

Treatment Approaches for lymphorrhea and lymphocele after Varicose Veins Surgeries on the Lower Extremities.

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Abstract

Complications including infection, hematoma, paresthesia, relapse and skin necrosis may develop after varicose surgery. However, lymphocutaneous fistula and lymphocele are very rare complications and more frequently seen in the inguinal area. These conditions should be treated since they may cause morbidity. In this study, we discussed our treatment approaches for these complications which were more commonly seen in the crural region in our patients.

Keywords: Varicose vein, lymphocele, lymphatic fistula, lymphatic complication, varicose vein surgery.

Introduction

Lymphocele is a pseudocapsulated, localized lymph collection. It is a soft and tension-free swelling. There is intermittent lymphatic leak if there is also a fistula. Very large lymphoceles may cause regional discomfort and pain and extremity edema due to venous compression (1,2). Complications including infection, hematoma, paresthesia, relapse and skin necrosis may develop after varicose surgery (3). However, lymphocutaneous fistula and lymphocele are very rare complications and more frequently seen in the inguinal area (1,4). Older age, advanced clinical stage and obesity increase their frequency (3). These conditions should be treated due to the increase in hospital stay and treatment costs, patient discomfort and possible complications such as abscesses and infections (4-7). In this study, these complications were more commonly observed in the crural region and our treatment approaches were discussed.

Material and Methods

Registers from patients treated for diagnosis of symptomatic lymphocele-lymphorrhea following

varicose vein surgery were investigated retrospectively between January 2006 and December 2011 and the treatment methods performed and their results were assessed. This study was granted full approval of the Institutional Review Board.

Diagnosis was made based on complaints, medical history and physical examination.



The patients who were found to have lymphocele were additionally evaluated with US examination to differentiate the condition from seroma, hematoma and/or abscess. In suspected patients, the diagnosis was confirmed with biochemical and cytological examinations.

In the treatment of lymphorrhea, conservative treatment, bed rest, wound care, leg elevation, compression and systemic antibiotherapy were used initially. Patients demonstrating no decrease in the leak flow rate of fistula with conservative therapy within 1 week underwent surgery. VAC therapy was administered to the patients who refused surgical treatment and developed relapse following surgery. VAC treatment was performed by changing dressings twice a week and applying a negative pressure of 125 mmHg. Sponge (GranuFoam Dressing, KCI Licensing, Inc., San Antonio, Tex) was placed directly in the fistula tract. VAC therapy was stopped after granulation tissue formation and cessation of lymph leakage. Wound care was done with wet dressing after VAC therapy. Skin defects which did not close by secondary healing, was primarily sutured. In the surgical treatment, the cavity was filled with methylene blue by opening the fistula area under regional antisepsis and local anesthesia, instead of the common procedure of methylene blue injection, and following the demonstration of lymphatic flow tracts, lymphatic flow was stopped by the cauterization or ligation of the tracts. Lymphatic leakage was determined by disappearance of blue dye or white colored effluence.



Conservative treatment, aspiration and compression were initially performed for the treatment of lymphocele. Those patients who did not respond to conservative therapy including daily aspiration followed by compression with elastic bandage within 1 week were administered surgical treatment. 1 patient who

refused surgical treatment received sclerotherapy. In the surgical treatment, the lymphocele cavity was opened under regional antisepsis and local anesthesia and then the cavity was filled with methylene blue. After the demonstration, the lymphatic tracts were cauterized or ligated and the lymphatic flow was stopped. In sclerotherapy, the treatment was performed by the administration of ethanol alcohol sclerotherapy (95% ethanol) into the cavity every other day.

Results

Demographic and descriptive information for the cases are presented in Table I.

