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Case Series

The enigma of painful scars: abdominal and perineal scar endometriosis

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ABSTRACT

Scar endometriosis is a rare and often underdiagnosed form of extra-pelvic endometriosis, occurring in surgical scars following obstetric and gynaecologic procedures. It is most commonly associated with caesarean sections but has also been reported after hysterectomies, episiotomies, and laparoscopic surgeries. The condition arises due to the iatrogenic implantation of endometrial tissue into the surgical wound, where it subsequently proliferates under hormonal influence. It is often mistaken for other dermatological or surgical conditions, leading to a delayed diagnosis. We are reporting three cases of scar endometriosis. The patient required wide surgical excision of the lesion. The pathogenesis, diagnosis, and treatment of this rare condition are being discussed.

Keywords: Endometriosis, Scar, Caesarean section

INTRODUCTION

Scar endometriosis is a rare and challenging condition characterized by the presence of endometrial tissue in scar sites, most commonly following obstetric or gynaecologic surgeries. First described in the early 20th century, it is now recognized as a potential complication of procedures such as caesarean sections, hysterectomies, episiotomies, and laparoscopy, where endometrial cells may become implanted in surgical wounds due to direct seeding or hematogenous spread.[1]

The incidence of scar endometriosis is reported to be around 0.03% to 0.4% following caesarean sections, but this is likely underestimated due to underreporting and misdiagnosis[2]. The incidence of scar endometriosis after hysterectomies is estimated to be 1.08-2%.[3] After episiotomy, its incidence is 0.06-0.7%.[4]

Scar endometriosis typically presents as a painful, palpable mass at or near a surgical scar. Scar endometriosis is often misdiagnosed due to its rarity, with common misidentifications including hematomas, hernias, granulomas, abscesses, neuromas, or even neoplastic tissues. A strong suspicion is essential for diagnosing scar endometriosis in women experiencing cyclical abdominal pain, especially if they have a history of abdominal surgeries.

Despite its low prevalence, scar endometriosis has considerable implications for affected individuals. It causes significant physical discomfort and may lead to psychological distress due to chronic pain and diagnostic uncertainty. Surgical excision remains the treatment of choice, as medical therapy is often insufficient for addressing localized lesions.

This report presents three cases of scar endometriosis after caesarean section and vaginal delivery.

CASE SERIES

Case 1

A 32-year-old female, P1L2A1, presented to our outpatient department, with chief complaints of lump and pain at left lateral aspect of a previous caesarean scar for one year. She had undergone a caesarean delivery 4 years back at 36 weeks, done on maternal request. It was an IVF-conceived pregnancy. Her post op period was uneventful, with

complete stitch removal done on post-operative day 8. Her second pregnancy was spontaneous conception, 2 years back, first trimester MTP was done by medical method because of unwanted pregnancy.

Her general physical and systemic examination was unremarkable. On abdominal examination, a soft, tender mass of 2×3 cm was felt at the left side of the Pfannenstiel scar. Ultrasonography was suggestive of a well-defined hypo-echoic lesion (1.1×1.3 cm) in subcutaneous plane of previous caesarean scar likely scar endometrioma, with no internal vascularity or no communication with the peritoneal cavity. MRI was suggestive of an irregular nodular lesion (15.8×13.3×16.5 mm) in the deeper part of the subcutaneous fat plane in the left side of lower abdomen abutting the rectus sheath muscle without invasion, with possibility of scar endometriosis.

A probable diagnosis of scar endometriosis was made and was planned for surgical excision. All hematological investigations were within normal limits. Wide excision of endometriotic tissue was done under general anesthesia, with intra-operative findings of 5×4×3 cm endometrioma lying over rectus sheath (Figure 1). Endometrioma excised from base along with part of rectus sheath and the defect was closed using prolene mesh. Histopathological findings confirmed the diagnosis of scar endometriosis.

Case 2

A twenty-eight-year-old female (P1L1) reported to our gynaecology OPD with chief complaints of cyclical pain and swelling at the episiotomy site for one year. The pain was dull aching, increased during menses, associated with mild swelling over episiotomy site, initially peanut size and then increased to around 2x2cm size (Figure 2).

