Foam sclerotherapy of a large postoperative seroma after inguinal lymph node excision

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Keywords
Seroma, sclerotherapy, polidocanol, lymph node

Summary
The standard treatment of a seroma consists of wound drainage and compression therapy. This approach, however, often results in long-drawn-out treatment. We report on the successful sclerotherapy of a postoperative seroma, with complete resolution in a short time.

Schlüsselwörter
Serom, Sklerosierung, Polidocanol, Lymphknoten

Zusammenfassung

Preoperative ultrasound of the groin

The left inguinal region was unremarkable.

Findings six days postoperatively

A firm elastic structure the size of a fist could be palpated in the right groin. Ultrasound scanning revealed an anechoic structure with distal shadowing.

Treatment

In December 2013, we carried out a wide local excision of the right plantar melanoma, in accordance with the clinical guidelines, under general anaesthetic. During the operation, the sentinel lymph node was also resected from the right inguinal region.

In our department, we usually use supplementary tumescent local anaesthesia for this procedure. This technique allows a less traumatic dissection with respect to possible injury of adjacent structures. In addition, the lymphatic drainage channels can be identified more easily. The sentinel node is located by blunt dissection, taking particular care not to damage the lymphatic channels. The afferent and efferent channels are then cauterised by diathermy. The hilum is likewise diathermed and also ligated. In our department, it is routine practice to insert a Redon drain after the excision biopsy.

In the case reported here, there was unusually heavy lymph secretion with 40–50 ml serous fluid draining off each day (Fig. 1). Ultrasound scanning confirmed the clinical diagnosis of a seroma.

On the sixth day after surgery, an indwelling venous catheter was inserted into...
the seroma under aseptic conditions and with ultrasound guidance. After aspirating about 20 ml of serous lymphatic fluid, we performed ultrasound-guided foam sclerotherapy with the drain clamped off. We injected 3 ml of 2% Aethoxysklerol® (polidocanol) foam, produced by the Tessari method with a sclerosant to air ratio of 1:4 (▶ Fig. 2).

An ultrasound scan immediately after the procedure showed good occlusion with no evidence of the seroma (▶ Fig. 3). The patient did not require either bed rest or compression therapy following the sclerotherapy. The Redon drain was removed after the first sclerotherapy session. Two days later the seroma had, however, reformed, so that three further sessions of foam sclerotherapy were required. Each time, 5–7 ml of 2% polidocanol foam (1:4 Tessari method) was injected. A progressively smaller quantity of lymphatic fluid was aspirated on each occasion. The patient was discharged from hospital on day 15 after surgery.

A repeated ultrasound scan and the final injection of 5 ml 3% polidocanol foam (1:4 Tessari method) were carried out on an outpatient basis on day 19 after surgery. Ultrasound scanning on day 23 after surgery showed considerable regression of the findings – the lesion was subjectively less firm and secretion reduced. We confirmed further regression objectively at the next visits.

By the middle of January 2014, there were only discreet residual findings palpable in the right groin. Follow-up in March 2014 showed a soft scar in the right groin, with no signs of inflammation (▶ Fig. 4); there were no signs of residual seroma on ultrasound examination. The patient did not develop lymphoedema and there was no increase in the circumference of the right leg at any time. The plantar wound healed completely without problem.

Discussion

A seroma is the accumulation of serous exudate in the cavity of a wound. Although the development of a seroma after surgery is a recognised risk, it is a rare occurrence. The literature describes considerable variation in the incidence of postoperative seroma developing after inguinal lymph node surgery. Sentinel node excision biopsy carries a much lower risk (6.9%) than complete lymph node dissection (34.8%) (1).

In their study of leg swelling after wide local resection of the primary melanoma and inguinal sentinel node excision, Kretschmer et al. reported seromas in 6.8% of patients (2). Mohr et al. found postoperative lymphatic fistulas following ilioinguinal lymph node dissection in 10.2% of patients with in-transit or lymph node metastasis (3), while Tonouchi et al. reported such complications in 32% (4).

The development of a seroma can be attributed to injury of the lymphatic channels during the operation. Seromas are an extremely rare complication in our department. We consider that this is due to our surgical technique, as described above, which is relatively atraumatic for the lymph channels. There is no consensus on the theory behind seroma development, but it can be assumed that non-occluded afferent channels and an initial lack of epithelialisation in the wound cavity are relevant.

The standard treatment of a seroma is continuous wound drainage with compres-
sion therapy. This approach often results in long-drawn-out treatment, while compression therapy may be stressful for the patient. It is difficult to apply and fix adequate compression dressings in the groin, for example. They often have to be changed frequently because the bandages slip.

Foam sclerotherapy for seromas is a relatively new treatment method. Polidocanol, the sclerosant already well known in the foam sclerotherapy of varicose veins (5, 6), disrupts the endothelium of the afferent lymph vessels, resulting in their occlusion. The first step is ultrasound-guided aspiration of the seroma preferably under aseptic conditions in the operating theatre (7). Then comes the injection of polidocanol foam. Compression is applied for a short time afterwards. The seroma usually stops developing after a few days, although in our case it required repeated aspirations and foam injections.

A study comparing standard treatment and sclerotherapy for seromas following sentinel node excision biopsy showed sclerotherapy to have clear advantages with respect to the duration of lymphorrhoea (8). Seroma formation regressed after about 4–6 days, compared with some 31 days on standard treatment. Another case series found similar outcomes in postoperative seromas following vein surgery (9). In a few patients, the seroma did not recur after just two sclerotherapy sessions. The remaining patients, like ours, required up to four treatment sessions. Neither study reported any adverse reactions. Other case reports, in which povidone iodine (10), doxycycline (11) and tetracycline (12) were reported any adverse reactions. Other case reports, in which povidone iodine (10), doxycycline (11) and tetracycline (12) were frequently used as sclerosants, can be found in the literature.

**Conclusions**

In conclusion, sclerotherapy of a seroma or lymphatic fistula with polidocanol foam is a good therapeutic option that often leads to rapid cessation of lymphorrhoea. Sclerotherapy is a simple procedure that can frequently be carried out on an outpatient basis; it is relatively atraumatic for the patients and carries little risk. Ultrasound demonstration of the seroma and objective measurement is helpful.

**References**


**Conflict of interest**

The authors declare that they have no conflicts of interest.

**Ethical guidelines**

Data collection for this article complied with national legislation and the current version of the Declaration of Helsinki. The patient gave her consent to the use of the data.