

Mini-invasive technique of sclerotherapy with talc in chronic seroma after abdominoplasty – a case report and literature review

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Summary

The formation of a seroma after abdominoplasty is one of the most common complications faced by plastic surgeons. A 59-year-old man underwent lipoabdominoplasty and developed a large subcutaneous seroma that persisted for 7 months. Percutaneous sclerosis with talc was performed. We present the first report of chronic seroma after lipoabdominoplasty successfully treated with talc sclerosis.

Key words

talc – seromadesis – seroma – lipoabdominoplasty – abdominoplasty

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Introduction

Abdominoplasty is one of the most common cosmetic surgeries performed worldwide [1]. As with any other surgical intervention, both abdominoplasties and lipoabdominoplasties are susceptible to complications [2]. Seroma formation is one of the most frequent complications and has been reported in about 5–30% of cases [3]. Although seromas are usually resolved with multiple aspirations, they can sometimes become chronic, leading to the development of a pseudocapsule or pseudobursa [4]. Talc seromadesis is inspired by pleurodesis and is a widely accepted technique to treat pleural effusion and recurrent pneumothorax [5]. Therefore, it seems to be an easily reproducible and attractive technique that would allow the definitive treatment of recurrent seromas. We present the first report of chronic seroma after lipoabdominoplasty that was successfully treated with talc sclerosis.

Description of the case

A 59-year-old man with a history of grade 1 obesity (Body Mass Index (BMI) 32.4 kg/m²), high blood pressure, atrial fibrillation, and a former smoker. Liposuction and abdominoplasty were performed due to lipodystrophy, abdominal flaccidity, and recti diastasis. The surgery did not present immediate complications and the wound was closed with two suction drains that were removed 7 and 10 postoperative days when the volumes were < 30 mL in 24 hours. However, on postoperative day 30, the patient developed a large subcutaneous seroma (Fig. 1), which was aspirated, obtaining 360 mL. Subsequently, the treatment of the seroma required compression methods and 10 ultrasound-guided punctures, with a medium aspirated volume of 213 mL (range 48–400) for 7 months. Due to the persistent behavior of the seroma, the patient underwent surgery. As an intraoperative finding, a bursa was identified that was debrided

with its entire pseudocapsule. The liquid samples were sent for microbiological culture that did not show development and for histopathological study that reported a whitish tissue of 16 × 12.5 cm corresponding to fibroconnective tissue. Twenty-eight days after the surgery, the patient continued with induration and fluctuation at the incision site. Therefore, we decided to perform percutaneous sclerosis with talc.

Surgical technique

Ultrasound technology produces non-invasive high-resolution imaging and is considered a valuable tool to identify and assess fluid collections [6]. Under ultrasound guidance and local anesthesia, the seroma was punctured and an 8.5 Fr multipurpose drainage catheter (Fig. 2) was placed using the Seldinger technique. Once the content was evacuated, a suspension of 5 g of talc was instilled in 50 mL of saline solution through the catheter (Fig. 3). The catheter remained

