

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Interventional procedure consultation document

Liposuction for chronic lymphoedema

Chronic lymphoedema is the swelling and build-up of body fluid and fat, commonly in the arms and legs, because of problems with the lymphatic system. This procedure uses suction to remove fat tissue and fluid through small cuts in the skin. Afterwards, a compression garment should be worn and only removed for short periods. The aim of the procedure is to reduce the swelling.

The National Institute for Health and Care Excellence (NICE) is examining liposuction for chronic lymphoedema and will publish guidance on its safety and efficacy to the NHS. NICE's interventional procedures advisory committee has considered the available evidence and the views of specialist advisers, who are consultants with knowledge of the procedure. The advisory committee has made draft recommendations about liposuction for chronic lymphoedema.

This document summarises the procedure and sets out the draft recommendations made by the advisory committee. It has been prepared for public consultation. The advisory committee particularly welcomes:

- comments on the draft recommendations
- the identification of factual inaccuracies
- additional relevant evidence, with bibliographic references where possible.

Note that this document is not NICE's formal guidance on this procedure. The recommendations are provisional and may change after consultation.

The process that NICE will follow after the consultation period ends is as follows.

- The advisory committee will meet again to consider the original evidence and its draft recommendations in the light of the comments received during consultation.
- The advisory committee will then prepare draft guidance which will be the basis for NICE's guidance on the use of the procedure in the NHS.

For further details, see the [Interventional Procedures Programme process guide](#), which is available from the NICE website.

Through its guidance NICE is committed to promoting race and disability equality, equality between men and women, and to eliminating all forms of discrimination. One of the ways we do this is by trying to involve as wide a range of people and interest groups as possible in the development of our interventional procedures guidance. In particular, we aim to encourage people and organisations from groups who might not normally comment on our guidance to do so.

In order to help us promote equality through our guidance, we should be grateful if you would consider the following question:

Are there any issues that require special attention in light of NICE's duties to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity, and foster good relations between people with a characteristic protected by the equalities legislation and others?

Please note that NICE reserves the right to summarise and edit comments received during consultations or not to publish them at all where in the reasonable opinion of NICE, the comments are voluminous, publication would be unlawful or publication would otherwise be inappropriate.

Closing date for comments: 10 May 2017

Target date for publication of guidance: August 2017

1 Draft recommendations

- 1.1 Current evidence on the safety and efficacy of liposuction for chronic lymphoedema is adequate to support the use of this procedure provided that standard arrangements are in place for clinical governance, consent and audit.
- 1.2 Patient selection should only be done by a multidisciplinary team as part of a lymphoedema service.

2 Indications and current treatments

- 2.1 Lymphoedema is the abnormal accumulation of subcutaneous fat and fluid in body tissue. It leads to chronic swelling that can cause

disability, pain and cosmetic issues. Any part of the body can be affected, but the condition is most common in the arms and legs. Lymphoedema can be complicated by recurrent infection (cellulitis), which further damages the lymphatic vessels and aggravates the condition. Primary lymphoedema results from a congenital inadequacy and gradual occlusion of lymphatics. Secondary lymphoedema results from damage to the lymphatic system or removal of lymph nodes by surgery, radiation, infection or injury. In the UK, one of the most common types of chronic lymphoedema is secondary lymphoedema of the arm after breast cancer or its treatment.

- 2.2 Current conservative treatments for lymphoedema include manual lymph drainage (MLD), which stimulates the movement of lymph away from the affected limb, and decongestive lymphatic therapy (DLT). DLT combines MLD massage techniques with compressive bandaging, skin care and decongestive exercises. Once DLT sessions are stopped the patient is fitted with a custom-made compression garment, which is worn every day. These techniques aim to reduce the pain and discomfort associated with lymphoedema. In very severe cases, surgical treatment can be used to reduce the size of the limb or to restore lymphatic flow. Repeated debulking procedures to excise skin and subcutaneous tissue may be needed. Procedures to restore lymphatic flow from the limb include constructing an alternative lymph drainage pathway via lymphovenous anastomosis.

3 The procedure

- 3.1 Liposuction for chronic lymphoedema is usually done under general anaesthesia, but regional nerve blockade is also possible. A few

small incisions are made in the limb. Cannulas, connected to a vacuum pump, are inserted into the incisions and oedematous adipose tissue is removed by vacuum aspiration. Liposuction is done around and all the way along the limb. Immediately after liposuction, a compression bandage is applied to the limb to control any bleeding and to prevent postoperative oedema. Antibiotics are typically prescribed after the operation. The limb is elevated during hospital stay for 3 to 7 days after the procedure. From about 2 weeks after the procedure, a custom-made compression garment is worn. This garment is revised 3 or 4 times during the first year until the oedema volume has been reduced as much as possible and a steady state has been reached.

4 Efficacy

This section describes efficacy outcomes from the published literature that the committee considered as part of the evidence about this procedure. For more detailed information on the evidence, see the [interventional procedure overview](#).

- 4.1 In a case series of 146 patients treated by liposuction for primary or secondary lymphoedema, postoperative limb excess volume was statistically significantly reduced to 3% (from 20% at baseline) in the upper limb group ($p < 0.001$) and to 3% (from 21% at baseline) in the lower limb group ($p < 0.01$), at 12-month follow-up. In a case series of 49 patients, 35 patients had liposuction combined with controlled compression therapy (CCT) and 14 had CCT alone. The mean reduction in oedema volume at 12 months compared with baseline was 103% in the combined group and 50% in the CCT alone group (difference between groups $p < 0.0001$). In a case series of 19 patients (10 with arm lymphoedema and 9 with leg

lymphoedema), the average reduction in limb volume after liposuction was 23%. In 1 patient, lymphoedema worsened at the end of the 10-month follow-up. In the same study, 4 patients had no change in circumferential limb size, 4 had a 1–3 cm reduction and 3 had a reduction of more than 3 cm.

