CASE REPORT

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Caesarean scar endometriosis involving the uterine wall

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ABSTRACT

Endometriosis in a surgical scar is a rare but important clinical phenomenon that can lead to significant morbidity, especially in women with a history of caesarean sections. We present a case of a 35-year-old woman with chronic right iliac fossa pain and prolonged, heavy menstrual bleeding (HMB) with minimal improvement after hormonal treatment with the combined oral contraceptive pill. She had undergone two prior caesarean deliveries, and imaging raised the suspicion of utero-abdominal wall scar endometriosis at the site of the previous uterine incision. Intraoperative findings confirmed a mass extending from the abdominal wall into the uterine scar. The lesion was completely excised, and histopathology confirmed endometriosis. Post-surgical recovery was uneventful, with resolution of pain and HMB. This case highlights the importance of considering scar endometriosis in the differential diagnosis of abdominal wall masses and pain in patients following caesarean section, and underscores that surgical excision can be curative.

Keywords: Abdominal wall, caesarean section, endometriosis, heavy menstrual bleeding, pain, scar endometriosis

Introduction

Endometriosis is a common gynaecological disorder characterised by the presence of functional endometrial glands and stroma outside the uterine cavity. While it typically involves pelvic structures, extra-pelvic endometriosis is rare. One such manifestation is scar endometriosis, also called incisional endometriosis, where endometrial tissue implants in a surgical scar, most often following obstetric or gynaecological surgeries. Caesarean section scars are the most frequently reported site, with incidence estimates ranging from 0.03% to 0.4% of caesarean deliveries. A 30-year review reported an incidence of about 0.08% after caesareans.[1] The majority of scar endometriosis cases involve the abdominal wall alone (74.1-84.6%), while 15-26% of cases have both abdominal wall and uterine/pelvic involvement.[2,3,4]

Scar endometriosis usually presents as a painful nodule at or near the scar, often with cyclical pain associated with menses, although up to half of cases can present with non-cyclical pain.[5] These lumps are sometimes misdiagnosed as an incisional hernia, abscess, granuloma, lipoma, or desmoid tumor. The pathogenesis is most commonly attributed to mechanical implantation of endometrial cells into the surgical wound during caesarean delivery. Viable endometrial tissue from the uterine incision can implant into the abdominal wall layers and respond cyclically to hormonal stimulation. Risk factors include multiple caesarean deliveries, poor surgical technique, or inadequate irrigation of the wound.[3] Some authors suggest that failure to change gloves or instruments before closing the abdomen may also increase the risk.[6] Regardless of the exact mechanism,

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the outcome is ectopic endometrial tissue in the scar that responds to hormonal cycles. Over time (sometimes months to years after the surgery), the implant can grow and present clinically.

The interval between surgery and symptom onset is variable, ranging from as soon as 6 months to over 10-20 years in some reports.

Because of the non-specific nature of the symptoms, diagnosis is often delayed. Imaging studies such as ultrasound or magnetic resonance imaging (MRI) can be helpful to identify a mass in the abdominal wall and its characteristics, but definitive diagnosis of scar endometriosis is made only after surgical excision and histopathological confirmation.

We report here a case of an unusual presentation of caesarean scar endometriosis that involved both the abdominal wall and the uterine scar (a utero-abdominal wall endometriosis). This case is distinctive in that it demonstrates a rare contiguous extension of endometrial tissue from the uterine scar into the anterior abdominal wall, forming dense adhesions between the two structures. This presentation expands the known spectrum of caesarean scar endometriosis and underscores key aspects of diagnosis and management of this condition, and the importance of awareness among clinicians.

Case Report

Written informed consent was obtained from the patient for the publication of this case report and all associated clinical information and images, Identifying details have been removed to ensure anonymity.

A 35-year-old woman (gravida 3, para 2) presented to the gynecology clinic with complaints of chronic pain in the right lower quadrant of the abdomen for the past eight months. The pain was localised to the area of her Pfannenstiel transverse lower abdominal scar from previous caesarean deliveries. She noted that the pain often worsened during her menstrual periods. Additionally, she reported prolonged and heavy menstrual bleeding (HMB) that had improved only slightly with hormonal treatment on the combined oral contraceptive pill. She has undergone two emergency caesarean sections, three and five years previously, because of cephalopelvic disproportion. She had no known history of endometriosis or other pelvic pathology in the past.