She had full term vaginal delivery 7 years back, with right medio-lateral episiotomy, with birth weight of 2.5 kg. Her antenatal, intra-partum, and post-partum periods were uneventful. The general examination was within normal limits.

On local examination, a vague lump of around 2×2 cm was felt at the site of previously healed scar of episiotomy. A probable diagnosis of scar endometriosis was made and was planned for surgical excision. All hematological investigations were within normal limits. Wide excision of endometriotic tissue was done under saddle block and endometriotic tissue of size around 3×3 cm was removed from close approximity of anal sphincter (Figure 3). Histopathological findings confirmed the diagnosis of scar endometriosis.

Case 3

A twenty-six year old female P3L2 with a history of previous 2 caesarean delivery, presented with chief complaints of swelling at scar site and she also complained of pain at caesarean scar site since 2 years. The pain was mild and dull aching, increasing in intensity during menses. A history of dysmennorhoea was also present.

Figure 1: Endometriotic tissue excised from caesarean scar site.

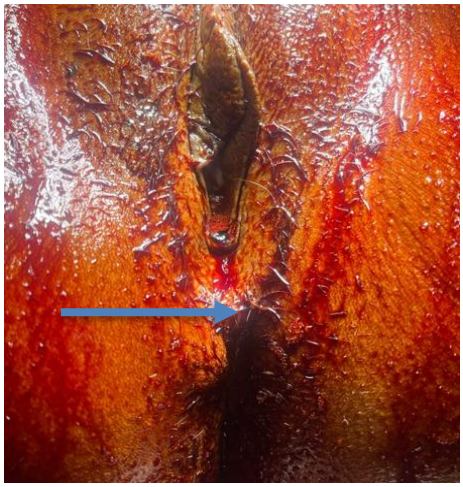

Figure 2: Endometriosis at the site of right mediolateral episiotomy.

She had history of normal vaginal delivery 6 years back followed by 2 caesarean deliveries 4 years and 2 years back. The first caesarean delivery was done at 7 months amenorrhea in view of antepartum hemorrhage, and the second caesarean delivery was done at 9 months amenorrhea, with a history of stillbirth. Both perioperative periods were uneventful.

Her general physical and systemic examination was unremarkable. On abdominal examination, 3×2 cm fixed and tender mass of cystic consistency, felt on right lateral aspect of suture line. Ultrasonography was suggestive of a hypoechoic lesion in the subcutaneous plane with no internal vascularity. A probable diagnosis of scar endometriosis was made and was planned for surgical excision. All hematological investigations were within normal limits. Wide excision of endometriotic tissue was done and 4.2×2.5 cm endometriotic tissue was removed above the rectus sheath (Figure 4). Cut section of tissue showed dark brown hemorrhagic areas and

Histopathological findings confirmed the diagnosis of scar endometriosis.

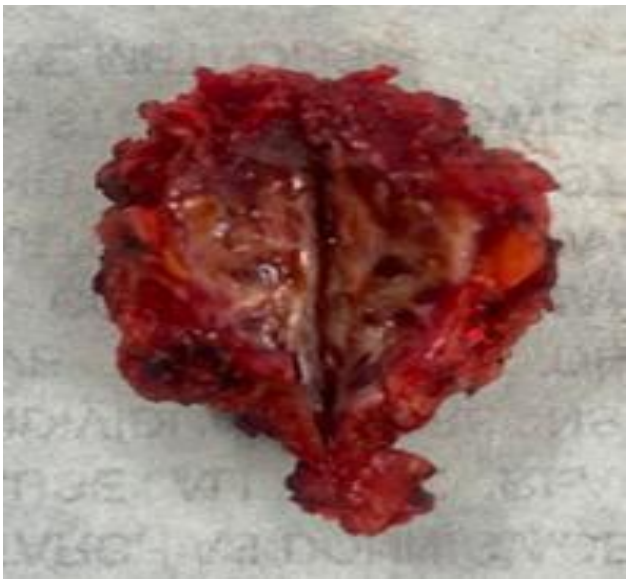

Figure 3: Endometriotic tissue excised from episiotomy scar site.

