

Incidental Abdominal Wall Endometriosis in Plastic Surgery: Two Cases and Review of the Literature

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Summary: Endometriosis is a common cause of pain and infertility. Abdominal wall endometriosis (AWE) is a form of extrapelvic endometriosis that can be encountered during abdominal surgery such as abdominoplasty or free flap harvest. We report two cases of AWE; one found intraoperatively in a 32-year-old woman desiring body contouring after undergoing cesarean section, and a second in a 36-year-old woman requiring resection and reconstruction of a left chondroid tenosynovial giant cell tumor of her temporomandibular joint. During free flap planning, she was found to have endometriosis of her right hemi-abdomen. Both patients underwent resection of their AWE and were referred to their obstetrics and gynecology physicians for consideration of menstrual suppression to decrease their risk of recurrence. (*Plast Reconstr Surg Glob Open* 2024; 12:e5871; doi: [10.1097/GOX.0000000000005871](https://doi.org/10.1097/GOX.0000000000005871); Published online 7 June 2024.)

INTRODUCTION

Endometriosis is a common cause of both pain and infertility in women of reproductive age. The most common sites of endometriosis are the ovaries and pelvic peritoneum; however, extrapelvic disease has been reported, with one of the rarest entities being abdominal wall endometriosis (AWE).¹ This is most frequently found after gynecologic surgery.²

Abdominoplasty and abdominally based breast reconstruction are two commonly performed operations for plastic surgeons. Despite the prevalence of endometriosis and frequency of these procedures, only three cases of AWE found during, or as part of a workup for abdominoplasty or free flap reconstruction have been reported.³⁻⁵

The differential diagnosis for an abdominal wall mass found during the workup or execution of an abdominal wall procedure may include a hernia, dermoid cyst, granuloma, neuroma, or malignancy. Preoperative identification and workup may narrow this differential and decrease operative time and surgeon fatigue, while streamlining treatment. Proper management of AWE,

once encountered, also reduces the risk of recurrence and disruption to the patient's aesthetic outcome.

A presentation of two cases of AWE found during abdominoplasty and workup for free flap reconstruction of a skull base defect are reported. (See table, **Supplemental Digital Content 1**, which displays a review of the literature with recommendations for diagnosis and treatment. <http://links.lww.com/PRSGO/D260>.)

CASE PRESENTATION

A 32-year-old G2P2 woman presented to be evaluated for body contouring in 2023. She had undergone a cesarean section (CS) in 2018, and CS with tubal ligation in 2019. She was determined to be a candidate for mastopexy with autologous fat grafting, abdominoplasty with circumferential trunk liposuction, BodyTite radiofrequency skin tightening, and submental liposuction. The patient had no other known medical or surgical history, no known drug allergies, and did not use nicotine. On examination of the abdomen, she had a well-healed CS without discoloration, and no obvious masses.

During routine elevation of her abdominal flaps, a 2.5×3.0×3.5cm globular, chocolate colored mass was found, extending from her CS scar and involving the deep dermis (Fig. 1). Differential diagnosis included incisional hernia, AWE, dermoid cyst, granuloma, or malignancy. The anterior rectus sheath was incised circumferentially around the mass, which did not extend deep to the superficial rectus abdominis, and was thus deemed not to