On physical examination, the patient had a well-healed transverse lower abdominal scar. There was a palpable, approximately 2 cm firm nodule under the right lateral aspect of the scar. The nodule was mildly tender on deep palpation, and it felt adherent to deeper tissues (non-mobile). No overlying skin discoloration, sinus tract, or discharge was noted on inspection of the scar. Pelvic examination did not reveal any adnexal masses or uterine tenderness, aside from the localised area in the abdominal wall.

Transabdominal ultrasound of the scar region showed a heterogeneous mass in the right abdominal wall at the level of the rectus abdominis muscle, measuring about 2.5×2 cm. The mass had irregular margins and contained some cystic areas, with doppler evidence of minimal internal vascularity. The lesion appeared to extend to the peritoneal surface near the site of the uterine incision, but the uterus and ovaries appeared normal on imaging. An MRI was subsequently performed for better delineation, and it demonstrated the uterus is anteflexed and retroverted in position and fixed to the ventral abdominal wall at about 65mm below the umbilical level. The lesion appeared hypointense on T1-weighted images and hyperintense on T2-weighted images, with mild post-contrast enhancement, consistent with endometriotic tissue. A surgical scar was seen with a niche at the anterior wall of the uterus 4cm away from the uterine fundus. There was an apparent connection of the scar to a small midline anterior abdominal wall lesion measuring about 1.5x1x1.3cm (CCxAPxTS) that seemed to be contiguous with the anterior uterine wall (Figure 1) at the site of the prior hysterotomy. These findings were highly suggestive of caesarean scar endometriosis with possible involvement of the uterine scar.

Figure 1. Magnetic resonance imaging sagittal view showing ventrofixated uterus and the lesion of uterine scar endometriosis measuring about 1.5x1x1.3cm.

The patient underwent a planned diagnostic and therapeutic laparoscopy. Upon entry, dense adhesions were noted between the anterior abdominal wall and the anterior surface of the uterus along the right side of the previous caesarean section scar (Figure 2). Careful laparoscopic adhesiolysis was performed, allowing the uterus to be completely released from the abdominal wall while maintaining clear identification and preservation of the bladder. Following adhesiolysis, a well-defined, approximately 3-cm fibrotic nodule was identified within the rectus muscle and fascia, extending to and involving the uterine serosa at the site of the prior uterine incision. The lesion caused focal thickening of the anterior uterine wall but did not extend into the endometrial cavity.

The mass was excised laparoscopically in its entirety using a monopolar hook and bipolar cautery, together with a margin of surrounding scar tissue (Figures 2-4). The nodule contained thick, dark "chocolate-like" material, consistent with endometriotic content. Resection included the involved area of uterine serosa and a small portion of the anterior myometrium; the resulting ~1-cm uterine wall defect was repaired in two layers with absorbable sutures, and additional reinforcement stitches were placed to ensure integrity. The abdominal wall defect was closed primarily, as the remaining tissue after excision was sufficient for a tension-free closure. Hemostasis was secured, and intraoperative blood loss was minimal.

The excised specimen was sent for histopathological examination. Grossly, on cut section, the mass was tan-white with focal areas of haemorrhage. Microscopically, the sections showed endometrial glands and stroma dispersed within fibrous scar tissue and skeletal muscle, consistent with endometriosis. No atypia or malignant changes were observed. These findings confirmed the diagnosis of endometriosis in the caesarean scar involving the abdominal wall and uterine scar.

The patient's postoperative course was uneventful. She was discharged on the third postoperative day. At her 6-month follow-up, she reported complete resolution of abdominal pain. Her menstrual cycles had normalised, with no further prolonged bleeding. On examination, the scar was healing well with no evidence of a recurrent nodule or mass. The patient continues to remain symptom-free one year after surgery, with no signs of recurrence.

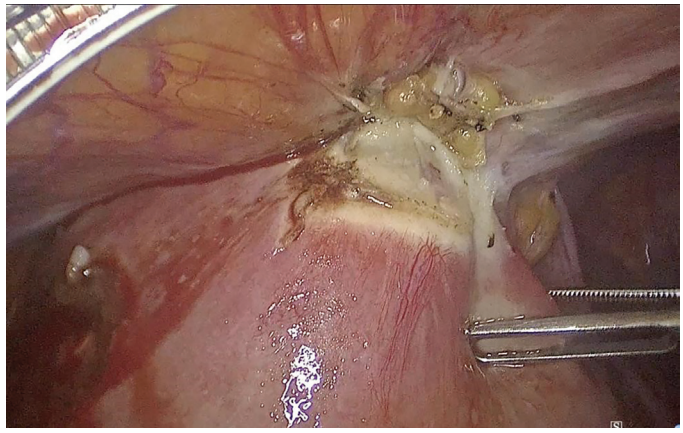

Figure 2. Intraoperative photograph of the abdominal wall endometriosis (arrow) attached to the anterior uterine wall at the scar site.

