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**Subcutaneous endometriosis associated with adenomyosis:
A complex multidisciplinary surgical case**

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Abstract

Background: Abdominal wall endometriosis is an uncommon extrapelvic form of endometriosis, most often developing at a previous gynecologic surgical scar. Patients typically report cyclical pain with or without a palpable mass, and diagnosis is frequently delayed because the presentation can mimic hernia, granuloma, lipoma, or desmoid tumor.

Purpose: To describe the clinical presentation, imaging findings, perioperative optimization, surgical management, and histopathological confirmation of abdominal wall endometriosis coexisting with adenomyosis in a patient with significant medical comorbidities.

Method: A case report was performed in a 45-year-old multiparous woman with a five-year history of progressive lower abdominal pain that worsened during menstruation and localized to a prior surgical scar. Pelvic ultrasonography identified adenomyosis and a 6.9 × 3.9 cm hypoechoic lesion in the anterior abdominal wall, raising suspicion of subcutaneous endometriosis.

Results: Surgical exploration showed a lesion extending through the subcutaneous tissue and fascia, with focal involvement of the rectus muscle. Complete excision was achieved after preoperative optimization, and the postoperative course was uneventful. Histopathological examination of two specimens (9 × 6 × 4 cm and 5 × 2 × 1 cm) demonstrated fibrocollagenous tissue, adipose tissue, and skeletal muscle infiltrated by endometrial glands, confirming abdominal wall endometriosis.

Conclusion: Abdominal wall endometriosis should be considered in women presenting with cyclical pain at a surgical scar. Imaging supports assessment of lesion extent and surgical planning, while histopathology remains essential to confirm the diagnosis and to exclude rare malignant transformation.

Keywords: Abdominal Wall Endometriosis; Adenomyosis; Histopathology; Scar Endometriosis; Ultrasonography.

INTRODUCTION

Endometriosis is a chronic, estrogen-dependent inflammatory disease characterized by endometrium-like tissue outside the uterine cavity, commonly associated with pain and reduced quality of life (Becker, Bokor, Heikinheimo, Horne, Jansen, Kiesel, King, Kvaskoff, Nap, Petersen, Saridogan, Tomassetti, van Hanegem, Vulliamoz, Vermeulen, & ESHRE Endometriosis Guideline Group, 2022). The condition affects a substantial proportion of reproductive-age women and remains clinically heterogeneous in severity, distribution, and symptom profile (Vercellini, Viganò, Somigliana, & Fedele, 2014). While the pelvis is the typical site, extra-pelvic endometriosis is a recognized entity that can involve distant locations, creating diagnostic challenges for clinicians outside gynecology (Hirata, Koga, & Osuga, 2020). Among extra-pelvic sites, abdominal wall endometriosis (AWE) is uncommon but clinically important, often reported after obstetric or gynecologic surgery and frequently overlooked in routine surgical assessments (Carsote Terzea, Valea, & Gheorghisan-Galateanu, 2020; Foley, Ayers, & Lee, 2022).

The most accepted mechanism for AWE is iatrogenic implantation of endometrial tissue into the wound at the time of surgery, followed by hormonally driven growth, fibrosis, and local inflammation (Khan, Zafagnin, El-Nashar, Famuyide, Daftary, & Hopkins, 2017; Rexhepi, Asani, Mulaki, Koprivnjak, & Azemi, 2023). Clinically, AWE is classically described by a triad of prior abdominopelvic surgery, a palpable mass near the scar, and cyclical pain that worsens during menstruation (Lakshmi, Londhe, Tejovathy, Varghese, Visali, & Kekre, 2015). However, symptom patterns can be incomplete or atypical, contributing to delayed diagnosis and repeated consultations before definitive treatment (Deborah & Mona, 2020). Because AWE can mimic more common conditions such as hernia, suture granuloma, lipoma, or desmoid tumor, misdiagnosis has been a persistent issue in the literature (Hensen, Van Breda Vriesman, & Puylaert, 2006).

