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Referral patterns to a surgical lymphoedema service: 10 years of experience[☆]



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Summary *Introduction:* Liposuction for lymphoedematous limbs is an effective treatment for chronic lymphoedema, with excellent long-term results in well-selected patients. In 2008 NICE produced guidelines 'Liposuction for Chronic lymphoedema', acknowledging this treatment modality. However, there remain very few centers that provide this service in the United Kingdom. We aim to share our experience of our referral system at Ninewells Hospital, Dundee, Scotland. *Methods:* A 10 year prospective database from 2005 to 2014 was analysed. Referral sources, patient demographics, diagnosis and treatment offered were examined.

Results: There were 221 referrals in total, 190 (86%) female and 31 (14%) male. The mean age was 51 (range 7–86 years). 127 (58%) were referred via their general practitioners, 72 (33%) from a hospital consultant and 22 (10%) from a lymphoedema nurse specialist. 153 (69%) referrals were from Scotland, 61 (28%) from England and 7 (3%) from Northern Ireland. The majority of patients 165 (75%) were referred with lower limb swelling. Following assessment in clinic, 146 (66%) were found to have lymphoedema whilst the rest were deemed to have other non-lymphoedematous diagnoses which include lipoedema (47, 21%), dependent oedema (8, 4%) and obesity (5, 2%). 131 (59%) were offered liposuction- 74 (34%) have received liposuction, 18 (8%) are awaiting their procedure, 3 (1%) have declined surgery, 27 (12%) are awaiting funding approval and 9 (4%) have been declined funding by their primary care trust/clinical commissioning group (PCT/CCG). 4 (2%) are awaiting investigations to further evaluate the cause of their swelling, whilst the remaining 86 (39%) were felt unsuitable for surgery and were treated conservatively.

Conclusion: Chronic lymphoedema is a challenging condition to treat, with few specialist centers offering surgical treatment. We hereby share our referral process, diagnosis and management.

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Introduction

Lymphoedema is swelling that occurs when protein-rich lymph fluid accumulates in the interstitial tissue. This can cause considerable dysfunction with reduced mobility, heaviness, infections, psychological and aesthetic issues. A high proportion of patients develop chronic lymphoedema as a consequence of cancer or its treatment.¹ Upper limb lymphoedema most often occurs after axillary node surgery as part of breast cancer treatment; whilst lower-extremity lymphoedema can develop following uterine cancer, prostate cancer, lymphoma or melanoma and its treatment.² Chronic lymphoedema can also occur following infection, surgery or trauma, or without any precipitating factors known as primary lymphoedema. A study in 2003 across South West London Community trust report a lymphoedema prevalence rate of 1.33/1000 for all age groups.³ Other studies⁴ have shown similar rates, and this equates to approximately 100,000 people in the United Kingdom with this disease.

Although there is currently no proven cure for lymphoedema, it can often be managed successfully with early diagnosis and treatment. The gold standard for the treatment of lymphoedema is complete decongestive therapy (CDT), which should be provided by a trained lymphoedema specialist.⁵ This consists of an initial reductive phase and subsequent maintenance phase. The initial phase consists of manual lymphatic drainage (MLD), multilayer compression bandaging, therapeutic exercises, skin care and education in self-management. The maintenance phase consists of a lifelong self-delivered drainage, skin care and compression garments.

In contrast to other types of oedema, for example cardiac oedema, chronic lymphoedema has a high content of adipose tissue.^{6–9} Due to the decreased or absent lymph function, there is stasis of lymph and interstitial fluid, increased formation of adipose tissue, and with time, greater amount of fibrosis. Most patients with chronic lymphoedema will receive conservative measures in the first instance such as compression bandaging and manual lymphatic drainage (MLD). This will control oedema, but have no effect on the hypertrophied fat.¹⁰ A surgical approach with the intention to remove excess, hypertrophied adipose tissue appears logical when conservative measures have not yielded a satisfactory result.

In the past, debulking techniques such as the Charles procedure, Sistrunk, Thompson and Homans operations have been used. These have largely fallen out of favour as they are associated with poor cosmetic results and limited reduction of excess tissue volume. The National Institute for Health and Clinical Excellence (NICE) produced guidelines for Liposuction for Chronic Lymphoedema in 2008 following application by the senior author. At the present time, only Ninewells Hospital in Dundee, Scotland and St Georges Hospital in London provide this surgical option on the National Health Service (NHS). Our service is a single consultant led facility with a team of nurse specialists trained in lymphoedema, taking referrals from all over the country. The senior author has been performing liposuction for chronic lymphoedema since 2005. We aim to share our experience of our referrals, diagnosis and treatment provided.

Methods: A prospectively maintained database was analysed. Referral source, patient demographics, diagnosis, treatment offered and treatment received will be described. This study analyses routine data collected by the service, negating the need for formal ethical approval as per local trust policy.

Results

From 2005 to 2014, a total of 221 patients have been referred. 190 (86%) were female and 31 (14%) were male. The mean age was 51 years (range 7–86 years, mode 65 years). The majority of referrals 153 (69%) were from Scotland, 61 (28%) of referrals from England and 7 (3%) from Northern Ireland.

127 (58%) were referred via their general practitioners, 72 (33%) were referred from a hospital specialist consultant and 22 (10%) were referred from a lymphoedema nurse specialist. The majority of patients 165 (75%) were referred for consideration of liposuction of lower limb swelling. The anatomical areas afflicted with swelling are shown in [Table 1](#).

All patients are clinically assessed by the senior author. A full history and examination are performed to ascertain the cause of swelling. Where there is any ambiguity, investigations in the form of lymphoscintigraphy and/or contrast-enhanced magnetic resonance lymphography¹¹ are performed. At the time of this study, the majority (146, 66%) of patients were found to have lymphoedema. 65 (29%) were diagnosed with primary lymphoedema, whilst the remaining 81 (37%) had developed lymphoedema following oncological treatment, either in the form of nodal surgery, radiotherapy or a combination of both. 71 (32%) were found to have diagnoses other than lymphoedema- 47 (21%) had lipoedema, a distinct diagnostic entity characterized by symmetrical swelling of their legs, extending from the ankles to the hips associated with pain, tenderness and bruising, with sparing of the ankles.¹² 8 (4%) patients had lower limb swelling due to dependent oedema, 4 (2%) patients were diagnosed with lipodystrophy and 5 (2%) patients had enlarged limbs secondary to generalised obesity. 4 (2%) are currently undergoing investigations to identify the cause of limb swelling. This is shown in [Table 2](#).

131 (59%) were offered liposuction, of which 74 (34%) have received liposuction, 18 (8%) are awaiting their procedure, 3 (1%) have declined surgery, 27 (12%) are awaiting

Table 1 Frequency and description of anatomical areas of swelling.

	Frequency (%)
Lower limbs	
Unilateral	89 (40%)
Bilateral	76 (34%)
Upper limbs	
Unilateral	49 (22%)
Bilateral	1 (0.5%)
All 4 limbs	4 (2%)
Others	
Penoscrotal	2 (1%)

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