CASE REPORT

Omental flap for treatment of long standing lymphoedema of the lower limb: can it end the suffering? Report of four cases with review of literatures

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SUMMARY

We report our experience of four cases of long-standing unilateral, secondary lymphoedema of the lower limb, for which conservative treatment has failed, that were treated in our centre using pedicled omental flap. The four patients were followed for a period of 1 year after the procedures and frequent measurements of the circumference of the affected limb revealed a reduction in the circumference ranging between 50% in the first patient to 75% in the fourth patient together with an excellent functional improvement in terms of resuming walking, daily activities, sports and work. We think that pedicled omental flap is an important, relatively easy and safe option that deserves consideration in refractory cases of lymphoedema of the lower limb.

BACKGROUND

Secondary lymphoedema is oedema due to a reduction in lymph flow by an acquired cause. The causes of secondary lymphoedema include trauma, recurrent infection and malignancy, including metastatic disease.¹⁻³ The most common cause of secondary lymphoedema is malignancy (including that resulting from cancer treatment).^{2, 4, 5}

Even after radical lymph node excision for malignancy, lymphoedema does not always ensue. When it does occur, it is often a late complication. The reasons for this late development are uncertain, but gradual failure of distal lymphatics, which have to 'pump' lymph at a greater pressure through damaged proximal ducts, has been postulated. The transected lymphatics will regenerate after node clearance procedures. If combined with radiotherapy, however, the risk of lymphoedema is higher, as fibrous scarring reduces regrowth of ducts.⁶

The main aims of treating patients with lymphoedema are to prevent the progression of disease, to achieve mechanical reduction and maintenance of limb size, to alleviate the symptoms arising from lymphoedema and to prevent skin infection. Hence, treatment depends on the symptoms and the severity of the condition. The treatment can be divided into conservative, pharmacological and surgical.⁷

suppuration in two cases and tuberculosis of inguinal lymph nodes in the fourth patient. The average age of the patients was 34 years. The mean time between inguinal lymph node dissection and the development of lymphoedema was 6 years, and the average duration of lymphoedema was 8 years. The diagnosis was confirmed by lymphoscintigraphy in two cases and by CT and MRI in the other two. The lymphoedema was painless but the swelling was interfering with the function of the limb. One of the patients had skin changes and discolouration. The four patients have tried medical therapy and compression therapy, and one of them has tried debulking surgery with poor results in all of them regarding the size and the function of the limb (figure 1). The patients were selected because of their young age and good general condition.

TREATMENT

From January to September 2011, we performed omentoplasty for our four patients: we used the

Figure 1 Preoperative image showing the lymphoedema in the right leg of the patient.

CASE PRESENTATION

We report four patients with long-standing history of unilateral lymphoedema that developed after inguinal lymph node dissection that was done for a metastatic melanoma in the first case, recurrent

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Figure 2 Operative image showing the omental flap.

open laparotomy technique for collecting the omental flap in three of the cases, because of previous laparotomy scar in one patient and patients' preferences in the other two, laparoscopy was used in one patient (figure 2). Adhesiolysis was performed in one patient.

The greater omentum was elevated from the transverse colon, the short gastric vessels were ligated and divided and the gastroepiploic vessels were identified, the omentum was lengthened and the flap was created based on the right gastroepiploic artery (video 1), then it was passed digitally through the femoral canal, medial to the femoral vein. Multiple skin incisions were made to create a subfascial tunnel in the anteromedial aspect of the thigh and leg in which the pedicled omental flap was anchored. A suction drain was inserted and the skin incisions were closed.

OUTCOME AND FOLLOW-UP

The circumferences at mid-thigh (half the distance between the anterior superior iliac spine and the lower extremity of the patella), at mid calf (half the distance between the lower extremity of the patella and the external malleolus), and at the malleoli of the affected limb were measured before each surgical procedure and then regularly at each follow-up visit for a 1-year period (figure 3). These measurements were made with the lower limbs in complete extension. The wounds and scars of the procedures also were examined each time with excellent outcome. After 1 year of follow-up, the four patients had a reduction in the circumference of the limb ranging from 50% in the first patient to 75% in the fourth one together with functional improvement

Video 1 Showing the omental flap created

Figure 3 Postoperative image of the patient.

(figures 3 and 4). All the patients resumed walking without any difficulties and they began to resume normal activities including sports (one of the patients was a local football player and he was back into his team after 8 years off!).

DISCUSSION

In the attempt to reduce complications due to lymphatic stasis, surgery is actually performed in <10% of lymphoedema cases and would be suitable only after the failure of physical treatment.⁸ The most common techniques are 'orange slice' resection, liposuction and Thompson's operation.⁹

Collecting the omentum for transposition or transfer as a reconstructive flap is well described.¹⁰⁻¹³ In 2005, Benoit *et al*¹⁴ suggested that pedicled omentoplasty can be considered as a safe and effective therapy for lymphoedema of the lower extremity.

Our patients were referred to us after failure of conservative measures to improve the size and the function of the limb, and being young and active; they agreed to undergo the procedure in the hope of getting functional and cosmetic improvement.

All the patients were satisfied with the results and although the number of patients in our series was small, we expect more procedures to be performed in the forthcoming time since

Figure 4 Postoperative image of the patient.

pedicled omentoplasty seems to us to be much easier and safer than other surgical options.

According to Hultman *et al*,¹⁵ the most common donor-site complications of omentoplasty included abdominal wall infection, fascial dehiscence and symptomatic hernia. All of our patients had a smooth postoperative course, we did not record wound infection or dehiscence in any of them, and after 1 year of follow-up, none of the patients had any obvious finding of abdominal wall hernia.

Laparoscopic technique for collecting the omental flap seems to be superior to the open approach, we used it in one patient only because of previous laparotomy scar in the second patient and patients' preferences in the other two.

Learning points

- ▶ Lymphoedema of the lower limbs, although painless, is a problem for the patient. Most patients will seek treatment because of the disabling and disfiguring nature of the condition.
- ▶ Conservative measures should be the first line for treatment of lymphoedema.
- ▶ Pedicled omental flap is an important, relatively easy and safe option that deserves consideration in refractory cases of lymphoedema of the lower limb.

Competing interests None.

Patient consent Obtained.

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