Figure 4: Tissue excised from the site of previous caesarean scar, showing dark brown hemorrhagic areas.

DISCUSSION

Endometriosis is a gynaecological condition where endometrial tissue grows outside the uterus. This growth can be classified based on its location, either as endopelvic/extra-pelvic. Pelvic locations include the ovaries, uterosacral ligaments, ovarian fossa, and pouch of Douglas. Extra-pelvic locations involve the abdominal wall, groin, perineum, kidneys, liver, lungs, and pleura. Cutaneous endometriosis refers to the presence of endometrial glands and stroma in skin and can be classified into primary and secondary forms. Primary cutaneous endometriosis occurs spontaneously, with an unclear cause. Secondary cutaneous endometriosis is iatrogenic, resulting from surgical procedures in the abdomen or pelvis that leads to the implantation of endometrial tissue into the skin.

The exact pathogenesis of scar endometriosis remains unclear, though several mechanisms have been proposed. The most widely accepted theory is the direct implantation of endometrial tissue into the surgical wound during procedures such as caesarean sections or hysterectomies.[1] During surgery, endometrial cells may adhere to subcutaneous tissues, where they establish ectopic foci, stimulated by hormonal fluctuations.

Other proposed mechanisms include coelomic metaplasia where peritoneal mesothelial cells undergo transformation into endometrial-like cells under the influence of estrogen and inflammation.[5] Some studies suggest that endometrial cells can disseminate through lymphatic or blood vessels, although this theory is more applicable to deep infiltrating endometriosis rather than scar endometriosis.

Scar endometriosis typically presents as a firm, tender mass in or near the surgical scar. The most characteristic symptom is cyclical pain, which intensifies during menstruation due to hormonal stimulation of the ectopic endometrial tissue. Other associated symptoms include-include swelling and induration of the lesion, localized erythema and increased sensitivity, spontaneous bleeding from scar (rare cases) and secondary infection/abscess formation.

However, in some cases, non-cyclical pain or asymptomatic masses may complicate diagnosis. This variability necessitates a high index of suspicion, particularly in women with a history of gynaecologic surgery and scar-site complaints. Imaging techniques such as ultrasonography and MRI are useful adjuncts for diagnosis but are not definitive.

Scar endometriosis is often misdiagnosed as other conditions, including incisional hernias, abscesses, lipomas, or neoplastic growths. This diagnostic ambiguity can result in delayed management and unnecessary interventions.

Accurate diagnosis of scar endometriosis requires a combination of clinical evaluation, imaging techniques but histopathological confirmation remains the gold standard for diagnosis. Fine-needle aspiration cytology (FNAC) can be helpful but may not always be conclusive, especially in small lesions.[6]

Surgical excision remains the mainstay of treatment for scar endometriosis, as medical therapies such as hormonal suppression are typically ineffective for localized lesions.

Complete excision with wide margins is essential to minimize recurrence. Recurrence rates reported in the literature vary from 7.5% to 22.7%, depending on the extent of surgical resection and residual microscopic disease.[7,8] Postoperative complications, though rare, include infection, hematoma, and delayed wound healing. Hormonal therapies, while not curative, may be considered in patients who are poor surgical candidates or as adjunctive treatment for residual disease.

The prevention of this condition can be achieved through surgical measures designed to minimize the transfer of endometrial tissue into the subcutaneous region. This includes thoroughly irrigating the wound with saline before closure and replacing gloves with a new pair to prevent the implantation of endometrial tissue in the anterior abdominal wall, careful handling of endometrial tissue, use of separate suture materials for the endometrial and myometrial layers during caesarean sections and proper closure techniques during caesarean sections or other uterine surgeries.[9] Additionally, repairing the peritoneum during caesarean sections has been suggested as an effective preventive strategy. Educating healthcare providers about this condition is critical to improving early recognition and management

CONCLUSION

Scar endometriosis, though rare, has significant implications for women's health, particularly in those undergoing obstetric or gynecologic surgeries. Early diagnosis, appropriate surgical management, and preventive strategies are key to improving patient outcomes.

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