Progressively enlarged Caesarean section scar endometriosis during pregnancy: case report and literature review

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Case presentation

A 36-year-old full-term pregnant woman with a history of prior Caesarean section (CS) presented to Peking Union Medical College Hospital in November 2024 for a planned repeat CS. In 2017, she underwent an emergency CS due to arrest of labour. One year after surgery, ultrasound revealed a 1-cm nodule near the incision, suspected to be abdominal wall endometriosis (AWE). The patient declined intervention at that time. On subsequent follow-up, the mass exhibited progressive enlargement and multifocal spread. Since 2019, she had experienced tenderness and aggravated menstrual-associated pain. Preconception evaluation documented a body mass index of 24.14 kg/m^2 and a 5-cm mass. She had conceived naturally. During pregnancy, the mass demonstrated continued growth, with accelerated expansion noted after 30 weeks of gestation. At 36 weeks of gestation, outpatient assessment revealed a cystic mass measuring 10 × 6 cm^2 in the subcutaneous tissue of the left scar margin, with focal bluish discolouration of the overlying skin. Ultrasound revealed two confluent masses with a total size of 9.9 × 4.5 × 2.6 cm^3, with prominent internal vascularity (Fig 1).

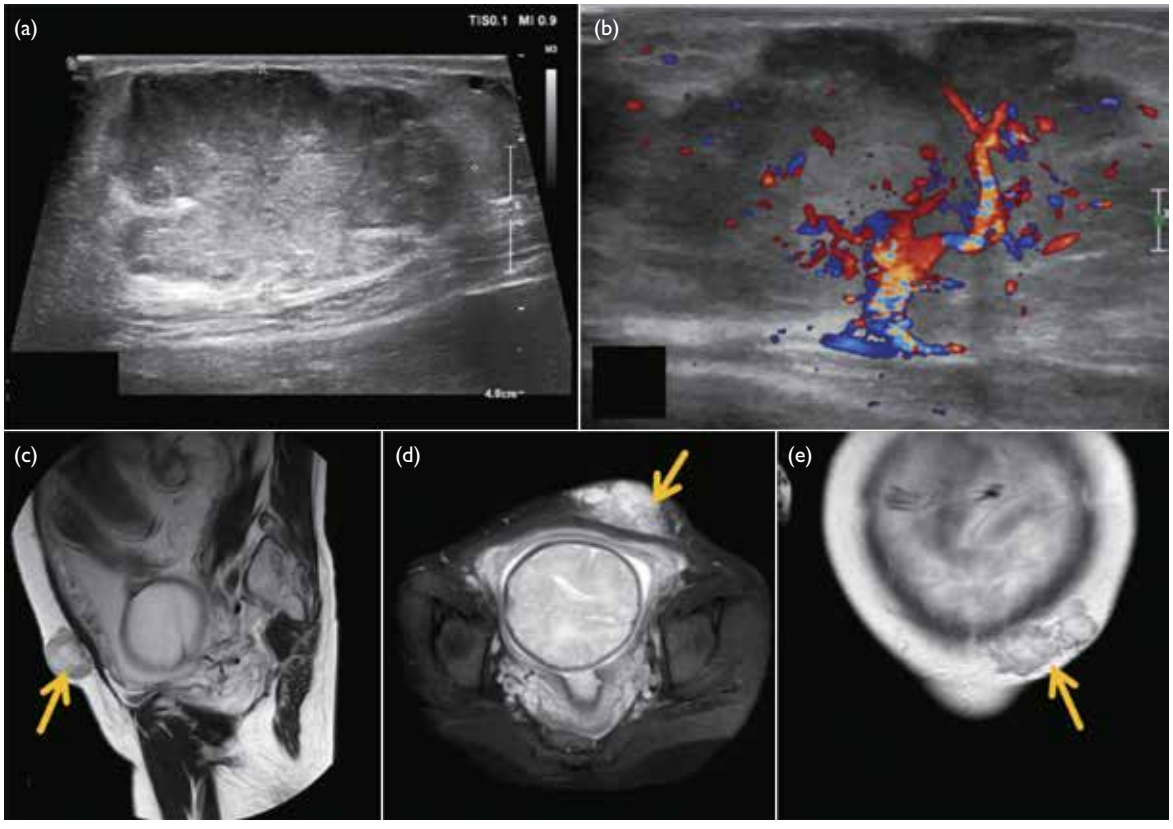

FIG 1. Ultrasound of the abdominal wall mass (a) showing abundant internal blood flow signals (b). (c) Sagittal T2-weighted imaging, (d) axial T2-weighted fat-saturated imaging, and (e) coronal T2-weighted imaging of fetal and abdominal wall mass. The yellow arrows indicate lobulated, coalesced lesions in the adipose layer of the left abdominal wall. The lesion appears heterogeneously hyperintense on T2-weighted imaging

Preoperative magnetic resonance imaging (MRI) was performed to evaluate the depth of invasion, revealing two lobulated subcutaneous masses exhibiting mixed long T1 and slightly long T2 signals, with an invasion depth of 3.6 cm (Fig 1).