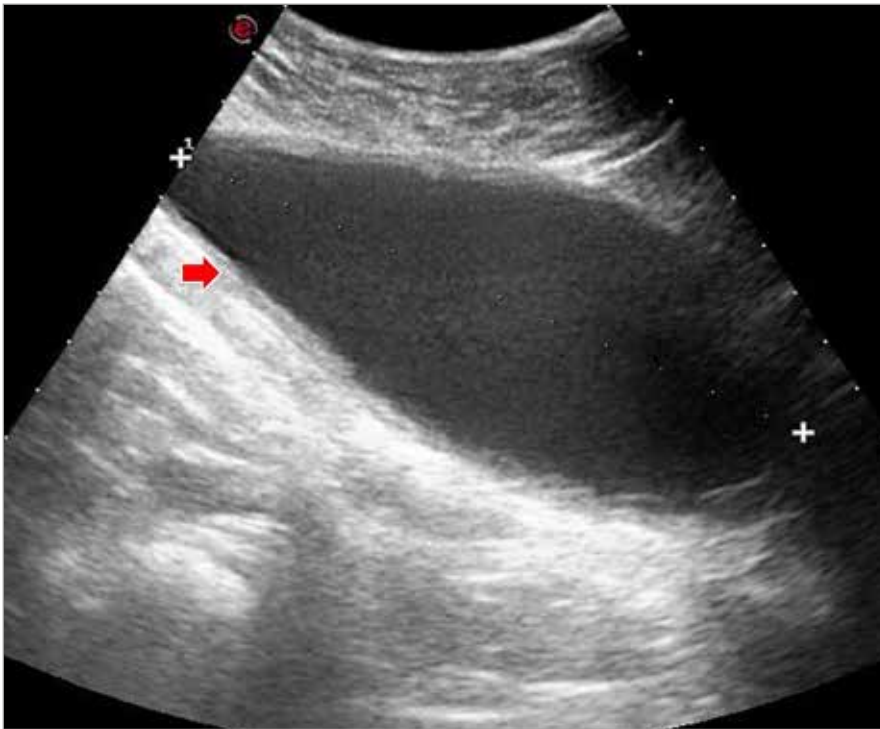


Fig. 1. Ultrasound with liquid collection in the subcutaneous plane of 15 × 13 cm in the transverse direction and craniocaudal of 1.4 cm thick (red arrow).

closed for 6 hours to promote sclerosis and adhesion of the cavity walls. It was associated with a compressive bandage. Both the procedure and the patient's recovery were without complications. Fourteen days after the procedure, the catheter was withdrawn with a volume of < 10 mL in 24 hours and no adverse effects were reported.

The monitoring was followed up for up to 2 years after sclerotherapy. Control

computed tomography showed fibrotic changes in the subcutaneous plane of the abdominal wall (Fig. 4). The patient is currently progressing well without recurrence of the seroma.

Discussion

Abdominoplasty, also known as a tummy tuck, is a surgical procedure that consists of removing excess fat and skin around the abdomen and strength-



Fig. 2. An 8.5-Fr multipurpose drainage catheter set (Cook Medical Inc., Bloomington, IN).

ening the muscles of the abdominal wall [7]. According to the American Society of Plastic Surgeons (ASPS) report, abdominoplasty was considered the fourth most performed aesthetic surgical procedure in 2020 [8]. Although men are increasingly undergoing this type of surgery, it remains more prevalent in women [8]. This coincides with our institutional experience.

Despite the popularity of abdominoplasty, it carries a higher risk of complications compared to other cosmetic procedures. These complications include hemorrhage, surgical site infection, wound dehiscence, skin or fat necrosis, hematoma, pulmonary embolism, and seroma [9]. BMI, and association with liposuction are the most important predictive factors to seroma formation after abdominoplasty [10]. Both factors were present in our patient.

Seromas are indeed common complications faced by plastic surgeons [11]. In a systematic review and meta-analysis, the global prevalence of seroma after abdominoplasty was reported to be

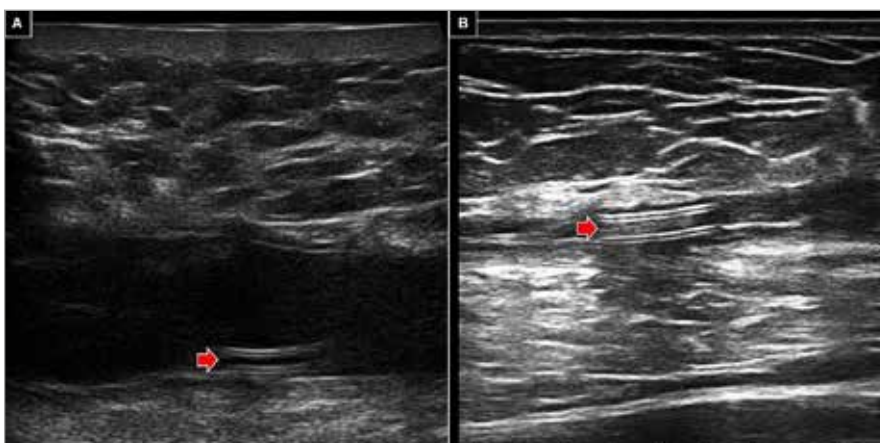


Fig. 3. Ultrasound-guided puncture and drainage of the collection with a catheter (red arrow) with subsequent instillation of talc.