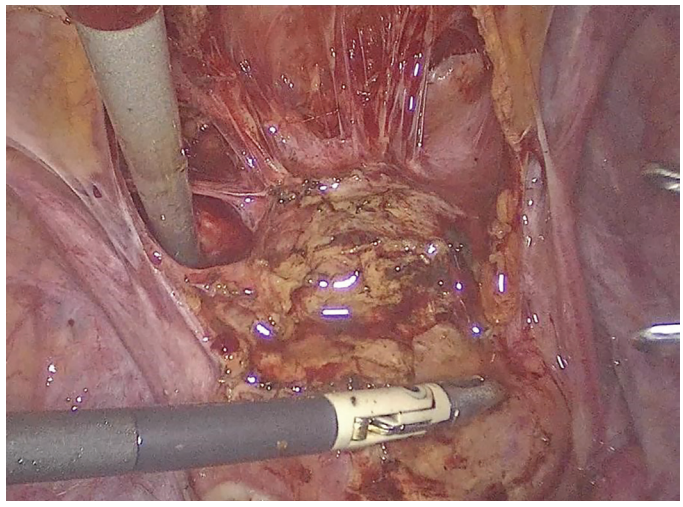

Figure 3. Intraoperative photograph of the abdominal wall endometriosis attachment to the uterus after partial dissection.

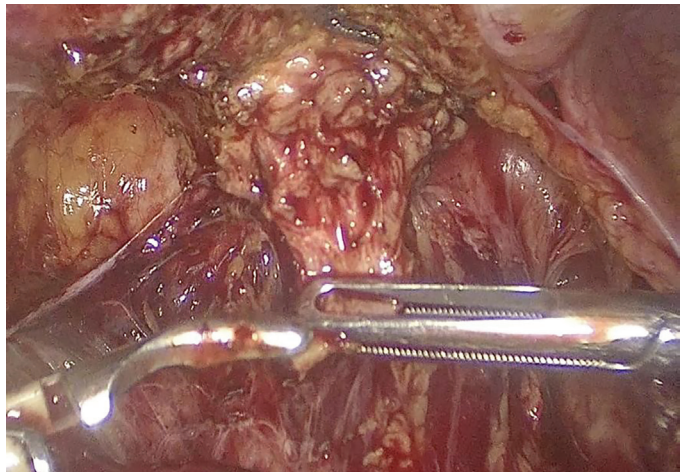

Figure 4. Intraoperatively, the excised abdominal wall scar endometriosis, during resection with monopolar energy to reveal fibrous tissue with scattered hemorrhagic areas.

Discussion

Utero- abdominal wall endometriosis is a term we use to describe the contiguous extension of endometrial tissue from the uterine scar to the abdominal wall. Although abdominal wall endometriosis in a caesarean scar has been reported in the literature, involvement of the uterine scar itself (a lesion spanning from the uterus to the subcutaneous tissue) is unusual representing the key distinguishing feature of this report. A similar phenomenon was described by Nepali where an endometriotic lesion extended from the subcutaneous plane through the rectus muscle up to the anterior uterine surface.[7] Such cases underscore that scar endometriosis can sometimes infiltrate deeply, mirroring the tract of the original surgical incision.[8]

The clinical presentation in our patient; chronic pain at the scar site with menstrual exacerbation, a palpable scar nodule, and abnormal vaginal bleeding, is consistent with scar endometriosis as described in previous reports.[9] The additional symptom of prolonged bleeding was probably due to involvement of the uterine incision site (cervical niche) given the alleviation of HMB after surgical excision. However, another coincidental etiology for the HMB cannot be excluded.

Typically, patients present with a triad of a history of surgery, a localised mass at the scar, and cyclical pain related to menses. However, it is noteworthy that a significant proportion of cases, estimated to be up to 50%, may not have strictly cyclical pain.[10] In our case, the pain was mostly cyclical, but the patient also experienced some continuous discomfort, which aligns with the literature that non-cyclic symptoms do not exclude the diagnosis.

