Improvement of Symptoms after Lymphaticovenous Anastomosis in Patients with Abdominal Wall Lymphedema

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Summary: At our institution, we performed a lymphaticovenous anastomosis in patients with primary or secondary abdominal lymphedema. Patients report good outcomes and feel relieved of their complaints. To obtain good results, it is important to have decent knowledge on the anatomical state of the lymphatic system. In general, the lymphatic system of the lower abdomen can be compared with the system of the upper legs. According to our current case results, the abdominal area might be susceptible to lymphaticovenous anastomosis procedure. Further research should be performed to confirm the effect of the intervention and the imaging techniques to monitor the improvements.

IDEAS AND INNOVATIONS

The lymphaticovenous anastomosis (LVA) has become 1 of the microsurgical options in treating lymphedema. It has been proven to be successful in patients with secondary lymphedema in early stages. However, few studies have described LVA as an option for abdominal lymphedema arising in the soft tissues of the abdominal wall as a consequence of gynecologic or urologic cancer treatment.1–3 At our department, 4 patients with primary or secondary abdominal wall lymphedema underwent LVA; 1 of the cases will be discussed below. An overview of all the operated patients and their characteristics is shown in Table 1.

A 48-year-old woman with lymphedema stage IIB according to the International Society of Lymphedema classification system in both legs and the abdominal region was seen at our outpatient clinic. In 2013, she was diagnosed with cervical cancer (Fédération Internationale de Gynécologie et d’Obstétrique stage IB2) and underwent a hysterectomy with inguinal lymphadenectomy and postoperative radiation and chemotherapy. Afterward, she developed lymphedema in the aforementioned areas and multiple episodes of erysipelas occurred, which required antibiotic treatment and hospitalization. The lymphedema did not respond adequately to manual lymph drainage once a week and compression therapy for both legs. Therefore, surgical options were considered, and LVA was chosen as the most suitable option. A preoperative indocyanine green lymphography was performed with a near infrared camera, which showed a stardust pattern in the right groin, with some functioning lymph vessels on the left and right abdomen (Fig. 1).

During the first surgery, 1 end-to-end anastomosis was performed on the left side of the abdomen between a dilated lymph collector vessel and a subcutaneous vein under local anesthesia. An intraoperative picture of another patient’s intervention was included to show the technique (Fig. 2). Patency of the anastomosis was tested by milking. Another LVA was performed on the right leg. After 2 weeks, the patient noticed some improvement in the elasticity of the skin on the left side of the abdomen. Circumference was not measured, because the complaints were not related to excess volume, but to very hard tissue and recurring skin infections. A few months later, a second end-to-end LVA was created on the right side of the abdomen. In this case, the lymph vessel was sclerotic. Despite the unfavorable lymphatic vessel, 1 month later the patient and the skin therapist noticed a softer tissue in the right abdomen and the entire abdomen became more elastic and less edematous. The patient currently receives manual lymphatic drainage twice a week. The overall satisfaction after the surgery was high and she would undergo more surgeries if suitable lymphatic vessels were available (Fig. 2).

There are few reports about the performance of abdominal LVA.1–3 However, in most of these studies satisfac-
Similar results were shown in the current case since the patient noticed subjective improvement after both surgeries.

Knowledge about the anatomy of the lymphatic vessels of the abdominal wall is crucial for a successful result after LVA. Tourani et al.\(^4\) describe these abdominal vessels in multiple cadaver studies. Briefly, the collectors in the upper abdomen drain into the ipsilateral axilla with a maximum diameter of 0.2 or 0.3 millimeter, whereas the collectors in the lower abdomen gradually widen with a maximal diameter of 0.8 mm at the inguinal ligament before ending in the superficial inguinal nodes. The diameter of collectors in the lower abdomen is comparable with the diameter of lymph vessels in the arms or legs.\(^4\)

Due to the anatomical location, the measure of the volume and circumference were more challenging than in the extremities. For this reason, the use of questionnaires to assess the patients’ satisfaction and the impact in their quality of life after this surgery may be considered as 1 of the crucial tools. However, not all available questionnaires are appropriate because they often only or at least partially focus on limb impairment.

According to the current case results, the soft tissues of the abdominal wall seem to be responsive to the LVA procedure. Further research should be performed to confirm the effect of this intervention and the imaging techniques to monitor the improvements.

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