Tab. 1. List of published cases of talc-induced sclerosis in the treatment of chronic seromas.

Patient No.	Authors (year)	Age	Sex	Comorbidity	Surgery/Etiology	Aspiration	Volume aspirated (ml)	Decortication	Talc	Complication	Follow-up (months)	Recurrence	Definitive treatment
1	Holt-house et al 2001 [17]	75	M	arterial occlusive disease	femoropopliteal bypass graft	1	N/A	N/A	4 g spray	no	12	N/A	–
2		71	F	N/A	iliac endarterectomy	several*	N/A	N/A		no	3	N/A	–
3		79	M	N/A	inguinal hernia	several*	N/A	N/A		no	6	N/A	–
4		85	M	N/A	femoropopliteal bypass graft	N/A	N/A	N/A		no	1	N/A	–
5	Lehr et al 2001 [18]	45	F	morbid obesity	incisional hernia	3	2,000	no	4 g suspension	no	9	yes	aspiration
6		44	M	obesity, cirrhosis		5	N/A	yes		no	6	no	–
7		80	F	Crohn		1	N/A	N/A		no	2	no	–
8	Luria et al 2006 [19]	73	F	N/A	blunt lower limb trauma	4	N/A	no	5 g suspension	no	42	no	–
9		20	M	N/A		1	N/A	no		no	19	no	–
10		46	M	N/A		1	N/A	no		induration	35	no	–
11		55	M	N/A		1	N/A	no	infection + induration	10	yes	talc	
12	Saeb-Parsy et al 2006 [20]	66	F	breast cancer	mastectomy	Several*	200–650	no	4 g powder	no	5	no	–
13	Lopez-Monclus et al 2012 [13]	67	M	N/A	inguinal hernia	3	N/A	no	4 g powder	no	12	no	–
14	Metcalfe et al 2013 [21]	88	M	abdominal aortic aneurysm	stent graft	0	N/A	yes	4 g powder	no	2	no	–
15	Catsman et al 2016 [5]	52	F	breast cancer	mastectomy	9	N/A	no	4 g powder	no	6	no	–
16		56	F	no	incisional hernia	6	420	no		no	10	yes	decortication
17	Lopez-Monclus et al 2021 [22]	52	F	AHT		4	250	no	4 g powder	no	4	no	–
18		59	M	no		5	330	no		no	7	yes	ethanol
19		70	F	no		3	280	no		no	13	yes	ethanol
20		63	M	AHT		3	450	no		no	9	yes	decortication
21		72	M	DM, COPD		2	380	no		no	12	yes	decortication

AHT – arterial hypertension, COPD – chronic obstructive pulmonary disease, DM – diabetes mellitus, F – female, IH – incisional hernia, M – male, N/A – not available

* The number of aspirations was not clarified.