The patient underwent elective CS under spinal anaesthesia. The original surgical scar was excised to ensure adequate exposure of the mass, which measured over 10 cm in diameter and extended from the subcutaneous tissue to the anterior sheath of the rectus abdominis. The lesion was carefully dissected along its superior margin under manual guidance. Once sufficient space was created, Caesarean delivery was performed. The patient was converted to general anaesthesia after delivery and the abdominal wall lesion was completely excised. An en bloc resection of the lesion was performed to avoid fragmentation and potential dissemination. In addition, the abdominal wall wound was thoroughly irrigated to minimise the risk of implantation of endometriotic tissue. Intraoperative exploration of the pelvic cavity showed no evidence of concurrent pelvic endometriosis. The 40-minute resection was followed by primary abdominal wall reconstruction without mesh. Subcutaneous drainage and compression dressings were applied. No antibiotics were administered and the patient remained afebrile. The drain was removed 3 days after surgery and the wound achieved primary healing. Both the patient and the neonate had no complications and were discharged 5 days postoperatively.

Histopathological examination confirmed that the lesion was consistent with endometriosis, showing decidual-like changes in the stroma and glandular atrophy with a tubular appearance. Immunohistochemistry revealed the lesion to be oestrogen receptor–negative and stromal progesterone receptor–positive (Fig 2).

Discussion

Abdominal wall endometriosis is a rare form of endometriosis, with a reported incidence of 0.03% to 0.4%.[1] Most cases occur near a CS scar. Previous studies have described changes in pelvic endometriosis during pregnancy,[2,3] but there is limited literature describing the progression and management of AWE during pregnancy. In this case, the patient experienced significant enlargement of scar endometriosis during pregnancy, indicating that AWE, similar to pelvic endometriotic lesions, may also gradually enlarge during gestation. The first-line treatment for AWE is surgical excision of the mass, which is typically performed in the non-

