



Abdominal Wall Endometriosis (AWE): A New Surgical Challenge (Case Report)

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Abstract: Endometriosis is defined as the appearance of functional uterine tissue that responds to hormonal stimuli in tissues other than the uterine cavity. Typically, the pelvic cavity is where endometriosis is found. The anterior abdominal wall, bone, adrenal glands, eyes, and heart are all occasionally involved in extrapelvic cases. The most typical symptom of extrapelvic endometriosis is abdominal wall involvement. There appears to be a strong correlation between pre-existing surgical scars and the presence of endometriomas within the abdominal wall. In cases when female patients exhibit a cyclically painful abdominal wall mass, it is crucial to maintain a heightened level of suspicion for endometrioma, particularly if there is a history of prior gynecologic surgery. The differential diagnosis may provide greater challenges when abdominal wall endometriomas are situated at a distance from the scar, as is commonly observed following Pfannenstiel's laparotomic incision. Many of these lesions can be distinguished by MRI, and intraoperative frozen section histological confirmation should be obtained to enable an oncological resection if necessary.

الانتباز البطاني الرحمي في جدار البطن، تحدٍ جراحي جديد (تقرير حالة)

الكلمات المفتاحية :
جدار البطن، ورم
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المستخلص : يتم تعريف الانتباز البطاني الرحمي على أنه ظهور أنسجة الرحم الوظيفية التي تستجيب للمحفزات الهرمونية في الأنسجة بخلاف تجويف الرحم. عادة تجويف الحوض هو المكان الذي يوجد فيه الانتباز البطاني الرحمي. من حين لآخر توجد أيضا تدخلات خارجية في جدار البطن الأمامي والعظام والقلب والغدد الكظرية والعينين والقلب. مشاركة جدار البطن هو أكثر مظاهر الانتباز البطاني الرحمي نموذجية. يبدو أن الأورام البطانية الرحمية في جدار البطن، والندوب الجراحية القديمة مرتبطة ارتباطا وثيقا. يجب الحفاظ على مؤشر مرتفع للشك في ورم بطانة الرحم عند المريضات اللواتي يعانين من كتلة جدار بطن مؤلمة دوريا، خاصة في وجود جراحة أمراض النساء السابقة. قد يكون التشخيص التفريقي أكثر صعوبة عندما توجد أورام بطانة الرحم في جدار البطن بعيدا عن الندبة، ويفترض أنه أكثر تواترا بعد شق بافانينستيل القطعي. يمكن أن يساعد التصوير بالرنين المغناطيسي في التمييز بين العديد من هذه الآفات، ويجب الحصول على التأكيد النسيجي أثناء الجراحة عن طريق القسم المجدد لتمكين استئصال الأورام إذا لزم الأمر.

INTRODUCTION

The implantation of endometrial cells during abdominal surgery, specifically a caesarean section, has the potential to lead to the development of endometriomas. These

endometriomas are typically seen in close proximity to the surgical scar and exhibit a range of sizes. This case report discusses a unique manifestation of a sizable endometrioma located at a considerable distance from the site of a prior caesarean scar. The

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paper also outlines the diagnostic and treatment approach employed in this particular case. This report presents a case study involving the management of a 32-year-old female patient diagnosed with a 2 X 3 cm abdominal wall endometrioma. The therapeutic approach employed in this case was the utilization of a wide local excision technique.

CASE REPORT

A female patient, aged 32 and of Libyan nationality, was hospitalized at our medical facility presenting with a mass located in the lower region of the abdomen wall, accompanied by symptoms of discomfort and nausea. Throughout the previous year, there has been a gradual increase in the size of the bulk. The patient had previously endured four caesarean deliveries for each of her pregnancies. The incision resulting from the caesarean section exhibited satisfactory healing, while the protrusion located a few centimeters above the scar in the right paramedian suprapubic area was found to be unrelated to the Pfannenstiell incision. The observed mass had characteristics of tenderness, roundness, and a diameter of approximately 3 cm. Furthermore, it displayed a fixed nature and adherence to the underlying structures of the deep abdominal wall. Further gynecological and abdominal investigations did not yield any abnormal findings.

The blood tests indicate that the findings are within the usual range. The ultrasonic scan does not possess any diagnostic capabilities. The computer tomography (Figure 1) revealed two particularly interesting findings: a solitary increased nodule affecting the deep layers of the abdominal wall, and the measurement of its distance from the caesarean section scar.

The surgical procedure commenced with a comprehensive local excision of the lesion, followed by the removal of the mass. The

mass exhibited numerous tracts that infiltrated the neighboring tissue and exhibited adherence to the fascia and rectus abdominis muscle, extending all the way to the peritoneal layer. Consequently, the removal of the mass proved challenging and resulted in a substantial wall defect, as depicted in Figure 2.



Figure: (1). CT-scan of abdominal wall shows AWE (arrowed).



