

Beneath the Scar: Unveiling a Rare Case of Episiotomy Site Endometriosis

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Abstract:

Background: Episiotomy scar endometriosis is an uncommon clinical condition characterized by functional endometrial tissue within a scar, typically presenting with cyclical pain and swelling. This case report presents a 29-year-old woman with a two-year history of cyclic perineal pain and swelling associated with a tender nodule at the distal end of a previous episiotomy scar. Despite prior medical treatment, her symptoms remained unresolved. Imaging studies identified a multiloculated lesion suggestive of a soft tissue mass, leading to surgical excision. Histopathological examination confirmed the presence of endometrial glands and stroma with hemosiderin-laden macrophages, establishing the diagnosis of scar endometriosis. Following surgery, the patient experienced complete relief of symptoms, highlighting the efficacy of surgical treatment. This case underscores the diagnostic challenges of scar endometriosis due to its nonspecific presentation, with imaging and histopathology being critical for confirmation. The report discusses the pathophysiology, diagnostic approach, and management strategies, stressing the need for a high index of clinical suspicion, particularly in patients with a history of obstetric procedures. Additionally, it adds to the limited literature on extrapelvic endometriosis, emphasizing the significance of early diagnosis and definitive treatment to prevent recurrence and enhance patient outcomes. Ongoing follow-up is crucial to maintain long-term success and monitor for potential complications.

Keywords: - Episiotomy site endometriosis, Scar endometriosis, Endometriosis diagnosis

INTRODUCTION

Endometriosis is a chronic gynecological condition characterized by the presence of functional endometrial tissue outside the uterine cavity, affecting approximately 10% of women of reproductive age [1]. While the disease predominantly involves the pelvic organs, extrapelvic endometriosis poses a rare but significant diagnostic challenge. Among these atypical presentations, scar endometriosis, particularly within episiotomy scars, is an uncommon entity with reported incidence rates ranging from 0.03% to 1.7% in women with a history of obstetric or gynecological surgery [2]. Its rarity, combined with non-specific clinical symptoms, often leads to delayed diagnosis and suboptimal management. This case report presents a rare occurrence of endometriosis developing in an episiotomy scar, a site infrequently associated with the condition. By examining the pathophysiological mechanisms, diagnostic hurdles, and therapeutic strategies, this case underscores the importance of clinical vigilance for effective management of this rare condition.

Scar endometriosis typically develops following obstetric or surgical procedures, during which endometrial cells are inadvertently implanted into the incision site, potentially occurring during delivery or uterine manipulation. Episiotomy scars, due to their proximity to the uterus and the shedding of endometrial tissue during childbirth, present a plausible yet often overlooked site for this pathological process [3]. Once implanted, these ectopic cells respond to cyclical hormonal changes, exhibiting functional behavior

similar to the normal endometrium and leading to symptoms such as cyclical pain, a palpable mass, and, in rare cases, bleeding. The diagnosis of episiotomy scar endometriosis is challenging due to its nonspecific presentation and its similarity to other conditions such as abscesses, lipomas, or hernias. Imaging modalities, including ultrasound and magnetic resonance imaging (MRI), are critical tools in the diagnostic process; however, a definitive diagnosis requires histopathological examination [4]. Surgical excision remains the gold standard for both diagnosis and treatment, with medical therapy offering limited effectiveness in isolated scar lesions.

This case contributes to the limited literature on episiotomy scar endometriosis, providing valuable insights into its clinical presentation, pathogenesis, and management approaches. It highlights the necessity for increased awareness among healthcare providers to ensure prompt recognition and treatment, ultimately improving patient outcomes.

CASE DETAILS

A 29-year-old woman presented with a two-year history of pain and swelling in the perineal region. The pain was cyclic, worsening during her menstrual periods. She had two children, both delivered via normal vaginal deliveries, and had undergone a left mediolateral episiotomy three years prior. Following her second delivery, postpartum sterilization was performed. Her medical and surgical history was otherwise unremarkable, and she did not report systemic symptoms such as fever, weight loss, or loss of appetite.

Additionally, she denied experiencing dyspareunia or any urinary or bowel complaints.

Clinical Examination

On examination, a tender nodule measuring 4×3 cm was identified at the distal end of the episiotomy scar. The skin overlying the nodule was inflamed, but no lymphadenopathy was noted. Abdominal, per-speculum, and vaginal examinations revealed no abnormalities.

Initial Diagnosis and Imaging

Given the patient's history of surgery and cyclic pain, episiotomy scar endometriosis was strongly suspected. An ultrasound of the perineum identified a 4×2 cm multiloculated lesion without internal vascularity, consistent with a soft tissue mass. As the patient had previously undergone unsuccessful medical treatment for a year, surgical management was considered the next step.

Surgical Management and Histopathology

The mass was excised with a wide margin of 1 cm, and the specimen was sent for histopathological analysis. Gross Examination: The excised tissue measured $5 \times 4.5 \times 2.3$ cm and appeared as fibrofatty tissue with regions of fibrosis and hemorrhage.

Microscopy: Histological examination revealed endometrial glands and stroma within fibrocollagenous and adipose tissue. Hemosiderin-laden macrophages, indicative of old hemorrhage, were also observed. The epidermis overlying the lesion was normal, and there was no evidence of malignancy.

Postoperative Outcome

The patient recovered well following surgery and reported complete relief from her symptoms during follow-up visits. No recurrence of pain or swelling was noted, and she continues to remain asymptomatic with regular follow-up care.