Table I. Cases

Patient	Age	Medical history	Hospital length of stay (days)	Type of lymphatic complication	Site of lymphatic complication	Type of surgery	Treatment
1	35		4	lymphocele	Crural	Subfascial ligation perforating veins	Conservative management
2	36	Recurrent varicose vein surgery	9	LF	Groin	SFJ ligation and GSV stripping	Conservative management
3	35		10	LF	Groin	SFJ ligation and GSV stripping + subfascial ligation perforating veins	Conservative management + surgery
4	41		12	LF	Groin	SFJ ligation and GSV stripping	Conservative management + surgery
5	50	Morbid obese	8	lymphocele	Groin	SFJ ligation and GSV stripping	Conservative management
6	42		10	lymphocele	Crural	SFJ ligation and GSV stripping + subfascial ligation perforating veins	Conservative management + surgery
7	38		7	LF	Groin	SFJ ligation and GSV stripping	Conservative management
8	39		14	LF	Groin	SFJ ligation and GSV stripping	Conservative management + surgery
9	53		9	lymphocele	Crural	GSV stripping	Conservative management
10	41		7	LF	Groin	SFJ ligation and GSV stripping	Conservative management
11	55		8	LF	Groin	Ligation and division of GSV at SFJ	Conservative management
12	50	Rectal Ca. with history of radiation	32	LF	Groin	SFJ ligation and GSV stripping + subfascial ligation perforating veins	Conservative management + surgery + VAC
13	49		11	lymphocele	Groin	Ligation and division of GSV at SFJ	Conservative management + surgery
14	43		20	LF	Groin	Ligation and division of GSV at SFJ	Conservative management + VAC
15	43		8	LF	Groin	SFJ ligation and GSV stripping	Conservative management
16	36		6	lymphocele	Crural	Subfascial ligation perforating veins	Conservative management
17	39		16	LF	Groin	SFJ ligation and GSV stripping	Conservative management + surgery
18	40		17	LF	Groin	SFJ ligation and GSV stripping + subfascial ligation perforating veins	Conservative management + VAC
19	58	DM	9	lymphocele	Groin	SFJ ligation and GSV stripping	Conservative management + Sclerotherapy
20	41		6	LF	Groin	Ligation and division of GSV at SFJ	Conservative management

LF, lymphocutaneous fistula; DM, diabetes mellitus; GSV, greater saphenous vein; SFJ, saphenofemoral junction; VAC, Vacuum Assisted Closure.

The mean age of the 20 patients (7 males, 13 females) receiving treatment with the diagnosis of lymphocele-lymphorrhea was 43 years (range, 35-58 years). Among the patients with lymphatic complications, 1 patient had diabetes mellitus, 1 patient had morbid obesity, 1 patient had former inguinal radiotherapy and 1 patient had undergone recurrent varicose surgery. In 6 patients (30%) with complications, subfascial perforating vein ligation had been performed as an additional procedure.

All patients with lymphocele had complaints of discomfort and regional pain. Patients with lymphorrhea

had discomfort and intermittent discharge. None of the patients had signs of infection.

The duration of hospitalization ranged from 4 to 32 days with a mean hospital stay of 11 days. Lymphatic complications were identified at an average of 6 days (4-11) after varicose surgery. All patients received conservative therapy for 6 days (3-8) on average. Improvement was obtained with conservative therapy in 10 of 20 patients (50%) in whom the duration of the therapy was 5 days (3-7) on average. The results with regard to the type of lymphatic complication and the method of treatment for all patients are presented in Table II.

Table 2.

	All	Lymphorrhoea	Lymphocele
Surgery to diagnosis			
Median(range) days	6 (4-11)	5(4-11)	8 (5-10)
Duration of Consarvative management			
Median(range) days	6 (3-8)	6 (4-7)	6 (3-8)
Hospital length of stay			
Median(range) days	11 (4-32)	13 (6-32)	8 (4-11)
Duration of VAC treatment			
Median(range) days	15 (9-22)	15 (9-22)	-
Duration from Consarvative treatment to resolution (days)	5 (3-7)	6 (4-7)	5 (3-6)
Resolution (n-%)			
Consarvative management	20/10-%50	13/6-%46	7/4-%57
Surgery	7/6-%86	5/4-%80	2/2-%100
VAC	3/3-%100	3/3-%100	-
Sclerotherapy	1/1-%100	-	1/1-%100

In 4 of the 7 patients with lymphocele, the lesion was in the antero-medial crural region (57%). Three patients (75%) with lymphocele in the crural region had undergone perforating vein surgery. The lesion was localized in the inguinal region in all 13 patients with lymphatic fistula (100%).

Of the 13 patients with lymphatic fistula, 6 patients (46%) were discharged with full recovery after one week of conservative treatment. Of the 7 patients in whom fistula output could not be decreased with conservative treatment, the lymphatic flow was stopped with VAC in 2 patients and with surgical treatment in 5 patients and the patients were discharged with full recovery. Upon development of relapse in the postoperative 1st week in 1 patient who received surgical treatment, VAC treatment was administered and the patient was discharged with full recovery. No relapse was observed in patients receiving

VAC treatment. VAC therapy was given for 15 days (9-22) on average.

