



*Case Report*

# Treatment of a Lymphocele after Endovascular Aortic Aneurysm Repair: a Case Report

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## Abstract

A lymphocele is one of the known postoperative complications after surgery in the inguinal region, like lymph node resections and vascular cannulation. No standardized treatment is defined. We report a case of a patient with a lymphocele after endovascular aortic aneurysm repair and a review of the applicable literature. After an initial non operative policy, exploration using an intradermal injection of isosulfan blue dye in the webspace between digitus 1 and 2 of the ipsilateral foot leads to the identification of the lymphatic leak. Ligation of the leak and excision of the remaining lymphocele resolved the problem for this patient.

**Keywords:** EVAR, lymphocele, isosulfan blue, surgical treatment

## Introduction

Lymphocele formation is one of the complications after surgery in and around the groin vessels. It has for example been reported after arterial reconstruction, lymph node biopsies and vascular cannulation for cardiopulmonary bypass (Stadelmann et al (2002); Pagni et al (2009); York et al (2013); Pittaluga et al (2012); Sansone et al (2011)). A few is known about the exact incidence of lymphocele after vascular surgery. The reported incidence of lymphocele formation after surgery varies by type of procedure. Two percent incidence has been

reported after varicose vein surgery (Pittaluga et al (2012)), 4% in renal transplant recipients, of which 2% symptomatic (Choudhrie et al (2012)), and 51% after pelvic lymph node dissection, of which 15% is symptomatic (Orvieto et al (2011)). We report a patient with a lymphocele after an endovascular aortic aneurysm repair (EVAR) procedure.

No standardized treatment of groin lymphoceles is defined (Sansone et al (2011); Shermak et al (2005); Porcellini et al (2002)). Treatment options vary from observation, to using sclerosing agents, to operative resections. Most of these treatment strategies have a high

recurrence rate of up to 50 percent (Stadelmann et al (2002)).

### Case Report

An 81 year old male underwent EVAR for his abdominal aortic aneurysm in a centre where 50-60 EVAR procedures a year are

performed. During the EVAR procedure the groin vessels are exposed by using a transverse incision. No special care is given to lymphatic tissue. After surgery, the patient developed a tumor in his right groin at the site of the incision (figure 1).



Figure 1. Image of the lymphocele before incision

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Over months the tumor increased in size resulting in progressive pain. Ultrasound examination showed a low density lesion of 7,5 by 2,3 centimeter without flow or relation to vascular structures, matching a lymphocele or resorbing haematoma. Aspiration of the lymphocele resulted in short relieve of his complaints; however, almost immediate recurrence was seen. Eight months after the EVAR procedure,

exploration of the lymphocele was performed.

### Surgical Procedure

The patient was operated under general anesthesia using Cefazolin as antibiotic prophylaxis.

Isosulfan blue was injected intradermally between digitus 1 and 2 in the webspace on/nearby the dorsum of the right foot (figure 2).



Figure 2. Image of the right foot immediately after injecting isosulfan blue in the webspace between dig 1 and 2

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After incision and exploration, open lymphatics were identified by blue coloration. The lymphocele and leaking lymphatics were identified (figure 3), excision of the lymphocele and ligation of

the leaking lymphatics was performed using non resorbable suture material. After reaching haemostasis, the wound was closed subcutaneously and cutaneously both using absorbable sutures.



Figure 3: Perioperative view of the inguinal region after injecting isosulfan blue. Identification of the leaking lymphatic branches.

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### **Postoperative Management**

One day postoperatively, the patient was discharged from the hospital. No postoperative complications were seen. One month after excision of the lymphocele, the patient was seen at our

outpatient clinic. The complaints of pain were resolved and no recurrence of the lymphocele occurred. Five months after surgery no recurrence of the lymphocele was seen. On the dorsum of the foot the blue dye was still visible.

### **Discussion**

To our knowledge, this is the first report of lymphocele and it is a successful treatment after EVAR. Lymphocele is reported as a well known complication after vascular cannulation for cardiopulmonary bypass (Stadelmann et al (2002)). Some authors mention open aortabilliic reconstruction surgery or saphenous vein harvest procedures as risk factors (York et al

(2013); Pittaluga et al (2012); Porcellini et al (2002)).

In 1933 Hudack et al reported the use of dyes in lymphatic mapping. In recent years Patent Blue V or isosulfan blue is used for sentinel node evaluation in different oncological patients (Viehl et al (2012); Berk et al (2005)). Isosulfan blue is proven to be a safe dye, with a rare rate of allergic reactions (Bezu et al (2011)).

Some studies using isosulfan blue in the operative treatment of lymphoceles are reported. Stadelmann et al (2002) treated 19 lymphoceles in 17 different high risk patients, concluding that the use of isosulfan blue for identifying leaking lymphatic channels is successful. Of these 17 patients, none of the patients had an EVAR procedure; whereas three patients had an aortofemoral bypass. In all 19 surgically treated lymphoceles two wound abscesses and one superficial haematoma were reported, whereas no recurrence of the lymphocele was seen. In the study of Stadelmann isosulfan, blue dye was

circumferentially injected into the distal extremity at the level of the ankle; the leg was then massaged and elevated to speed the migration of the dye. After an average follow up of 18,8 months all patients had a very faint residual blue hue at the injection site. For this reason we think it is more patient friendly to inject the dye in the webspace between digitus 1 and 2 of the foot.

In a study of Pagni et al (2009), two patients with persisting lymphoceles after non-surgical treatment were surgically treated. Isosulfan blue was used intraoperatively to map the lymphatic leakage. Complete resolution of the lymphocele occurred after ligation of the open lymphatics. As in our case they injected isosulfan blue intradermally in the webspace of the ipsilateral foot.

The standard surgical approach for lymphocele is excision of the lymphocele. Isosulfan blue can assist in identifying the leaking branches and facilitates in making the right excision, after identifying leaking lymphatics, ligation is possible.

### Conclusion

We report a case of successful surgical treatment of a symptomatic groin lymphocele after EVAR. Isosulfan blue dye was helpful in identifying the lymphatic leakage.

### Acknowledgements

The authors declare that they have no conflict of interest.

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