Lipoedema

Dr Naveen Somia MBBS PhD FRACS, Specialist Plastic Surgeon, as interviewed by Orsi Kokai

What are the key differences in the diagnosis and treatment of lipoedema and other fat-related conditions such as obesity or lymphoedema?

Good question. They are 3 common conditions that confuse both patients and practitioners, frequently resulting in misdiagnosis and wrong advice with no results. The fundamental difference between lipoedema, lymphoedema and obesity is the cause, which is different for each but neither acknowledged nor understood.

We are all familiar with the causes of obesity. Lymphoedema is technically a single-limb disease involving the entire limb. It is extremely rare to have bilateral and symmetrical lymphoedema. The causes of lymphoedema are divided into congenital lymphoedema and acquired lymphoedema. Congenital, meaning the person is born with this condition, usually affects one lower limb with a total absence of lymphatics in that limb.

Acquired lymphoedema relates to damaged lymphatics through surgery, cancer treatment or radiation. Seen in breast cancer patients following axillary lymph node removal, patients with postsurgical lymphoedema usually require an arm sleeve compression garment. Another acquired lymphoedema occurs in the tropics, where lymphatic filariasis or elephantiasis (parasite infection following a mosquito bite) is common. The patient's lymphatic system is inflamed and destroyed, causing lymphoedema in the limb, followed by abnormal fat deposition and soft tissue hypertrophy.

Comparatively, lipoedema, a disease inherited from either side of the family, manifests only in women, affecting 10% of females in the world. Lipoedema is amplified by natural hormonal surges – puberty, pregnancy, menopause and perimenopause, and ongoing hormonal changes post-menopause. Fat deposition in lipoedema is always bilateral and symmetrical, starting and stopping at the same place on both limbs. Feet are not involved in lipoedema, with fat depositions stopping at the ankle, forming characteristic ankle cuffs. The biggest difference between

lymphoedema and lipoedema is the lack of foot involvement in lipoedema. Lipoedema involves areas in the lower back and upper buttock area (often abnormally bigger), between hip and knee, knee and ankle and occasionally the arms.

Although lipoedema and lymphoedema associated with obesity may look similar, excessive amounts of adipose tissue/fat in the presence of tenderness, often reported on touch or accidental contact of affected areas, are seen only in lipoedema. Additionally, the skin overlying the lipoedema fat deposition differs from normal skin, developing abnormal collagen, lymphatics and increased blood vessels, with patients often reporting extremely red or flushed-looking legs after hot baths/showers.

Treatment of lipoedema is complex involving non-surgical or conservative treatment methods as the baseline for long-term maintenance, with surgical liposuction to remove fat if patients desire. It is important to understand that conservative treatment of lipoedema involves decongestion therapy to reduce fluid buildup in the leg, and combines compression, manual lymphatic drainage, other mechanical modalities such as lymphatic pumps, and muscle-based exercises involving minimal impact, such as walking (as opposed to running), Pilates, yoga, light weights, swimming and underwater walking.

Another essential part of lipoedema management is weight management. Although not responsible for reducing lipoedema fat, weight management helps to prevent further aggravation of lipedematous fat deposition. Weight management includes diet, exercise, medical management using drugs like Ozempic and Mounjaro, and surgical management of weight via procedures such as gastric bypass/sleeve. Especially important is maintaining nutrition status by consulting a nutritionist, as a focus on weight reduction centred around calorie restriction potentially leads to significant nutritional deficiencies, counterproductive to wellbeing. Another helpful professional for lipoedema patients is a metabolic physician, an endocrinologist specialising in the impact of hormones on weight gain, weight loss and lipoedema. A metabolic health specialist will recommend a plan that factors in the impact of hormones.

Surgical management of lipoedema is only indicated once the patient is compliant with consistent conservative therapy. Postoperative gains following liposuction can only be maintained by regular, ongoing

conservative methods. Indications for liposuction are to debulk the fat to improve mobility and quality of life and to treat pain caused by abnormal lipoedema fat. Painful or tender areas are targeted first, followed by the other areas. Aesthetic outcome following liposuction for lipoedema cannot be guaranteed, as many variables influence this – quality of the skin, patient age, lipoedema stage, amount and duration of fat deposit.

Could you describe specific surgical techniques you use to treat lipoedema, and how they differ from traditional liposuction procedures?

Since 2013, I have used water assisted liposuction (WAL) (also known as body jet) as my preferred option for lipoedema liposuction for the following reasons:

- Most plastic surgeons in Germany treating lipoedema preferentially use WAL.
- One study[1] showed that lymphatic damage following WAL is minimal, reducing post-liposuction lymphoedema risk, a complication of previous liposuction techniques.