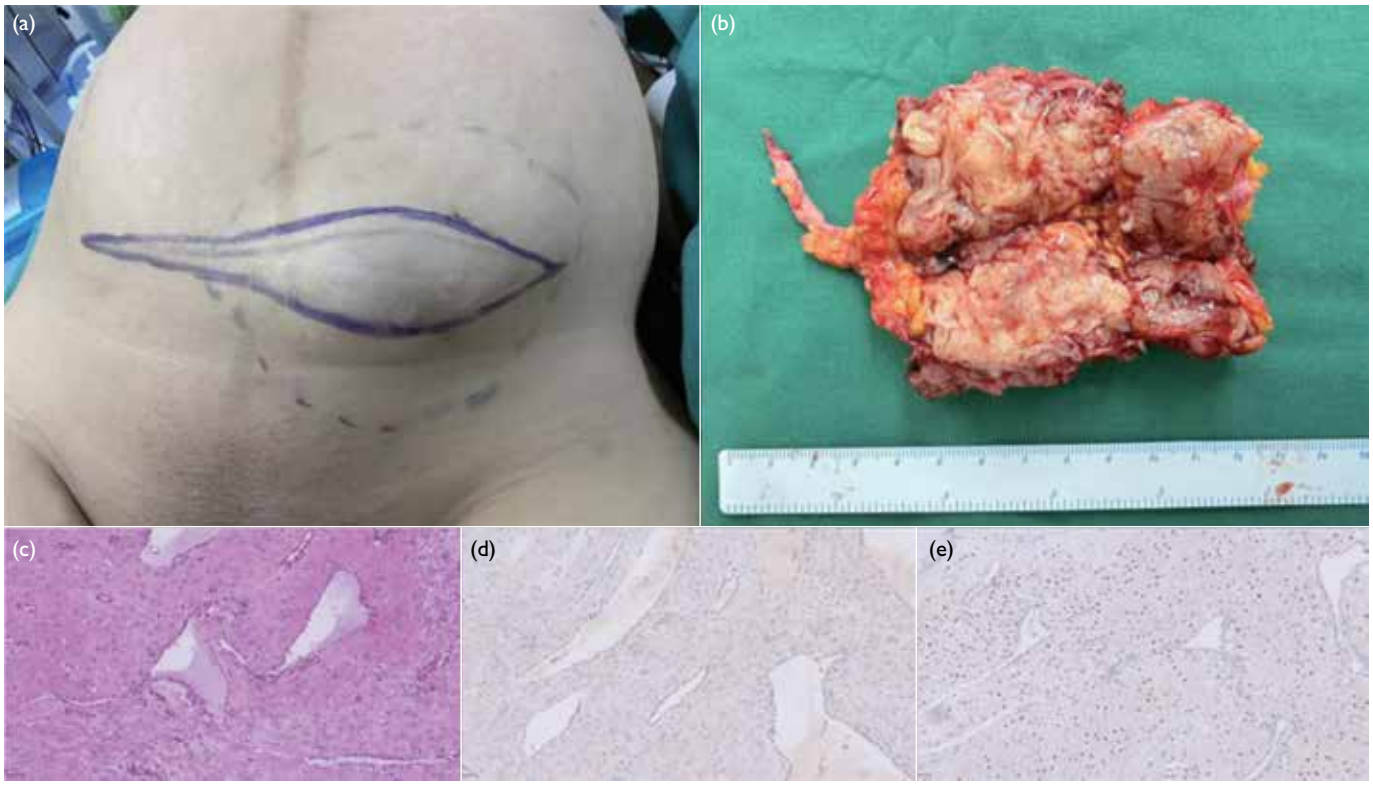

FIG 2. (a) Abdominal wall endometriosis (AWE) mass protruding beneath the skin surface below the previous Caesarean section scar in the left lower abdominal wall. (b) Post-excision sample of AWE tissue. (c) Endometrial glands with severe decidualised stroma (haematoxylin and eosin staining, ×40). Immunohistochemical staining for oestrogen receptor (d) and progesterone receptor (e) [both ×40]

pregnant period. As the lesion is often closely related to a previous CS scar, simultaneous excision may significantly increase the complexity of CS. In this case, the lesion was dissected along its margin during CS. Our retrospective study demonstrated that among 367 patients who underwent margin-based excision, the recurrence rate was 3.3%,[4] comparable to or lower than rates reported in previous studies.[5,6] This suggests that excision along the lesion margin is sufficient and does not increase the risk of recurrence. After thorough assessment, excision during CS may be considered if the lesion is small and demonstrates minimal depth of invasion. Given the potential for lesion enlargement and the challenges of abdominal wall reconstruction during pregnancy, timely surgical intervention is particularly advisable for patients planning future pregnancies.

Preoperative evaluation is also crucial. Our previous research classified patients into three types according to the depth of lesion invasion.[4] This patient could be clinically classified as Type I AWE. Given the minimal muscular invasion and stretching of the abdominal wall due to the gravid uterus, primary closure without mesh placement was feasible. This highlights the importance of comprehensive preoperative assessment to guide the choice of surgical approach and anticipate operative complexity.

Decidualisation of endometriosis can occur under the influence of high progesterone levels.[7] Since Pellegrini[8] first described this condition in 1982, only nine cases of decidualised AWE have been reported.[2,8-15] In these cases, the mean age was 28.6 ± 5.8 years, and the mean latency from first CS to mass presentation was 29.6 ± 24.2 months. The depth of invasion in these patients differs from that in non-pregnant patients. Our previous research[4] showed that in non-pregnant patients, AWE lesions most commonly invade the rectus abdominis muscle. In contrast, existing literature indicates that in pregnant patients, lesions were confined to the subcutaneous and adipose layers, with only one case showing invasion of the rectus abdominis. Enlargement during pregnancy was reported in two patients, with the maximum diameter reaching 3 cm.[9,10] Six patients underwent lesion excision during CS,[2,8,10-13] and one underwent elective surgery after CS.[14] In our case, the patient experienced rapid enlargement of the AWE during pregnancy and imaging raised a suspicion of malignancy. This suggests that decidualised AWE during pregnancy may present with features mimicking malignancy. Histopathological examination in our patient revealed a positive progesterone receptor expression and absence of oestrogen receptor expression, indicating that the intrinsic biological characteristics of the lesion may have contributed to its abnormal growth. Limited treatment options during pregnancy pose additional risks to maternal and fetal safety. Therefore, in patients with AWE who wish to conceive in the future, surgery should ideally be performed before pregnancy.

Author contributions

Concept or design: Y Wu, J Leng, Y Dai.
Acquisition of data: Y Wu, J Shi, X Li.
Analysis or interpretation of data: Y Li.
Drafting of the manuscript: Y Wu.
Critical revision of the manuscript for important intellectual content: J Leng, Y Dai.

All authors had full access to the data, contributed to the study, approved the final version for publication, and take responsibility for its accuracy and integrity.

Conflicts of interest

All authors have disclosed no conflicts of interest.

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Ethics approval

This study was approved by the Institutional Review Board of Peking Union Medical College Hospital, China (Ref No.: K23N4099). Informed consent was obtained from the patient for all treatments and procedures, and for publication of the case report with the accompanying clinical images.

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