Imaging is central for preoperative assessment, with ultrasonography commonly used as a first-line tool to identify lesion size, depth, and relationship to the fascia and muscle (Hensen et al., 2006; Edwards, Tsai, & Kothari, 2018). MRI can add clinically meaningful detail for pre-surgical mapping,

particularly when deep extension is suspected or when operative planning may involve complex dissection or reconstruction (Shenoy-Bhangle, Movilla, Joyce, Ghosh, Goldstone, Kilcoyne, Kambadakone, Morris, & Harisinghani, 2026). Definitive management is surgical excision, and outcome data support complete resection often with attention to adequate margins to reduce recurrence and persistent symptoms (Wu, Dai, Zhang, Li, Shi, Gu, Zhang, & Leng, 2023; Foley et al., 2022). Histopathology remains required to confirm the diagnosis and, although rare, to evaluate for malignant transformation arising in scar endometriosis (Liu, Wang, Chen, & Ren, 2021; Wei & Huang, 2017).

The diagnostic and therapeutic pathway becomes more nuanced when uterine disease coexists, particularly adenomyosis, which can independently cause dysmenorrhea, chronic pelvic pain, and heavy menstrual bleeding (Bourdon, Santulli, Marcellin, Maignien, Maitrot-Mantelet, Bordonne, Plu Bureau, & Chapron, 2021). Standardized sonographic terminology for myometrial assessment, including the MUSA consensus, supports clearer reporting when adenomyosis is suspected alongside endometriosis (Van den Bosch, Dueholm, Leone, Valentin, Rasmussen, Votino, Van Schoubroeck, Landolfo, Installé, Guerriero, Exacoustos, Gordts, Benacerraf, D'Hooghe, De Moor, Brölmann, Goldstein, Epstein, Bourne, & Timmerman, 2015). Increasing evidence also frames endometriosis and adenomyosis as conditions that may share overlapping pathobiology and clinical trajectories, making concurrent evaluation clinically rational in symptomatic patients (Martire, Costantini, D'Abate, Schettini, Sorrenti, Centini, Zupi, & Lazzeri, 2025). In practice, coexisting adenomyosis may blur symptom attribution between pelvic and scar-related pain, increasing the value of structured assessment across both compartments (Bourdon et al., 2021).

Complex AWE cases such as large lesions, deep invasion into fascia or rectus muscle, or patients with significant comorbidities often require multidisciplinary planning that integrates imaging interpretation, perioperative risk reduction, surgical strategy, and pathological confirmation (Shenoy-Bhangle et al., 2026; Izquierdo, Platten, Tollinche,

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Jones, & Yeoh, 2023). Preoperative evaluation and optimization are particularly relevant in high-risk patients, where metabolic control and perioperative pathway planning can reduce complications and support recovery (Duggan, Carlson, & Umpierrez, 2017; Scott & Shah, 2022). These principles align with broader perioperative frameworks emphasizing structured preparation for patients with elevated surgical risk profiles (Tote & Grounds, 2006). This case report describes a complex clinical scenario of subcutaneous abdominal wall endometriosis associated with adenomyosis in a patient with uncontrolled hypertension and hyperglycemia. We highlight the critical role of imaging-guided pre-surgical mapping, multidisciplinary perioperative optimization to mitigate surgical risks, definitive excision, and final histopathological confirmation.

RESEARCH METHOD

A single descriptive case report documenting the clinical presentation, investigations, perioperative management, operative findings, postoperative course, and histopathological confirmation of suspected abdominal wall endometriosis with concomitant adenomyosis, written in accordance with the CARE guideline for transparent case reporting (Gagnier, Kienle, Altman, Moher, Sox, Riley, & CARE group, 2014). The case was managed at the Department of Obstetrics and Gynecology, Academic Hospital (Arifin Achmad General Hospital), Faculty of Medicine, University of Riau. Inclusion was based on an adult multiparous woman presenting with cyclical scar-related pain, imaging evidence of an anterior abdominal wall mass suspicious for endometriosis, performance of surgical excision, and submission of the specimen for pathology (Wu et al., 2023). Clinical data were collected retrospectively from medical records and operative notes, including symptom chronology and menstrual association, prior surgery history, physical examination and vital signs, selected laboratory results (including random blood glucose), pelvic

ultrasonography findings, intraoperative documentation, estimated blood loss, complications, and length of hospital stay (Gagnier et al., 2014).

Preoperative management emphasized structured assessment and multimodal optimization due to significant comorbidities. Screening included routine hematologic and biochemical testing, with ECG and chest radiography obtained when clinically indicated, followed by anesthesia evaluation and ASA classification to guide perioperative planning (Scott & Shah, 2022). Severe hypertension (200-221/100-114 mmHg) was managed through internal medicine consultation, adjustment of antihypertensive therapy, and serial monitoring until the preoperative target was achieved, while hyperglycemia (random blood glucose 221 mg/dL) was co-managed with appropriate medical consultation and glucose control strategies spanning the pre-, intra-, and postoperative periods.