Figure: (2). AWE site after excision repaired by prolene mesh.

DISCUSSION

Endometriosis is a prevalent medical condition that impacts a substantial proportion, around 10%, of women within the reproductive age range (Viganò et al., 2004). The

phrase refers to the presence of glands and stroma that exhibit an unusual or heterotopic growth pattern, resembling those often found in the uterus lining. Endometrioma primarily manifests in the pelvic region; nevertheless, it has the potential to disseminate to several anatomical sites, giving rise to either a localized mass or multiple dispersed foci. Extrapelvic endometrioma is observed in approximately 0.1% to 0.2% of women following caesarean sections. Or less commonly after other surgical interventions such as amniocentesis, laparoscopy, hysterectomy, abdominoplasty, and similar treatments. The occurrence of extrapelvic endometrioma is commonly observed in conjunction with a preexisting abdominal scar. The authors (Blanco et al., 2003; Bumpers et al., 2002; Hughes et al., 1997; Khamechian et al., 2014) have conducted studies relevant to the topic.

In the majority of instances, women who have been impacted by endometriosis choose to refrain from disclosing their medical history pertaining to this condition. Numerous explanations have been proposed with regard to the development of endometriosis nodules in locations outside of the uterus. The metaplasia and transport theories are the two theories that appear to receive the most support, as suggested by (Vellido-Cotelo et al., 2015).

The prevailing belief is that the origin of this condition can be attributed to the mechanical transplanting of endometrial tissue, particularly in surgical procedures that include the opening of the uterine cavity. The viability of shed endometrial tissue has been observed to be high, displaying significant angiogenic properties and the ability to generate endometriotic lesions across many model systems (Nap et al., 2004). Nevertheless, there have been documented cases of abdominal wall endometriomas located in the recti abdominis muscles that have spontaneously occurred, without any previous surgical intervention (Ideyi et al., 2003).

In a clinical context, symptoms of abdominal scar endometrioma may manifest at any point within a range of 6 months to 19 years following a previous surgical procedure. The study conducted by (Bumpers et al., 2002) is in contrast to the findings of (Patterson & Winburn, 1999).

The phenomenon known as AWE was initially documented by Meyer in the year 1903, as described by (Ideyi et al., 2003). The site of extrapelvic disease with the highest prevalence is reported to be between 0.03% and 1% according to studies conducted by (Bumpers et al., 2002; Ideyi et al., 2003).

Several explanations have been proposed, yet the exact etiology remains uncertain. The direct transplantation theory posits that endometrial cells have the potential to be transferred to the abdominal wall during surgical procedures involving the uterine cavity, such as hysterectomy or caesarean delivery. Based on the coelomic metaplasia idea, it is postulated that endometrial cells have the potential to originate from the mesothelial cells that border the peritoneum of the abdominal cavity.

The primary element of the symptomatology involves the presence of a mass growth and associated pain in the abdomen region, which is directly related to a scar. However, it is important to note that the severity of the pain and its exacerbation by menstruation may not always be consistent (Patterson & Winburn, 1999).

In the context of abdominal wall endometriosis, a significant proportion of patients exhibit symptoms such as cyclic abdominal discomfort, protrusion, and cutaneous irritation. The investigation of the pathophysiology of this entity was undertaken. Various explanations have been proposed regarding this phenomenon, with the retrograde reflux of endometrial tissue into the peritoneal cavity through the fallopian tubes being the

most widely recognized (El Muhtaseb et al., 2022).

The major symptom is characterized by the presence of a palpable mass lesion at the site of maximum soreness. The dimensions of this palpable lump undergo alterations in accordance with the menstrual cycle. According to (Kumar, 2021), findings indicate that the presence of endometriosis in a scar is attributed to concomitant pelvic endometriosis in approximately 26% of instances. Abdominal wall endometriosis, despite exhibiting characteristic symptoms, is often misdiagnosed by general surgeons due to its infrequent occurrence (Oh et al., 2014). The diagnosis of this condition often presents a significant challenge and is commonly established subsequent to the surgical removal of the lesion (Balleyguier et al., 2003).

In contemporary times, advancements in US technology have significantly enhanced the precision of diagnostic procedures, enabling skilled operators to precisely assess a patient's condition through first-level echography, hence informing surgical decisions. Moreover, the utilization of a high-resolution ultrasound presents itself as a rapid, cost-effective, and secure modality that possesses the capability to provide a suitable indication for surgical intervention. Furthermore, the utilization of intraoperative ultrasound facilitates the attainment of sufficient excision margins (Coccia et al., 2015).

According to (Balleyguier et al., 2003), magnetic resonance imaging (MRI) exhibits superior spatial resolution compared to computed tomography (CT) scans, hence enhancing its efficacy in delineating the borders between muscles and abdomen subcutaneous tissues.

