

Scar Endometriosis: A Rare Presentation

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ABSTRACT

Scar endometriosis is a rare extrapelvic manifestation of endometriosis. It occurs when endometrial tissue is found in a surgical scar, most commonly after a cesarean section. We report the case of a young woman who presented with pain and swelling due to cyclical changes involving a Pfannenstiel scar. Scar endometriosis was suspected, and the lesion was surgically excised of the scar endometriosis. Postoperative histopathology confirmed the scar endometriosis.

KEYWORDS: Lesion, Scar endometriosis, Surgical scar.

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INTRODUCTION

Endometriosis is a chronic estrogen-dependent condition involving endometrial tissue outside the uterus. Although mainly involving the pelvic organs including the ovaries, the pouch of Douglas, uterosacral ligaments, and the pelvic peritoneum, extrapelvic endometriosis accounts for 1 to 2% of cases.

Scar endometriosis is noticed to occur at up to 1.5% of cases following lower segment cesarean sections (LSCS), with a lesser incidence noted following hysterotomy, myomectomy, post-hysterectomy incisions, amniocentesis, and operative sites following laparoscopy; including trocars.^{6,7} The predominant mechanism is the direct iatrogenic transplantation and mechanical implantation of viable endometrium along surgical wound edges during closure of the uterus^{4,6} In an accommodating local hormonal environment, persistent estrogen stimulation eventually leads to endometrial cell attachment and growth as well as the development of angiogenesis, cellular invasion and proliferation, as well as infiltration into the thickened subcutaneous tissue and the fascia of the rectus abdominis muscle.^{8,9}

Although scar endometriosis is recognized by common clinicopathologic traits, its diagnosis remains difficult. It is typically misdiagnosed as stitch granuloma, desmoid tumor, hematoma, lymphadenopathy or soft tissue lipoma. This leads to a diagnostic delay.^{4,5,10} The successful treatment of a 25 year age woman with histopathologically confirmed diagnosis of endometriosis presenting as a scar endometriosis of a Pfannenstiel cesarean scar.

CASE

A 25-year-old woman experienced recurrent cyclical pain over the previous cesarean scar. Physical exam showed a

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2x2 cm firm tender mass lateral to the left Pfannenstiel scar. The lesion was 12.2 x 7.8 x 7.3 mm with an endometriotic scar pattern on ultrasound. It was removed by wide excision. Scar endometriosis was confirmed by benign endometrial glands and stroma.

DISCUSSION

Scar endometriosis is a unique presentation of extrapelvic endometriosis where scar tissue forms in surgical scar tissues^{2,3} As noted by Cihangir Cetinkaya and Ozgu-Erdinc,⁴ there has been a multiple-fold increase in both the clinical and surgical identification of cesarean scar endometriosis throughout the world due to the significant rise of cesarean deliveries. An extensive analysis of 445 reported cases of abdominal wall endometriosis, Horton *et al.*² documented that in the majority of cases, lesions formed due to previous cesarean deliveries. However, Horton *et al.* noted that there were cases that formed after myomectomy, tubal ligation, or hysterectomy as reported by Leite *et al.*⁷ and Chaubey *et al.*¹⁶ The length of time between the surgery and the formation of the lesions is highly variable. Both Nominato *et al.*¹⁴ and Ding and Zhu⁶ have reported a latency period that ranges from several months to over a decade. This supports the case presentation where the scar endometriosis was noted 9 months following the surgical procedure.

Scar endometriosis is thought to originate from mechanical cell transplantation described by Sampson.^{2,4} Often, when a uterus is removed by a hysterotomy, the placenta is



Figure 1: Clinical photograph showing scar endometriosis at the left lateral margin of a previous Pfannenstiel scar.



Figure 2: Ultrasonographic image demonstrating a heterogeneous hypoechoic lesion suggestive of scar endometriosis.



Figure 3: Intraoperative photograph showing multiple endometriotic nodules within the subcutaneous tissue.



Figure 4: Gross specimen demonstrating characteristic chocolate-coloured fluid within the lesion.