Surgery was performed with standard preparation including fasting and prophylactic antibiotics per institutional protocol, and the lesion was marked preoperatively using clinical and imaging correlation to support excision planning. The abdominal wall mass was excised *en bloc* with adequate margins, with resection extended to fascia and rectus muscle when involved, consistent with principles associated with improved surgical outcomes in abdominal wall endometriosis (Wu et al., 2023). Specimens (9 × 6 × 4 cm and 5 × 2 × 1 cm) were fixed in 10% formalin and evaluated using routine histopathology with hematoxylin eosin staining to confirm endometrial glands/stroma in extrauterine tissue and to assess for atypia or malignancy. Postoperative monitoring and follow-up at approximately 2 weeks, 6 weeks, and 3 months focused on wound healing, symptom course (including *Visual Analogue Scale* when available), early recurrence, and ongoing blood pressure/glucose control, with outcomes presented descriptively without inferential statistics due to the single-case design (Gagnier et al., 2014).

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RESEARCH RESULTS

Table 1. Summary of clinical data, physical examination, and preoperative investigations

Variable	Result	Notes
Demographics and history		
Age	45 years	Multiparous (P4A0)
Chief complaint	Cyclical lower abdominal pain for 5 years	Worsens during menstruation; localized to prior scar
Surgical history	Previous abdominal surgery	Pain located at the same scar region
Physical examination		
Palpation of abdominal wall	Mobile, firm mass	Located above the pubic symphysis
Initial blood pressure	200–221/100–114 mmHg	Severe uncontrolled hypertension
Laboratory assessment		
Random blood glucose	221 mg/dL	Hyperglycemia
Hemoglobin	Mild anemia	Exact value per medical record
Renal function	Within normal limits	Urea/creatinine not elevated
Liver function	Within normal limits	AST/ALT within limits
Triglycerides	Elevated	According to laboratory results
Imaging		
Pelvic ultrasound	Adenomyosis + abdominal wall lesion	Abdominal wall lesion 6.9 × 3.9 cm
Prior CT scan	Abdominal wall mass	Suspicious for endometriosis

Abbreviations: BP = blood pressure; CT = computed tomography.

Table 1 summarizes the key preoperative clinical and laboratory findings. The patient had severe uncontrolled hypertension (200-221/100-114 mmHg) and hyperglycemia (random blood glucose 221 mg/dL), requiring medical optimization prior to surgery, while imaging identified adenomyosis with a concurrent abdominal wall mass suspicious for endometriosis.



Figure 1. Transvaginal ultrasonography of a subcutaneous abdominal wall mass suspicious for endometriosis

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Figure 1 displays the transvaginal ultrasound demonstrates a well-defined subcutaneous hypoechoic lesion measuring approximately 6.5 × 2.4 cm, supporting suspicion of subcutaneous abdominal wall endometriosis. The size difference compared with abdominal ultrasound reflects measurement variability across planes/modalities, but remains clinically consistent with a localized abdominal wall mass.



Figure 2. Color Doppler transvaginal ultrasonography showing features consistent with adenomyosis

Figure 2 shows Color Doppler transvaginal ultrasound shows myometrial heterogeneity with areas of vascularization, an imaging pattern consistent with adenomyosis. These findings help explain coexisting uterine-source symptoms and support dual-pathology assessment alongside the abdominal wall lesion.

Table 2. Intraoperative findings and histopathological confirmation

Variable	Result
Surgical approach	Laparotomy
Mass location	Anterior abdominal wall
Depth/structures involved	Subcutaneous tissue, fascia, and part of rectus muscle
Intraoperative mass size	Approximately 7 cm
Procedure performed	Wide excision with adequate margins (en bloc)
Abdominal wall reconstruction	Primary closure; no mesh required
Estimated blood loss	100-300 mL
Intraoperative complications	None
Specimens submitted	Two specimens: 9 × 6 × 4 cm and 5 × 2 × 1 cm
Histopathology conclusion	Endometrial glands and stroma within fibrocollagenous/adipose tissue with hemosiderin-laden macrophages and chronic inflammatory infiltrates; no atypia/malignancy

Table 2 presents the intraoperative findings and surgical course. The lesion involved subcutaneous tissue, fascia, and a portion of the rectus muscle, yet complete excision was achieved with primary reconstruction, estimated blood loss of 100-300 mL, and no intraoperative complications.