In order to establish a definitive diagnosis, a biopsy is deemed necessary, as CT scans and MRIs are mostly employed to assess the disease's extent prior to surgical interven-

tion. While FNAC is not considered a diagnostic tool, it can assist in the diagnostic process (Kumar, 2021).

Furthermore, it has the ability to discern the hemorrhagic nature of endometriotic lesions. When considering the diagnosis of endometrioma, it is crucial to consider the presence of incisional hernias as well as malignant or benign tumors located in the abdominal wall. Various imaging modalities, such as Doppler ultrasonography, computed tomography (CT), and magnetic resonance imaging (MRI), should be employed for distinct diagnostic purposes. Histopathological investigation is the sole method by which a definitive diagnosis can be established as stated by (Çöl & Yilmaz, 2014). In the case study involving scar endometriosis subsequent to a caesarean section, when the condition was initially misdiagnosed as a stitch granuloma, the timely identification of the ailment might greatly influence the extent and aggressiveness of the therapeutic intervention.

The recommended therapeutic approach is performing a comprehensive local excision of the lesion with negative margins, although in certain cases, mesh implantation may be required. According to (Saliba et al., 2019), medical interventions such as non-steroidal anti-inflammatory drugs (NSAIDs), oral contraceptives, gonadotropin-releasing hormone (GnRH) analogues, and aromatase inhibitors have been employed in the treatment of this condition. These interventions have demonstrated efficacy in alleviating symptoms without affecting the size of the lesion.

The medical intervention yielded unsatisfactory results. The patient necessitated a comprehensive surgical excision of the lesion. The patient is currently undergoing continuous treatment due to the potential for recurrence (Saha et al., 2014).

According to (Khamechian et al., 2014), it is necessary to excise scar endometriomas with adequate margins following their dissection from the adjacent tissue. To prevent further instances, it is imperative to implement measures to prevent the intraoperative auto-inoculation of endometrial tissue (Çöl & Yilmaz, 2014). According to (Bachir & Bachir, 2002), wide excision is the recommended approach for managing endometriomas located on the abdominal wall as well as for recurrent lesions.

The necessity for abdominal wall reconstruction often arises following extensive mass removal, as a result of the mass's infiltration and attachment to the soft tissue. In such cases, the utilization of a polytetrafluoroethylene (Teflon) patch or polypropylene (Prolene) mesh graft is a common approach (Blanco et al., 2003). According to a study conducted by (Wasfie et al., 2002), there is a suggestion that performing meticulous surgical wound cleansing and irrigation using a high-jet saline solution before closure may be effective in preventing scar endometrioma in caesarean sections. While the likelihood of endometriosis progressing into cancer is low, it is crucial to consider this possibility due to the potential need for an oncological resection in cases where an abdominal endometrioma is detected (Matter et al., 2003).

According to (Lopes et al., 2019), the incidence of endometriosis in abdominal surgical scarring varies between 0.03% and 0.4%. Additionally, it has been shown that only 1% of these instances exhibit malignant change. Furthermore, since laparotomies are commonly conducted several years prior to the occurrence of endometriomas, postmenopausal women need to be aware of the uncommon potential for an endometrial implant to undergo malignant transformation.

In these instances, the utilization of frozen section intraoperative histological confirma-

tion appears to be a justifiable precautionary measure. In order to exclude the possibility of an abdominal wall desmoid tumor that has manifested on the scar resulting from a caesarean section, it is imperative to do a differential diagnosis (Vellido-Cotelo et al., 2015). It is noteworthy to mention that the occurrence of cyclic pain during menstruation is specifically recorded in only 20% of cases involving abdominal wall endometrioma. From a clinical perspective, it is established that pain experienced in desmoid tumors is unrelated to the menstrual cycle (Chatziparadeisi et al., 2014).

CONCLUSION

In our case report study, the unusual occurrence of medium-sized deep endometriomas of the abdominal wall localized slightly above the caesarean scar rather than being in continuity with it, in a 32-year-old female, a year after a caesarean section, could be explained by taking into account the surgical method of the Pfannenstiel's laparotomic incision. The abdominal cavity can be longitudinally opened during dissection of the fascia and "recti abdominis" muscles, allowing the transport and implantation of endometrial tissue through surgical manipulation.

The differential diagnosis, which includes hernia, soft tissue tumor, abscess, and metastatic malignancy, can provide further difficulty when the endometrioma is located at a considerable distance from the abdominal scar. MRI can be utilized to distinguish between various lesions, and if an oncological resection is deemed required, intraoperative histological confirmation should be achieved through frozen section analysis.

The routine practice of cleaning and cleansing a laparotomy wound subsequent to a caesarean section is not implemented consistently throughout our hospital facilities, nor is it well incorporated into the training curriculum for medical trainees. In order to

mitigate the discomfort, anxiety, and morbidity associated with this delayed postoperative consequence, it is recommended that greater attention be given to this matter and that preventive measures be advocated.

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