracy of MRI may be compromised when post-surgical adhesions, chronic inflammation, or coexisting pathology distort normal pelvic anatomy, thereby altering the spatial relationships between pelvic structures.[15]

The present case represents an unusual diagnostic challenge in which MRI findings were highly suggestive of a CSP. The calcified bony elements within the dermoid cyst resembled fetal skeletal structures on MRI, while the sebaceous cyst wall simulated the appearance of a gestational sac with placental tissue. The proximity of the lesion to a previous LSCS scar and the presence of a scar defect created the appearance of communication with the uterine cavity. These findings, combined with dense pelvic adhesions that obliterated the tissue planes between the ovarian cyst and the uterine scar, significantly distorted the pelvic anatomy and contributed to the radiological misinterpretation. It is worth noting that MRI, despite its superiority in tissue characterisation, has a reported sensitivity of 80.4% and specificity of 98.6% for CSP diagnosis, and false positives may occur when calcified pelvic masses are juxtaposed to caesarean scars.[16]

An important clue against the diagnosis of CSP was the negative serum β-hCG level (1.14 mIU/mL), which was fundamentally inconsistent with the MRI findings of an apparent gestational sac.[5,6] A viable or even non-viable ectopic pregnancy would be expected to produce detectable β-hCG levels. In our case, the negative β-hCG served as a critical biochemical safeguard that prevented potentially hazardous interventions such as methotrexate therapy or emergency uterine artery embolisation, which would have been considered had the MRI findings been accepted at face value.[12] In addition, the patient's clinical presentation of prolonged abnormal uterine bleeding without amenorrhoea or symptoms suggestive of pregnancy further favoured a non-obstetric pathology. This experience reinforces the principle that no single imaging modality should dictate clinical decision-making in isolation; biochemical correlation is indispensable.

In our clinical experience, the management of this case required a considered, multidisciplinary approach. When the MRI report from the referral centre was received, there was an understandable inclination to pursue urgent intervention for a presumed caesarean scar ectopic

pregnancy-a condition that the 2022 Society for Maternal-Fetal Medicine (SMFM) Consult Series classifies as requiring prompt treatment to prevent catastrophic haemorrhage and loss of fertility.[13] However, careful re-evaluation of the clinical timeline-the absence of amenorrhoea, a normal menstrual pattern (albeit heavy), and a completely negative pregnancy test-compelled our team to step back and reconsider the diagnosis. This deliberate pause, though difficult in the face of alarming imaging findings, ultimately proved pivotal in avoiding unnecessary and potentially harmful interventions. We believe this underscores the importance of clinical equipoise and the courage to question radiological conclusions when they are discordant with the clinical picture.

Another notable feature was the coexistence of bilateral pyosalpinx and scar endometriosis, both of which likely contributed to chronic inflammation, dense adhesions, and distortion of normal pelvic anatomy. Scar endometriosis is an increasingly recognised complication following caesarean delivery, with a reported incidence of 0.03-0.45%.[9,10] In a multicentre study by Bendifallah et al caesarean scar endometriosis was found to coexist with other pelvic pathologies in a significant proportion of cases, complicating both diagnosis and surgical planning.[9] In our patient, the scar endometriosis likely promoted chronic inflammation and fibrosis at the scar site, which facilitated the adherence of the adjacent dermoid cyst to the scar and contributed to the MRI appearance of a mass communicating with the uterine cavity. Similarly, chronic pyosalpinx obscured anatomical planes and altered the spatial relationship between pelvic organs, further complicating radiological assessment and mimicking features of ectopic pregnancy with associated adnexal pathology.

Only a limited number of reports have described dermoid cysts presenting as caesarean scar pathology. Singh et al. reported a similar case of a dermoid cyst adherent to a previous caesarean scar mimicking scar pregnancy, which was confirmed only at surgery.[11] Choudhary et al. in their 2023 review of caesarean section scar pregnancy pitfalls emphasised that calcified pelvic masses, including dermoid cysts and gossypibomas, may produce imaging appearances indistinguishable from CSP when located near the scar site.[15] However, to our knowledge, the specific combination of a mature cystic teratoma, bilateral pyosalpinx, scar endometriosis, and a previous uterine scar defect producing MRI findings suggestive of CSP-as seen in our case-has not been previously reported in the literature. Surgical exploration and histopathological examination were therefore essential in establishing the correct diagnosis and facilitating definitive treatment.

Based on our experience with this case and a review of the recent literature, we propose that clinicians encountering imaging findings suggestive of CSP should adopt a systematic diagnostic approach: (1) confirm the pregnancy status with serum β-hCG as the first and most critical step; (2) correlate imaging findings with the clinical presentation, including menstrual history and symptoms; (3) consider repeat imaging with a different modality (e.g., contrast-enhanced MRI or three-dimensional transvaginal ultrasound) when discordance exists between clinical and radiological findings; and (4) involve a multidisciplinary team comprising gynaecologists, radiologists, and, when indicated, surgical specialists before proceeding to intervention. This approach may help prevent misdiagnosis and avoid unnecessary interventions in cases where benign pelvic pathology mimics CSP.