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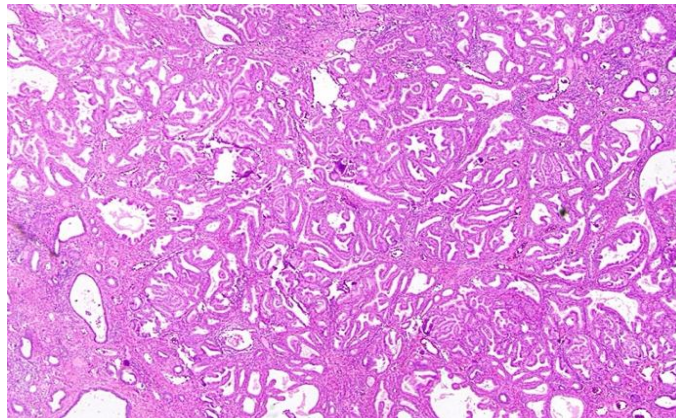


Figure 3. Histopathological confirmation of abdominal wall endometriosis (H&E stain)

Figure 3 illustrates the histopathological confirmation of endometriosis, characterized by the presence of well-defined endometrial glands and stroma embedded within fibrocollagenous and adipose tissues. The sections also show hemosiderin-laden macrophages and chronic inflammatory infiltrates, consistent with cyclic intralesional hemorrhage. Importantly, no atypia or malignant cells are identified, confirming the benign nature of this scar-related endometriotic lesion.

DISCUSSION

The present case illustrates that safe definitive treatment of abdominal wall endometriosis (AWE) can be achieved in a medically high-risk patient when perioperative planning is structured and multidisciplinary. In this patient, severe uncontrolled hypertension and hyperglycemia required stabilization before surgery, as summarized in Table 1, consistent with perioperative optimization strategies intended to reduce preventable morbidity (Izquierdo et al., 2023; Scott & Shah, 2022). The operative course (Table 2) showed complete excision without intraoperative complications and acceptable blood loss, supporting that risk mitigation and operative preparedness can translate into uncomplicated short-term recovery (Tote & Grounds, 2006). Glucose control deserves particular emphasis because perioperative hyperglycemia is associated with higher complication risk and requires active monitoring across the perioperative period. (Duggan et al., 2017).

Clinically, the patient's presentation fits the classic AWE pattern cyclical scar-related pain with a palpable mass following prior abdominal surgery

which remains a practical clinical cue to raise early suspicion. (Lakshmi et al., 2015) This pattern is biologically plausible because ectopic endometrial tissue remains hormonally responsive and inflammation-driven, producing cyclical bleeding and progressive fibrosis that manifest as pain and nodularity (Horne & Missmer, 2022). Diagnostic delay is common because symptoms may be attributed to more frequent surgical entities (e.g., hernia or granuloma), particularly when cyclicity is subtle or inconsistently reported (Deborah & Mona, 2020). Correlating symptom timing with ultrasound morphology can therefore improve diagnostic confidence, as ultrasonographic features of abdominal wall endometrioma have shown meaningful alignment with clinical findings (Solak, Genç, Yalaz, Şahin, Sezer, & Solak, 2013).

The coexistence of adenomyosis in this case supports framing endometriosis beyond a purely localized implantation phenomenon, because adenomyosis is also associated with chronic inflammation, altered myometrial structure, and hormonally mediated symptoms (Bourdon et al., 2021). Contemporary pathobiologic perspectives describe overlapping mechanisms between endometriosis and adenomyosis—including progesterone resistance and persistent inflammatory signaling suggesting a systemic predisposition rather than a coincidental dual diagnosis (Martire et al., 2025). Symptom attribution may become blurred when both conditions coexist, as uterine and scar-related pain can worsen around menses and be perceived as a single “menstrual pain syndrome” unless evaluated by anatomical compartment (Bourdon et al., 2021). Integrating uterine

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assessment into the diagnostic pathway is therefore clinically coherent, rather than managing AWE as an isolated abdominal wall disorder (Vercellini et al., 2014).