- 4.2 In a case series of 15 patients (14 women, 1 man), recurrent lymphoedema was reported in 32% (7/22) of patients at 1-year follow-up.
- 4.3 In a case series of 80 patients, mean blood loss as a percentage of the total aspirate was smaller in the group in which a tourniquet and adrenaline were used (100 ml, 5%) than in the group treated with a tourniquet and no adrenaline (225 ml, 13%; no p value reported).
- 4.4 In the case series of 146 patients, limbs were immediately softer after the procedure, and redness, hyperkeratosis and papillomatosis were alleviated. In the case series of 19 patients treated by liposuction, 58% (11/19) of patients reported that the limb was lighter and softer and 11% (2/19) of patients reported no change.
- 4.5 In the case series of 49 patients, most measures of range of motion (flexion, extension, abduction, external rotation) increased statistically significantly in both treatment groups ($p < 0.05$) when compared with baseline, at 12-month follow-up. In the same study, internal rotation increased statistically significantly from baseline in the liposuction plus CCT group ($p < 0.0001$) but not in the CCT alone group. In the case series of 15 patients with 3-year follow-up, all patients reported improved extremity function, fewer episodes of cellulitis and better quality of life.

- 4.6 In the case series of 146 patients treated by liposuction, 11% (16/146) of patients were able to completely eliminate the use of compression garment at 1-year follow-up.
- 4.7 In the case series of 49 patients, symptoms and activities of daily living (ADL) were assessed using a visual analogue score (0 = no difficulty to 100 = extreme difficulty). Pain, swelling of the hand, ADL, mobility, swelling of the arm, heaviness of the arm, and fatigue and weakness statistically significantly improved from baseline in the liposuction plus CCT group ($p < 0.01$) but not in the CCT alone group (p value non-significant) at 12-month follow-up. In the same study, perceived health problems were assessed using the Nottingham health profile (NHP; 0 = no problems to 100 = all possible problems). Total score statistically significantly improved in the group treated by liposuction plus CCT, from 9 (range 5 to 23) at baseline to 8 (range 2 to 14) at 12 months ($p = 0.02$), but not in the CCT alone group, from 14 (range 8 to 33) at baseline to 15 (range 6 to 36) at 12 months (not significant p value). In the same study, wellbeing was assessed using the psychological general wellbeing score (total score maximum 110 points = best achievable wellbeing). There were no statistically significantly different differences in the overall wellbeing score or individual dimensions between groups, from baseline to 12 month follow-up. In the case series of 21 patients treated by liposuction, the functional and emotional impact of lymphoedema was assessed using a patient-specific functional scale (overall scores ranged from 0 = not able to perform 3 activities at all to 30 = able to perform 3 activities perfectly, and individual dimensions scores ranged from 0 = not at all, to 10 = extremely so). Overall score was statistically significantly improved in the upper limb group from 11.1 (4.0–21.0)

at baseline to 22.1 (9.0–30.0) at 6-month follow-up ($p=0.008$), and in the lower limb group from 7.4 (4.0–9.0) at baseline to 28.0 (27.0–29.0) at 6-month follow-up ($p<0.001$).

- 4.8 The specialist adviser listed return of the swollen (lymphoedema) limb to normal size as the key efficacy outcome.

5 Safety

This section describes safety outcomes from the published literature that the committee considered as part of the evidence about this procedure. For more detailed information on the evidence, see the [interventional procedure overview](#).

- 5.1 Blood transfusion was reported in 6% (2/33) of patients in the group treated with a tourniquet, in 37% (7/19) of patients in the group not treated with a tourniquet or adrenaline and in none of the patients in the group treated with a the tourniquet and adrenaline, in a case series of 80 patients treated by liposuction for chronic lymphoedema. Blood transfusion was reported in 13% (2/15) of patients treated by liposuction in the case series of 15 patients.
- 5.2 Localised skin loss and healing by second intention was reported in 13% (2/15) of patients in the case series of 15 patients treated by liposuction. Wound infection needing surgical debridement was reported in 1 patient in the same case series. Marginal wound necrosis was reported in 1 patient in another case series of 15 patients (14 women, 1 man) with chronic lymphoedema treated by liposuction.
- 5.3 Cellulitis was reported in 23% (3/13) of patients in the case series of 15 patients treated by liposuction. Cellulitis was reported in

1 patient in the other case series of 15 patients (14 women, 1 man) treated by liposuction.

5.4 Hypaesthesia was reported in 1 patient in the case series of 15 patients (14 women, 1 man) treated by liposuction.

5.5 In addition to safety outcomes reported in the literature, specialist advisers are asked about anecdotal adverse events (events which they have heard about) and about theoretical adverse events (events which they think might possibly occur, even if they have never done so). For this procedure, specialist advisers listed no anecdotal events. They considered that pain was a theoretical adverse events.

6 Committee comments

6.1 The committee noted that patients having this procedure need to wear compression garments.

6.2 The committee noted that the evidence it reviewed came from patients with either primary or secondary chronic lymphoedema.

7 Further information

7.1 For related NICE guidance, see the [NICE website](#).

7.2 Patient commentary was sought but none was received.

7.3 This guidance is a review of NICE's interventional procedure guidance on liposuction for chronic lymphoedema (IPG251).
<https://www.nice.org.uk/guidance/ipg251>

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