This case reinforces the importance of maintaining a broad differential diagnosis when imaging findings are discordant with the clinical picture. With the increasing global caesarean section rates and the corresponding rise in scar-related complications, radiologists and clinicians alike must be aware that post-caesarean altered anatomy can create imaging mimics of serious pathology.[13,15] Careful clinicoradiological correlation, supported by biochemical investigations and, when necessary, intraoperative assessment, is crucial in avoiding unnecessary interventions and ensuring appropriate management.

A negative serum β-hCG is the single most important discriminator against CSP and must be obtained before initiating any pregnancy-specific intervention. Dense adhesion of adnexal pathology-particularly calcified dermoid cysts-to a previous caesarean scar can create MRI appearances closely resembling CSP. Coexisting pelvic pathology such as pyosalpinx and scar endometriosis can compound diagnostic confusion by distorting anatomical planes. Multidisciplinary discussion integrating clinical, biochemical, and radiological findings is essential when imaging-clinical discordance exists. A systematic diagnostic approach (β-hCG first, clinical correlation, repeat imaging, multidisciplinary review) is recommended when CSP is suspected.

CONCLUSION

Mature cystic teratomas usually exhibit characteristic imaging features; however, atypical presentations in the setting of altered post-caesarean anatomy may pose significant diagnostic challenges. In the present case, the combined presence of calcified elements within the dermoid cyst, a previous lower uterine segment scar defect, dense pelvic adhesions, bilateral pyosalpinx, and scar endometriosis created an MRI appearance closely resembling a CSP. This experience underscores that the integration of clinical history, serum β-hCG levels, and careful clinicoradiological correlation is essential to avoid diagnostic pitfalls. A negative pregnancy test in the context of imaging findings suggestive of ectopic pregnancy should prompt clinicians to reconsider the diagnosis rather than proceed with potentially harmful interventions. As caesarean delivery rates continue to rise globally, awareness of such diagnostic mimics becomes increasingly important for clinicians and radiologists alike.

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REFERENCES

1. Shareef S, Ettefagh L. Dermoid cyst. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025.
2. Comerci JT Jr, Licciardi F, Bergh PA, Gregori C, Breen JL. Mature cystic teratoma: a clinicopathologic evaluation of 517 cases and review of the literature. Obstet Gynecol. 1994;84(1):22-8.
3. Caspi B, Appelman Z, Rabinerson D, Zalel Y, Tulandi T, Shoham Z. The growth pattern of ovarian dermoid cysts: a prospective study in premenopausal and postmenopausal women. Fertil Steril. 1997;68(3):501-5.
4. Kaijser J, Bourne T, Valentin L, Jurkovic D, Van Holsbeke C, Timmerman D et al. Improving strategies for diagnosing ovarian cancer using simple rules and International Ovarian Tumour Analysis. Ultrasound Obstet Gynecol. 2013;41(1):9-20.
5. Timor-Tritsch IE, Monteagudo A, Cali G, Palacios-Jaraquemada JM, Maymon R, Arslan AA, et al. Cesarean scar pregnancy and early placenta accreta share common histology. Ultrasound Obstet Gynecol. 2014;43(4):383-95.
6. Rotas MA, Haberman S, Levgur M. Cesarean scar ectopic pregnancies: etiology, diagnosis, and management. Obstet Gynecol. 2006;107(6):1373-81.
7. International Institute for Population Sciences (IIPS), ICF. National Family Health Survey (NFHS-5), India 2019-21. Mumbai: IIPS. 2021.
8. World Health Organization. WHO statement on caesarean section rates. Geneva: WHO. 2015.
9. Bendifallah S, Puchar A, Borghese B, Dousset B, Fauconnier A, Darai E. Caesarean scar endometriosis: a multicentre study of diagnosis and management. J Minim Invasive Gynecol. 2019;26(3):470-7.
10. Vercellini P, Vigano P, Somigliana E, Fedele L. Endometriosis: pathogenesis and treatment. Nat Rev Endocrinol. 2014;10(5):261-75.
11. Singh P, Kapur K, Singla S, Noor N. Dermoid cyst adherent to previous caesarean scar mimicking scar pregnancy: a diagnostic dilemma. J Clin Diagn Res. 2016;10(4):QD06-7.
12. Kłobuszewski B, Szmygin M, Nieoczym K, Kłobuszewska O, Woźniak S, Pyra KK. Advances in treating cesarean scar pregnancy: a comprehensive review of techniques, clinical outcomes, and fertility preservation. Med Sci Monit. 2024;30:e943550.
13. Kaur A, Gajera A, Woldanski P. Cesarean scar ectopic pregnancy: a do-not-miss diagnosis. Radio Graphics. 2024;44(7):e230199.
14. Comune R, Miele V, La Porta M. MRI assessment of cesarean scar pregnancies: a case series. J Clin Med. 2023;12(23):7241.
15. Choudhary S, Garg R, Madan S. Scarred for life: a review of cesarean section scar pregnancy and potential pitfalls in diagnosis. J Ultrasound. 2023;26(4):849-60.
16. Wu Q, Liu X, Zhu L. Diagnostic performance of magnetic resonance imaging and ultrasonography on the detection of cesarean scar pregnancy: a meta-analysis. Medicine (Baltimore). 2021;100(48):e27532.
17. Miller R, Gyamfi-Bannerman C, Society for Maternal-Fetal Medicine (SMFM). Society for Maternal-Fetal Medicine Consult Series #63: cesarean scar ectopic pregnancy. Am J Obstet Gynecol. 2022;227(3):B9-20.

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