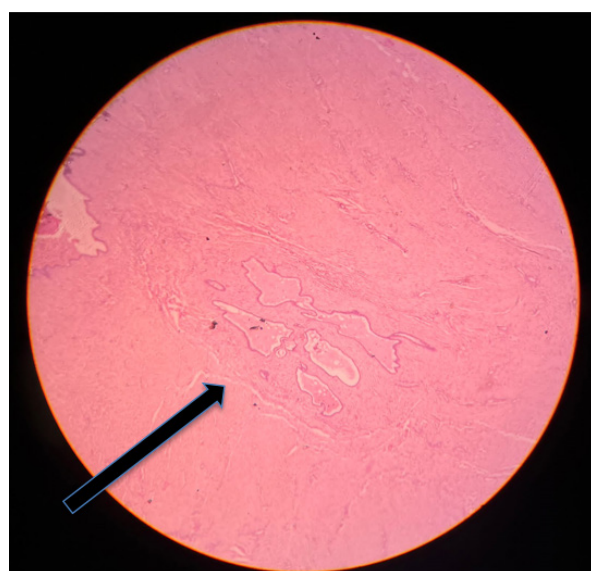


Figure 5: Histopathological section representing endometrial glands as well as stroma confirming scar endometriosis.

delivered, or laparotomy incisions are closed, endometrial cells desquamate into the wound. Endometrial cells may be trapped in the subcutaneous adipose tissue and the rectus sheath where they begin to grow and divide elicited by local estrogen-dependent pathways and stimulated by the presence of angiogenic factors.^{8,9} Micro-bleeds in the fibrous tissue occur due to cyclic changes in the hormonal milieu and are further exacerbated by scar fibrosis and dense connective tissue that causes inflammation and the formation of a firm mass.^{4,8}

Pain may even be continuous as a result of chronic entrapment of the somatic nerves along with extensive fibrosis.^{5,6} Scar endometriosis may present atypically and, hence, may be misdiagnosed.^{2,5} Many patients are initially diagnosed with stitch granulomas, incisional hernias, hematomas or lipomas, and are even treated for desmoid tumors, before consulting with gynecologists.^{2,5}

According to Savelli,¹⁰ Hensen¹¹ high-resolution

ultrasonography with color Doppler is first-line imaging modality. Lesions are observed to be heterogeneous, hypoechoic, and vascularized on ultrasonography^{10,11} For larger, recurrent, or infiltrative lesions, extending to the rectus abdominis muscle, Busard *et al.*¹² mentioned that, compared with ultrasonography, MRI better delineates the extent of myofascial lesions and excludes peritoneal extension. Fine-needle aspiration cytology (FNAC) may be used to identify endometrial glands and hemosiderin-laden macrophages, but Medeiros *et al.*¹³ cautioned the risk of needle-track seeding.

Permanent diagnosis still remains histopathological, where benign endometrial glands, specific stroma, and hemosiderin-laden macrophages within fibrous stroma must be identified microscopically^{2,5,14} While extremely rare (<1%), Taburiaux *et al.* [17] mentioned that a scar can undergo malignant transformation into a clear cell adenocarcinoma or endometrioid carcinoma, supporting the need for definitive surgical removal.

In terms of management, Ecker and Donnellan³ and Horton *et al.*² affirm that while hormonal suppression (progestogens, oral contraceptives, danazol, or GnRH agonists) provides transient relief from symptoms for up to 85% to 90% of cases, recurrence occurs once the drug is stopped. Thus, Boesgaard-Kjer¹⁵ conclude that the definitive curative gold standard is wide local surgical excision with clear margins, and this lowers the recurrence rate to less than 5% while also providing immediate resolution of the symptoms. For large defects, synthetic mesh hernioplasty may be necessary.¹⁵

To avoid scar endometriosis, Wasfie *et al.*¹⁸ and Cihangir Cetinkaya and Ozgu-Erdinc⁴ recommend a number of safeguards when performing cesarean sections, namely: meticulous packing of the surgical wound, not using the same instruments as well as closure of the surgical wound, irrigating the surgical wound with saline before approximating the skin, and changing surgical gloves before closing the fascial layer.

Scar endometriosis is an important differential diagnosis for patients with cyclical scar pain following a cesarean delivery. Diagnostic delay for symptomatic scar endometriosis results in chronic pain, recurrent symptoms, and a need for surgery. Complete surgical excision also provides excellent relief of symptoms.

Complete surgical excision provides excellent relief of symptoms and prevents recurrence.

CONCLUSION

Women with recurrent cyclical pain and swelling over a previous cesarean scar should be evaluated for scar endometriosis. Early diagnosis and complete surgical excision provide excellent symptomatic relief and prevent recurrence.

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