

Surgical Management of Chronic Encapsulated Abdominal Wall Seroma 8 Years after Abdominoplasty

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Summary: Seroma is a common complication of body-contouring surgery. Current literature focuses on prevention or initial management of seroma formation; however, no definitive evidence exists to guide management of chronic or recurrent seromas. We describe a case of a recurrent abdominal wall seroma following abdominoplasty. The seroma was present for 8 years despite employing multiple treatment modalities. After presentation to our clinic, the patient was taken to the operating room, where the seroma pseudocapsule was excised, progressive tension sutures were utilized, and drains were placed. To date, there has been no recurrence of the seroma. We propose that chronicity, recurrence, and persistence of seroma are indications for surgical intervention. (*Plast Reconstr Surg Glob Open* 2021;9:e3697; doi: [10.1097/GOX.0000000000003697](https://doi.org/10.1097/GOX.0000000000003697); Published online 20 July 2021.)

Abdominoplasty is one of the most commonly performed aesthetic operations in plastic surgery.¹ It can be associated with a host of complications, including seroma formation, which may occur in as many as 43% of patients.¹ A standard algorithmic approach to seroma management has not yet been developed, leaving much of the treatment to clinical acumen. Additionally, persistent, chronic, or recurrent seromas represent an even smaller subset of this population, and the presence of a capsule may render nonsurgical techniques ineffective. In this case report, the patient required return to the operating room for excision of a long-standing seroma cavity, with quilting sutures and drain placement, without recurrence of the seroma, to date. We propose that chronicity and continued recurrence of seroma are indications for surgical intervention.

CASE REPORT

A 64-year-old woman presented with a large, recurrent, chronic anterior abdominal wall seroma, present for 8 years following body-contouring surgery. Eleven years before, she underwent bariatric surgery and lost over 300 pounds. Three years postbariatric surgery she underwent abdominoplasty, with over 4000 grams of soft tissue removed. The abdominoplasty was complicated by

development of a periumbilical seroma requiring multiple percutaneous drainage procedures and drain placement. The seroma persisted, and she underwent operative excision of the seroma cavity with drain placement. After the operation, her seroma recurred, but resolved after drain placement by interventional radiology. The patient then moved out-of-state. Unfortunately, the seroma recurred once more, but she was unable to find a provider willing to manage it. She was instructed to return to her original surgeon for intervention but was unable to do so.

Eight years later, she arrived at our clinic complaining of abdominal fullness making physical activity and fitting into clothing challenging. Comorbidities included well-controlled hypertension, mild asthma, morbid obesity, anxiety, and depression. On examination, she had well-healed abdominoplasty incisions, periumbilical fullness, and a visible abdominal fluid wave. Computed tomography demonstrated a 30 × 6.6 cm walled-off fluid collection involving the anterior abdominal wall, superficial to abdominal musculature (Fig. 1).

She was taken to the operating room, where access to the seroma was gained through her prior abdominoplasty scar. Nine hundred milliliters of brown serous fluid were evacuated. The seroma cavity was dissected circumferentially in a lateral to medial fashion, exposing a clean plane between the anterior abdominal wall fascia and the thick seroma capsule bilaterally (Fig. 2). No additional adjuncts, such as methylene blue, were used to confirm seroma cavity excision. Interrupted, progressive quilting sutures and two 19 French channel drains were placed. Pathologic analysis of the seroma cavity demonstrated dense sclerotic fibrous tissue, and cultures of the fluid were unremarkable.

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Received for publication December 8, 2020; accepted May 20, 2021.

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DOI: [10.1097/GOX.0000000000003697](https://doi.org/10.1097/GOX.0000000000003697)

Disclosure: The authors have no financial interest to declare in relation to the content of this article. No funding was provided for this study.



Fig. 1. Preoperative computed tomography scan demonstrating large, encapsulated fluid collection anterior to the abdominal wall musculature.



Fig. 2. Intraoperative photograph of seroma capsule after excision.

Over the 2-month postoperative period, the patient's surgical drains were sequentially removed. She developed umbilical sloughing requiring superficial debridement and local wound care. One year follow-up showed no

evidence of seroma recurrence. Pre- and postoperative photographs are seen in [Figure 3](#).