^apercutaneous or conventional

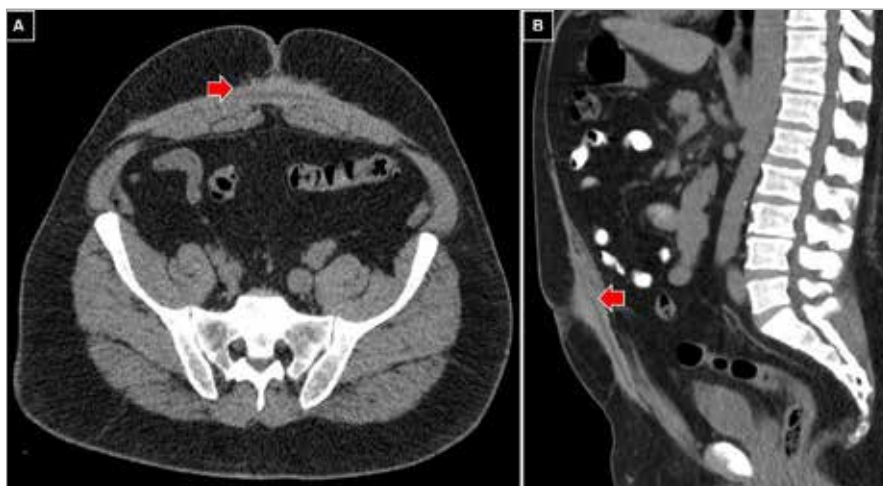


Fig. 4. Control 2 years after sclerotherapy. Computed tomography of the abdomen and pelvis shows fibrosis in the subcutaneous plane with resolution of the seroma (red arrow).

10.9% [10]. If a seroma is not detected or treated properly, it can develop a fibrous pseudocapsule that transforms the seroma into a chronic encapsulated condition [12]. Our patient developed a seroma refractory to multiple aspirations for a prolonged period. When a seroma persists despite successive drainages, it becomes a difficult problem to solve and causes a significant deterioration in the quality of life of the patient, and increases the costs of hospital care [10,13].

In order to reduce post-operative seroma formation several measures have been proposed, including prolonged use of drainages, compressive garments, tissue glue and progressive tension sutures [14]. In the same fashion, in 1998 Baroudi and Ferreira described the quilting suture technique where sutures bite the muscular fascia below and the superficial fascia of the skin flap above to effectively reduce shearing forces, dead space and consequently the incidence of seroma [15].

Currently, there is no consensus on the treatment of symptomatic seroma, it varies from percutaneous aspiration to surgical drainage or instillation of sclerosing substances [13]. In this case, the excision of the seroma cavity and pseudocapsule was also performed. However, treatment was insufficient,

probably due to its size, chronic behavior, and the omission of progressive tension or quilting sutures after pseudocapsule resection. Therefore, we decided to perform percutaneous talc sclerosis.

Sclerotherapy is a procedure that uses a chemical agent to irritate the inner lining of a seroma, inducing an inflammatory reaction that leads to fibrosis and collapse of the cavity [11]. Recommendations are derived from literature on thoracic surgery addressing pleural effusions [16].

So far, eight studies on talc sclerotherapy for chronic seromas have been reported [5,13,17–22] in various surgical specialties (Tab. 1). We found that 57% were men with a mean age of 40.8 years. A total of 47.6% were chronic seromas after abdominal wall surgeries. The need for aspirations was described in 85.7%. In one case, initial treatment was insufficient and surgical decortication was added. The most used presentation of talc was 4 g of dry powder. Complications were described in 9.5% and sclerotherapy failure was reported in 7 patients. Our case presented some characteristics similar to those reports in the literature. However, we did not find published reports on the usefulness of talc sclerosis in the treatment of chronic seromas related to abdominoplasty.

Conclusions

Talc percutaneous sclerosis could be considered as a safe and minimally invasive technique for the treatment of chronic seroma after abdominoplasty when other surgical alternatives fail to solve the problem. To the best of our knowledge, this is the first successful case reported in medical literature. However, more evidence is required to standardize its applicability.

Roles of authors

René M. Palacios Huatuco and Mariano F. Ramírez (literature review, writing the paper, and interpretation);

Hernán F. Sala (literature review, and data analysis);

Horacio F. Mayer (literature review, study concept, and approved the final version).

Conflict of interest: The authors declare that they have no conflict of interest.

Disclosure: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The local Research Ethics Committee has confirmed that no ethical approval is required for case reports.

Patient consent: Patient signed informed consent regarding publishing her data and images.

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