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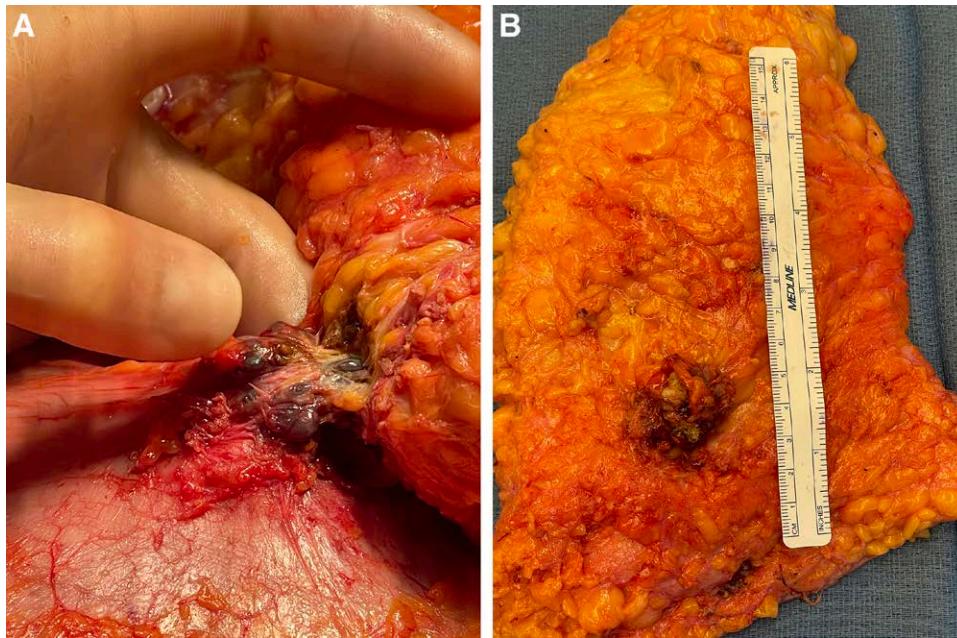


Fig. 1. AWE specimen found during abdominoplasty. A, AWE encountered during elevation of abdominoplasty flaps, adherent to the anterior rectus sheath and extending from the CS scar. B, Specimen after removal of abdominoplasty flap.

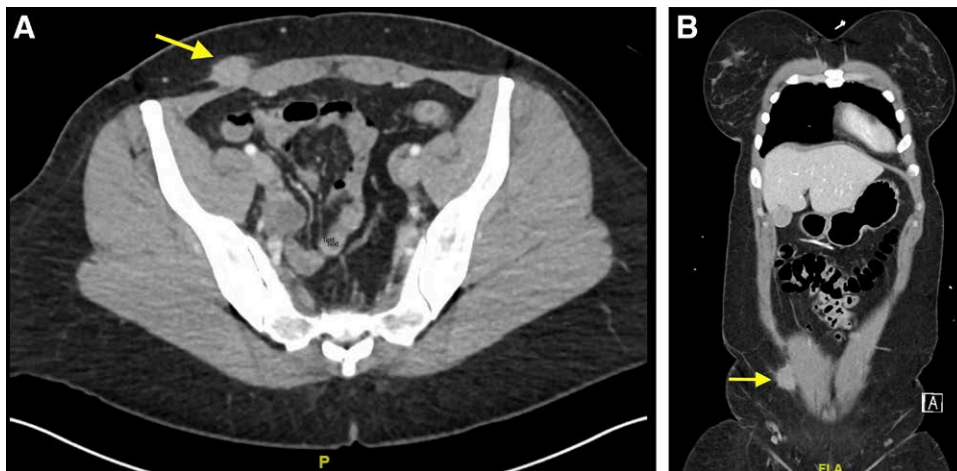


Fig. 2. CT imaging of right AWE. A, Axial. B, Coronal.

represent a hernia. The fascia was closed primarily; clips were placed to mark the excisional site, should further resection be warranted; and the case proceeded otherwise uneventfully. Upon follow-up, the patient endorsed cyclic pain at the time of her menstrual cycle, located at her CS scar. This began after her last CS. Pathology returned as benign endometrial tissue.

A 36-year-old G4P4 woman presented with syncope in the setting of a growing left facial mass with otalgia. She noted swelling of the area 2 years prior, but did not undergo formal evaluation. Computed tomography (CT) scan showed a heterogeneously enhancing mass measuring 7.8×4.5×4.4cm centered over the squamous portion of the temporal bone, with intracranial extension

involving the temporomandibular joint, and masseter. Biopsy showed chondroid tenosynovial giant cell tumor. She was planned for extirpation with neurosurgery and ENT, with free flap reconstruction by plastic surgery. An abdominally based flap was considered for elimination of dead space; however, CT scan of the abdomen showed a 2.4×1.6 cm irregular mass of the right abdominal wall abutting the rectus muscle (Fig. 2). A biopsy was performed and showed endometriosis.