DISCUSSION

Endometriosis is a chronic medical condition characterized by the abnormal presence of endometrial glands and stroma outside the uterine cavity. While it commonly affects the pelvic region, it can occasionally manifest in extrapelvic locations, including surgical scars. Scar endometriosis, particularly in episiotomy scars, is a rare form of the condition, accounting for 0.03–1.7% of endometriosis cases [2,4]. This case report highlights the significance of considering episiotomy scar endometriosis as a possible cause of cyclical pain and swelling in women with a history of vaginal delivery and episiotomy.

The most widely accepted theory for the pathogenesis of scar endometriosis is the implantation theory. During obstetric or gynecological surgeries, endometrial cells may inadvertently be transferred to the surgical site.

Specifically, in episiotomy scars, endometrial cells can potentially infiltrate perineal tissues during vaginal delivery, particularly if perineal trauma occurs [5]. These ectopic cells respond to hormonal changes during the menstrual cycle, leading to growth and shedding similar to the normal endometrium, which results in localized pain, swelling, and inflammation [6]. This aligns with the clinical observations in this case, where the patient experienced cyclical pain associated with her menstrual cycle.

The clinical presentation of scar endometriosis is often nonspecific, posing a diagnostic challenge. Common signs include a palpable mass, localized pain, and swelling, which can be misinterpreted as abscesses, granulomas, or neoplasms [7]. In this case, the presence of a tender nodule in the perineal area, combined with a history of episiotomy and cyclical pain, raised a strong suspicion of scar endometriosis. The lack of systemic symptoms such as fever or weight loss also helped rule out infectious or malignant conditions. Imaging is a critical tool in diagnosing scar endometriosis. Ultrasound, often the first imaging modality used, typically shows a hypoechoic or heterogeneous lesion with possible cystic components, aiding in the assessment of the lesion's size and extent [8]. Although MRI was not performed in this case, it is another valuable imaging technique, particularly for evaluating the extent of the disease and its relationship with nearby structures in complex or recurrent cases [9].

Surgical excision is considered the gold standard for diagnosing and treating scar endometriosis. Complete removal with clear margins is essential to prevent recurrence, as partial excision of ectopic tissue can lead to persistent or recurring symptoms [10]. In this case, a wide excision with 1 cm margins was performed, and histopathological analysis confirmed endometriosis without evidence of malignancy. The findings of hemosiderin-laden macrophages and endometrial glands within fibrofatty tissue supported the chronic and cyclical nature of the disease.

Histopathological examination is critical for a definitive diagnosis. The presence of endometrial glands and stroma within fibrous or adipose tissue, along with hemosiderin deposits, is characteristic of endometriosis [11]. Additionally, the absence of malignant features is a positive finding, as although rare, malignant transformation of endometriosis has been reported in long-standing cases [12].

The postoperative prognosis for scar endometriosis is generally good when complete excision is achieved. The patient in this case experienced full symptom resolution, with no signs of recurrence during follow-up. Consistent follow-up is important, particularly when there is a risk of incomplete excision or recurrence [13].

Case Studies of Scar Endometriosis

Perineal Scar Endometriosis After Forceps Vaginal Delivery: A 36-year-old woman developed a painful perineal mass at a previous episiotomy scar five years following a forceps-assisted vaginal delivery. The mass exhibited cyclical pain associated with her menstrual cycle. Ultrasound imaging showed a hypoechoic lesion near the episiotomy scar. Surgical excision was performed, and histopathology confirmed endometriosis. The patient remained symptom-free during follow-up, highlighting the need to consider scar endometriosis in women with cyclical perineal pain and a history of obstetric procedures [14].

Malignant Transformation of Perineal Endometriosis in an Episiotomy Scar: A 54-year-old woman developed a large perineal lesion at the site of a prior episiotomy scar, decades after the initial procedure. The lesion displayed high 18F-fluorodeoxyglucose uptake on positron emission tomography, suggesting possible malignancy. Histological analysis after surgical excision revealed clear cell carcinoma arising from endometriosis. This case underscores the rare potential for malignant transformation in chronic endometriotic lesions and the necessity of careful evaluation of atypical presentations [15].

Episiotomy Scar Endometriosis Presenting as a Perianal Mass: A 35-year-old woman reported a painful perianal mass near her episiotomy scar, with symptoms worsening during menstruation. Physical examination found a firm, tender nodule. Imaging through ultrasound and MRI identified a lesion indicative of endometriosis. After surgical excision, histopathology confirmed the diagnosis. The patient experienced complete symptom relief postoperatively. This case demonstrates the critical role of imaging in diagnosis and the effectiveness of surgical treatment [16].

This case emphasizes the need for clinicians to maintain awareness of scar endometriosis, particularly in women with cyclical symptoms and a history of obstetric or gynecological surgery. Early detection and definitive surgical intervention are vital for improving patient outcomes and overall quality of life.

CONCLUSION

Episiotomy scar endometriosis is a rare yet important clinical condition that highlights the need to consider endometriosis in patients with cyclical perineal pain and swelling, particularly those with a history of obstetric procedures like episiotomy. This case demonstrates the diagnostic complexities of this condition due to its nonspecific symptoms and uncommon presentation. While imaging techniques such as ultrasound and MRI assist in the diagnostic process, histopathological analysis remains essential for definitive confirmation. Effective management involves timely surgical excision with clear margins, offering both diagnostic clarity and therapeutic relief. This report underscores the importance of maintaining a high level of clinical suspicion and adopting a multidisciplinary approach to

ensure early diagnosis, effective symptom management, and prevention of recurrence. Ongoing follow-up is crucial to support long-term positive patient outcomes.

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