DISCUSSION

Seroma formation is a common complication following abdominoplasty. In this case, excision of the seroma cavity and capsule were performed to treat chronic, recurrent seroma formation. Little is known about what measures were taken to prevent seroma formation at the time of the patient's initial operation; however, it is known that patients undergoing abdominoplasties after massive weight loss are at a high risk for seroma formation. The weight of excised skin at the time of surgery, BMI, and age of the patient are important risk factors for seroma development.²⁻⁴ Furthermore, stable weight for at least 3 months impacts development of complications.⁴

Operative techniques for prevention of seromas focus primarily on applying general surgical principles, such as decreasing dead space and limiting shear forces. These include the use of quilting or progressive tension sutures, preservation of Scarpa's fascia, tissue adhesives, injection of sclerosants, drain placement, and compression. Current literature supports using preventative measures but is contradictory regarding which methods are effective, highlighting the fact that these practices minimize, but do not eliminate, the possibility of seroma.^{2,5,6}

If prevention is unsuccessful, similar modalities have been proposed to treat seroma, including compression, percutaneous needle aspiration, interventional radiology drain placement, injection of sclerosants such as bleomycin, doxycycline, dehydrated ethanol, steroids, 5-fluorouracil, talc and tetracycline, and reoperation to excise the seroma cavity and capsule.² Numerous studies discuss the utility of repeated sclerotherapy in persistent seroma but fail to address their use in chronic or encapsulated seromas.⁵ Once a fibrous capsule has formed, it is unknown which, if any, of these treatments are most beneficial. Several case reports employ surgical resection as the most effective management,⁷⁻⁹ but no definitive evidence exists regarding operative indications or outcomes after return to the operating room for chronic seroma.

The patient presented to our institution with a seroma after 8 years without treatment. She had previously undergone seroma capsulectomy; however, it is unclear why it was unsuccessful. Records indicating the use of adjunct treatment modalities, such as sclerotherapy, at any point in

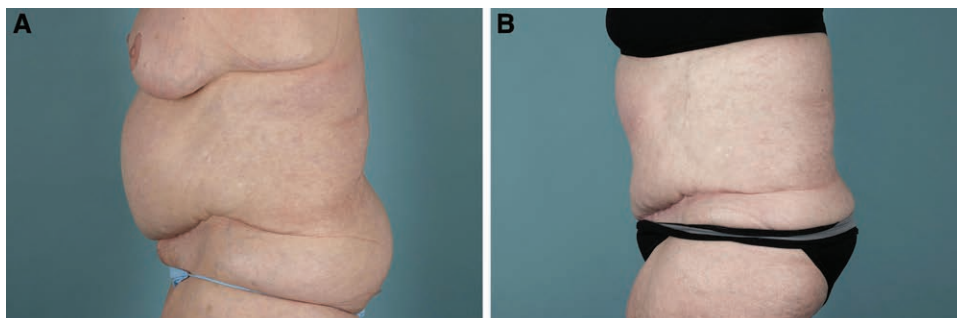


Fig. 3. Pre- and postoperative photographs. A, A 64-year-old woman presenting for treatment of abdominal projection. B, 1 year following operative excision of seroma demonstrating improvement in size of the abdomen.

this patient's management were also unavailable. Fibrous pseudocapsules develop around seromas that are detected late or inadequately treated.¹⁰ It was assumed that the patient's delay in care provided an opportunity for well-formed encapsulation of the seroma, rendering conservative means of treatment likely unsuccessful. Therefore, we propose recurrent seroma with clinically suspected well-formed capsule, confirmed with computed tomography, is an indication for capsulectomy and drainage, and surgery should be offered to these patients.

This study has several limitations. Given the retrospective nature and design as a single-patient narrative, the conclusions may not be applicable to all patients. Lack of access to the patient's outside medical records also made it difficult to fully understand the measures taken to prevent a seroma when the patient underwent body-contouring surgery, and without operative reports, exactly what was done during subsequent reoperations. Large, multi-center studies focusing on chronic and recurrent seroma management are needed to define their treatment.

CONCLUSIONS

No definitive algorithm exists for management of persistent seromas. In patients with chronic seroma, operative management and excision of the seroma cavity may be the most optimal treatment to prevent recurrence.

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