The patient underwent resection of her tumor, with left msTRAM flap reconstruction and resection of her right AWE. One centimeter margins were taken, resulting in a 9×3.5 cm fascial defect after excision of dog ears. The fascia was closed primarily. Both patients were referred to

their obstetrics and gynecology physicians for consideration of menstrual suppression during their acute recovery phase.

DISCUSSION

AWE is a rare form of a common disease among North American women. Presentation is variable, with some patients being asymptomatic. However, the classic presentation includes the triad of cyclic abdominal pain at the time of menstruation, a palpable mass, and history of CS or other gynecologic surgery.² AWE is thought to occur due to seeding of the abdominal wall during surgery, with approximately 85% of AWE occurring at CS scars; however, it has also been found at laparotomy or trocar scars, as well as some distance from a CS scar in one patient.^{1,3}

Given the prevalence of CS and gynecologic surgery in patients seeking abdominoplasty and abdominally based free tissue transfer, we recommend a focused history and physical examination of these patients. Patients should be asked about history of endometriosis and pain at surgical scars (particularly at the time of their menstrual cycles). Abdominal scars should be palpated for underlying masses and examined for discoloration. If a mass is appreciated, ultrasound is reported as the most common initial imaging modality. However, CT, magnetic resonance imaging, and fine needle aspiration (FNA) have been used for further characterization, with FNA being diagnostic in approximately half of cases. However, there is some concern that FNA may cause bleeding from these vascular tumors or seeding of the needle tract.⁶ Once identified, AWE should be completely excised and sent for permanent pathology, as malignant degeneration has been reported.⁷ We recommend marking the site with either clips or permanent sutures, in the rare instance of malignancy and need for further operative resection. Although endometriosis is typically well circumscribed, if there is uncertainty regarding margins, frozen sections can be used to confirm both the diagnosis and disease-free margins. Reconstruction of the abdominal wall with mesh may be indicated, as some authors advocate for 1-cm resection margins.⁶

Medical treatment alone has yielded temporary symptomatic improvement in some patients, but frequently leads to recurrence of symptoms upon cessation of treatment.⁶ Surgery alone has led to a recurrence rate of 1.5%–42.5%.^{8–10} A combination of surgical resection and medical therapy has been advocated by some authors to decrease the risk of recurrence.^{1,8,10} We recommend referring patients with AWE to their obstetrics and gynecology physicians for consideration of menstrual suppression after surgical resection. The plastic surgeon may counsel the patient regarding their risk of recurrence and resultant pain, deformity, and need for additional procedures. However, review of the risks and management of medical therapy should be left to a physician experienced in this practice.

When AWE is identified before surgery in the setting of planned abdominal flap reconstruction, it may be prudent to choose an alternative flap in some cases. Resection of the AWE is recommended, but using the flap in the vicinity of the tumor may result in further seeding of the abdomen or the flap recipient site. In our case, only a single hemi-abdomen was needed, so we were able to harvest the unaffected side before exposing the AWE, and then perform resection of the tumor, discarding the diseased hemi-abdominal flap.

CONCLUSIONS

AWE is a rare form of extrapelvic endometriosis that plastic surgeons may encounter during abdominoplasty or abdominally based free tissue transfer. A history of gynecologic surgery, cyclic pain at the resultant scar, and palpable mass is suggestive of AWE. Knowledge of its presentation, workup, and treatment helps plastic surgeons to achieve an optimal and durable cosmetic result, while decreasing the risk of recurrence and resultant deformity.

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DISCLOSURE

The authors have no financial interest to declare in relation to the content of this article.

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