Imaging findings in this case were consistent with the expected sonographic appearance of AWE and helped narrow the differential diagnosis prior to surgery (Hensen et al., 2006). Figure 1 demonstrates a well-defined hypoechoic subcutaneous lesion, aligning with reported ultrasound patterns of abdominal wall endometrioma/endometriosis in the appropriate clinical context. Minor discrepancies in lesion size across examinations are not unexpected and may reflect differences in imaging plane, probe orientation, and modality, while still supporting a consistent lesion within the same anatomical compartment (Edwards et al., 2018). For the uterine component, Figure 2 shows myometrial heterogeneity with Doppler vascular signals that support adenomyosis and align with standardized descriptive approaches for myometrial assessment (Van den Bosch et al., 2015).

Beyond establishing suspicion, imaging has practical value for *pre-surgical mapping*, particularly when disease may extend to fascia or rectus muscle and when reconstruction planning could be required (Shenoy-Bhangle et al., 2026). Although comparative modality studies have primarily focused on deep infiltrating endometriosis, the underlying principle remains applicable: MRI generally provides superior anatomic delineation compared with ultrasonography when defining disease extent and surgical planes (Guerriero, Alcázar, Pascual, Ajossa, Perniciano, Piras, Mais, Piras, Schirru, Benedetto, & Saba, 2018). In this case, cross-sectional imaging supported suspicion of an abdominal wall endometriotic lesion (Table 1), while operative findings confirmed involvement of fascia and focal rectus muscle (Table 2), illustrating the clinical value of anticipating depth before incision (Shenoy-Bhangle et al., 2026). This mapping-oriented approach is especially relevant in complex patients because it supports coordinated decisions regarding incision design, margin targets, and readiness for closure strategies.

Surgery remains the definitive management for symptomatic AWE, and the strategy used here *en bloc* wide excision with adequate margins aligns with evidence favoring complete resection to minimize

persistence and recurrence (Wu et al., 2023). The absence of intraoperative complications and the feasibility of primary closure without mesh (Table 2) suggest that, despite rectus involvement, the defect remained manageable with standard abdominal wall reconstruction principles (Foley et al., 2022). Recurrence is most consistently linked to incomplete excision and residual microscopic disease, supporting the emphasis on margin-conscious resection in published series. (Khan et al., 2017; Wu et al., 2023). Insights from larger case experiences also indicate that a proportion of complications are preventable through careful dissection, appropriate repair planning, and avoiding underestimation of lesion extent (Erdoğan, Diner, Sayar, Özcan, & Ayas, 2025).

Histopathology is essential because it provides definitive diagnosis and addresses safety concerns regarding atypia and malignant transformation. Figure 3 demonstrates endometrial glands and stroma within fibrocollagenous/adipose tissue with hemosiderin-laden macrophages and chronic inflammation, a constellation strongly supportive of endometriosis in an extrauterine site. (Cabuk, Aktepe, Kuskü, Coban, & Dogusoy, 2018). Although malignant transformation of scar endometriosis is rare, it is documented, and wide excision with histologic evaluation supports exclusion of entities such as clear cell carcinoma arising from scar endometriosis. (Liu et al., 2021; Wei & Huang, 2017). From a pathology perspective, systematic assessment for atypia and malignant architectural features follows general oncologic histopathology principles relevant to glandular lesions. (Horn, Meinel, Handzel, & Eienkel, 2007).

In this case, symptom control improved after preoperative stabilization and complete excision of the abdominal wall lesion, with an uncomplicated short-term postoperative course. The operative findings confirmed extension beyond the subcutaneous plane into the fascia with focal rectus involvement, and histopathology established the diagnosis of abdominal wall endometriosis without atypia. The concurrent sonographic features of adenomyosis provided a relevant clinical context for interpreting menstrual-related symptoms across both uterine and abdominal wall compartments.

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CONCLUSION

Abdominal wall endometriosis occurring concurrently with adenomyosis in a patient with significant systemic comorbidities, emphasizing the need for high clinical suspicion. Cyclic pain localized to a prior surgical scar should prompt evaluation for AWE, particularly in women with a history of gynecologic or obstetric surgery. Imaging supports assessment of lesion extent and operative planning, whereas histopathology provides definitive diagnosis and helps exclude rare malignant transformation. Multidisciplinary perioperative optimization is essential in patients with cardiovascular or metabolic risk factors to improve surgical safety. Complete surgical excision remains the definitive treatment and is associated with substantial symptom improvement and reduced risk of recurrence.

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