Imaging modalities are useful for evaluation but not diagnostic on their own.[11] Ultrasound is usually the first-line imaging; it often reveals a hypoechoic or heterogeneous mass in the abdominal wall, sometimes with small cystic echogenic areas corresponding to hemorrhagic foci. MRI can provide better characterisation, showing lesions with signal intensity changes from repeated bleeding (for example, areas of hyperintensity on T1-weighted images due to haemorrhage). In our patient, MRI was helpful in determining the extent of the lesion and its connection to the uterus. Nonetheless, definitive diagnosis rests on histopathological confirmation after excision, as was obtained in this case.

An important aspect of managing suspected scar endometriosis is to distinguish it from other conditions.[12] Differential diagnoses for an abdominal wall mass in a post-surgical scar include incisional hernia, suture granuloma, abscess, hematoma, neuroma, and neoplasms such as desmoid tumour or soft tissue sarcoma. A desmoid tumor (aggressive fibromatosis) in particular can present as a firm post-operative abdominal wall mass and can be mistaken for scar endometrioma and vice versa. In this patient, the imaging and the cyclical nature of pain strongly pointed towards an endometriotic process. Fine-needle aspiration or core biopsy can be performed preoperatively to confirm diagnosis if doubt exists, but there is a risk of seeding the tract with endometrial cells. In this case, given the high clinical suspicion and the plan for definitive surgery, we proceeded directly to the excision without a biopsy.

The mainstay of treatment for utero-abdominal scar endometriosis is surgical excision of the lesion with clear margins.[13,14] Wide local excision (with about 1 cm margin) is recommended to ensure complete removal of all ectopic endometrial tissue. Complete excision not only alleviates the symptoms but also minimises the risk of recurrence. Recurrence of scar endometriosis after adequate excision is uncommon, with only a few cases reported in the literature. Incomplete removal, however, can lead to persistent or recurrent disease. In our reported case, we achieved clear margins by removing the involved section of the uterine wall and abdominal wall en bloc, which likely contributed to the excellent postoperative outcome. In some reports where the defect in the abdominal wall is large after excision, mesh repair or tissue reconstruction may be necessary. Medical management using hormonal therapy for scar endometriosis has a limited role.

Hormonal treatments such as progestins, danazol, or gonadotropin-releasing hormone analogues may temporarily reduce lesion size or symptom severity, but they usually do not eradicate the ectopic tissue. Symptoms often recur once the therapy is stopped, and the mass typically persists. Therefore, medical therapy might be considered only for patients who are poor surgical candidates or to reduce symptoms before surgery, rather than as a definitive treatment.

Although scar endometriosis is a benign condition, there have been isolated reports of malignant transformation in long-standing endometriosis lesions. Malignant

transformation of abdominal wall endometriosis in a caesarean scar is exceptionally rare, but it has been documented.[10] For example, clear cell and endometrioid carcinomas arising in caesarean scar endometriosis have been reported in the literature. This possibility, albeit rare, reinforces the need for complete excision and careful histological examination of all suspected scar endometriosis cases. In our patient, no malignancy was present in the excised tissue.

Prevention of scar endometriosis is an important consideration. Given the implantation theory of pathogenesis, surgical techniques to minimise endometrial cell contamination of the wound are advisable. Some authors recommend steps such as delivering the placenta and cleansing the uterine cavity prior to closing the uterine incision, using separate instruments or changing gloves when closing the abdominal wall, and copiously irrigating the wound to remove debris.[3] While these measures are not yet based on high-level evidence, they are simple interventions that could potentially reduce the risk of seeding endometrial cells into the incision. Awareness of scar endometriosis as a possible complication among obstetric surgeons is important so that such precautions may be considered, especially in patients with endometriosis or those having surgery at term when endometrial tissue is thickest.

Conclusion

Endometriosis should be considered in any woman presenting with cyclical pain or a mass at a caesarean section scar.[11] Our case demonstrates that the lesion can extend from the abdominal wall into the uterine scar. Prompt diagnosis using imaging and definitive surgical excision provides effective and lasting relief. Awareness of this condition and intraoperative preventive measures such as irrigation, changing gloves, and careful uterine closure may help reduce its occurrence.

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