Negative Pressure Wound Therapy for the Management of Complex Lymphoceleles

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WHAT IS THE LYMPHATIC SYSTEM?

Lymph - clear water [7]

The lymphatic system was first noted as a network of vessels associated with the intestines.

Removes interstitial fluid from all parts of the body and returns lymph to the blood circulation.

Recent evidence supports the hypothesis that the lymphatic system buds from the developing venous system.

The clinical significance of the lymphatic system becomes apparent when we observe the consequences of impairment to its normal function (lymphedema, chylous ascites, chylothorax, lymphoceles, lymphocutaneous fistula).
Sentinel lymph nodes of the lower leg (black arrows) and their efferent lymphatic vessels (white arrows)
Source - Mario F. Scaglioni, Hiroo Suami: Journal of Plastic, Reconstructive & Aesthetic Surgery
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LYMPHOCELE BACKGROUND

A lymphocele is a fluid collection that results from extravasation of lymph (-cele herna [G])

Can occur anywhere in the body where lymphatic channels are found and are often encountered in the postoperative setting as a consequence of surgical disruption of delicate lymphatic channels.

Of particular concern to the vascular surgeon, who routinely perform dissection in the groin, an area characterized by an abundance of lymphatic channels that drain the lower extremities and pelvis.
LYMPHOCELE BACKGROUND

The clinical significance of lymphoceles depends on size.

**Small collections** often resolve with simple wound care, being reabsorbed spontaneously, and have little to no sequelae.

**Larger, more complex lymphoceles** predispose the wound to considerable morbidity and are often refractory to conservative therapy.
LYMPHOCELE MANAGEMENT

No consensus exists regarding the optimal management of complex lymphoceles.

For enlarging or symptomatic lymphoceles or lymphoceles that lie close to a prosthetic graft, early surgery to reduce the chance of graft infection should be performed.

Numerous interventions have been described, ranging from percutaneous drainage to the surgical establishment of fistulas to facilitate internal drainage. (Hamed et al, 2008)

Sclerotherapy, performed more frequently for retroperitoneal lymphoceles, can also be used for groin lymphoceles.

Groin muscle flap coverage can be used to fill defects and provide a single-intervention management of lymphoceles.
Increased granulation tissue formation compared to wet-to-dry dressing. Increasing blood flow to the wound, decreasing the interstitial fluid and edema, removal of inflammatory mediators. (Ann Plast Surg, 1997)

Treatment of lymphocele with NPWT post inguinal mass excision: A case report (International Journal of Case Reports, 2020)

Use of VAC therapy in treating lymphatic complications after vascular procedures: New approach for lymphoceles (J Vasc Surg, 2008)

Here we describe the use of NPWT as an effective alternative with relatively little morbidity for the management of relatively complex lymphoceles
METHODS

Patient demographics

- $n = 7$ (5 males)
  - 2 grafts, 4 TAVR, 1 thrombectomy
- Age range 61-83
- Age average 77
- All patients failed trial of conservative measures
  - Dressing changes, percutaneous drainage
  - Re-exploration undertaken at 4-6 weeks

Intervention

- Groin exploration under general anesthesia.
- Femoral vessels isolated, inspected and protected.
- Lymphocele excision, as much as safely possible, using combination of aspiration, electrocautery and lymphatic vessel ligation.
- Dress deepest layer of the wound with white foam, followed by gray sponge and establish negative pressure dressing.
RESULTS

Total operative time  <45 minutes.
No perioperative complications.
Capsule excised in every case
All patients achieved wound closure without lymphocele recurrence
Timeframe to wound closure:

    Range 9-83 days (outliers 76 & 83)

Average **32.4 days** w/o outliers

45.9 with outliers
CONCLUSION

Percutaneous aspiration is often inadequate for the definitive management of postoperative groin lymphoceles.

Open intervention allows for direct inspection of the operative site followed by establishment of a healthy tissue bed to achieve resolution of the lymphocele and wound closure by secondary intention.

All cases were successfully managed with the use of NPWT.
REFERENCES


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