The patients who were diagnosed with lymphocele first received compression and aspiration treatment. 4 patients fully recovered with the conservative approach (57%). However, 3 patients did not respond to aspiration and compression (42%). In 2 patients who failed to respond to the conservative

treatment, surgical treatment was performed and no relapse was detected. In 1 patient who received sclerotherapy, lymphocele recovered after 2 injections and no relapse was observed.

Lymphatic leakage was determined by filling the cavity with blue dye during surgery in 7 patients. Lymphatic leakage was easily demonstrated in all patients. Relapse was diagnosed in one patient on first week after operation. All patients with lymphatic complications were discharged with full recovery. No patient demonstrated relapse during 1-month follow-ups.

Discussion

Lymphatic complication rates were reported to be 1.2-4.6% following various vascular surgical interventions and 2.2% after varicose vein surgeries (3,7). No agreement have been established for the most appropriate mode of treatment for these complications. Lymphocele and lymphorrhoea, which are rare but troublesome complications, are caused by damage to lymphatic ducts during surgery and use of vertical incisions instead of oblique incisions may decrease the incidence of lymphocele and lymphorrhoea (7). We prefer inguinal oblique incisions in our clinic for cosmetic concerns, so we frequently encounter these complications. Minimally invasive methods and closure of incision wounds by use of fibrin adhesives will reduce these complications (3,8).

While lymphocele and lymphorrhoea are frequently seen in the inguinal region (7), it was notable that in the majority of our cases with lymphocele the lesions were in the crural region. Among the 4 patients with lymphocele in the crural region, 3 had undergone fascial perforating vein ligation. We believe that the reason why we observed lymphocele in the crural region in our clinic in contrast to the literature is that our patients had undergone subfascial intervention. Conservative treatment approaches such as bed rest, leg elevation, prophylactic antibiotherapy, compression and aspiration are usually successful in the treatment of lymphatic complications (7,9). However, treatment methods, including surgical treatment, superficial irradiation, sclerotherapy, VAC treatment and compression with superficial pledgeted sutures are recommended due to possible complications, patient discomfort, increase in the duration of hospitalization and costs (1,7,10-12). In the surgical treatment, blue dye injection is recommended for the identification of fistula tracts (4-6). Sclerosing substances such as povidone iodine, bleomycin, doxycycline, ethanol and polidocanol can be used for sclerotherapy (1,7,10). We also used conservative treatment in our cases initially. Of the 20 patients, 10 (50%) recovered with conservative treatment. In the surgical treatment, we did not perform blue dye

injection to demonstrate the lymph tracts and instead by filling the fistula area with methylene blue we demonstrated the lymphatic flow tracts and then the lymph flow was stopped with cauterization or ligation of the tracts. Skin complications were reported following blue dye injection. In high concentrations, it may cause skin necrosis of varying degrees, deep vein thrombosis and possible anaphylactic reactions. Lymphatic tract may not be shown well enough in lymphatic perfusion sufficiency (4). With our method we could easily view the fistula tracts and complications such as post-injection skin necrosis and tissue damage were avoided. However, we could not achieve any literature data about this method, which is the blind side for this method, which requires further studies on subjects.

We performed ethanol sclerotherapy in a patient with lymphocele with a successful result. Polidocanol foam sclerotherapy was reported to be more successful than drainage and compression (10). Ethanol sclerotherapy is also a feasible method and it was mostly used for venous malformations with successful results (13).

VAC treatment is an effective method for patients with lymphorrhea, while its efficacy in lymphocele is not clear (7,11). We implemented this in patients who failed or refused surgical therapy and we achieved success.

In conclusion, complications of the lymphatic system rarely occur after venous surgical interventions. In the treatment, initially using conservative therapy is frequently successful. Surgical treatment may be used in cases with treatment failure. VAC is another effective method for patients with lymphorrhea. Sclerotherapy appears to be an effective treatment method for patients with lymphocele who have failed to respond to conservative treatment. We believe that publication of more treatment series on this topic will be useful in the formation of a common protocol for the treatment of these complications.

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