In traditional liposuction, the mechanical force of the liposuction cannula is used to dislodge the fat with built-in suction removing the fat. This more traumatic method increases damage to blood vessels, lymphatic damage and bleeding. Recovery can be slower because of the swelling and bruising associated with this procedure.

Using high pressure water pulses to dislodge the fat clusters, WAL enables gentler suction of fat, limiting lymphatic damage. Also called ‘lymph sparing’ liposuction, WAL specifically targets fat while sparing the lymphatics, helping faster healing with less postoperative bruising and swelling.

What criteria do you use to determine a lipoedema patient’s suitability for surgery? Are there any contraindications?

Surgical treatment of lipoedema is an option for patients. The first line of treatment for lipoedema patients – conservative non-surgical decongestant therapy, management of weight and regular exercise – is mandatory. Only after consistent, compliant conservative therapy are patients considered to be surgical candidates. Patients need to be well-

prepared physically and mentally, optimising their general health and wellbeing and addressing issues that could compromise the outcomes of surgery and put themselves at risk. This includes strict devotion to optimising cardiac function and weight, addressing any underlying bleeding or clotting issues and mitigating other specific patient risks to achieve good outcomes.

Contraindications to lipoedema surgery include:

- undiagnosed lymphoedema
- not medically optimised or mentally prepared for operative procedure and postoperative recovery
- noncompliance with conservative decongestive therapy preoperatively
- morbid obesity.

In collaboration with lymphoedema therapists preparing patients for surgery, what pre and postoperative care protocol do you recommend?

For surgical preparation, all patients are advised to engage with a therapist regularly for manual lymphatic drainage (MLD) as conservative management of lipoedema. The therapist also assists and guides surgical preparation and coordinates postsurgery treatment for swelling resolution and healing expedition. The therapist also selects optimal compression garments with recommendations regarding modifications/alterations to the compression as required. Maintaining an ongoing and long-term relationship with a lymphoedema therapist helps achieve sustainable long-term benefits. I find this level of support essential to achieve good outcomes.

In addition to routine postoperative management of pain control and wound healing, patients are placed in compression garments at the end of surgery. Helping with decongestive therapy, a mechanical pump mobilises excessive fluid from the legs and patients are encouraged to walk 10 to 15 minutes per hour, resolving fluid and helping patients feel comfortable with their mobility status. Some patients opt to stay in hospital for a week's rehabilitation, with physiotherapists assisting with gait retraining and muscle strengthening, making patients steadier on their feet. Patients are instructed to contact their lymphoedema therapist for early intervention.

Summarising, lymph therapists are essential team members in the lipoedema patient journey with frequent pre and postoperative interventions, especially in the acute postoperative phase, to optimise outcomes. We also recommend ongoing care for sustainable maintenance of lipoedema.

What potential risks and complications are associated with lipoedema surgery, and how are these mitigated in your practice?

Every surgical procedure identifies and manages risks, and lipoedema surgery is no different. Risks to lipoedema patients undergoing surgery are:

- anaesthesia risks and complications
- postsurgical complications
- long-term complications.

Critically, patients must be medically fit and healthy to undergo general anaesthesia possibly lasting up to 4 hours, and a prolonged healing phase lasting up to 4–6 weeks. Vital risk factors must be identified and addressed by baseline preoperative testing, needing to escalate to additional testing as appropriate such as:

- specialist cardiologist consultation and treatment recommendations
- haematological conditions consultation and treatment recommendations for conditions such as clots, pulmonary embolism, excessive bleeding, and blood transfusion management.

Additional risks to consider are:

- general risks – pneumonia, deep venous thrombosis, pulmonary embolism, fat embolism, stroke, heart attack, allergies, awareness, death
- surgical risks – bleeding, damage to deeper structures, complications from liposuction wetting solution drugs
- short-term risks – bleeding, infection, sensation change, haematoma, seroma, skin contour irregularities, firmness, exposed sutures, dog ears/additional skin folds, dressings, delayed healing, tissue death and blood transfusion
- long-term risks – asymmetry/abnormalities of contours, scars, pubic distortion, lymphoedema, change in size and shape, and unsatisfactory result

- extreme risks – skin necrosis (from low grade infection/tissue trauma compromising skin blood supply during surgery and subsequent compression therapy)
- extremely low risk – death (with diligent risk identification and mitigation).

What are the long-term outcomes for lipoedema surgical patients, how do you monitor and manage outcomes over time, and what outcome measures are used?

Long-term outcomes following surgical debulking of lipoedema fat are good. For patients treated since 2013, debulking 15 to 30 litres of fat over multiple surgeries, reductions realise both physical and biological benefits. The weight of 30 litres of lower limb fat creates a significant mechanical deterrent to activities of daily living, with exercise restriction felt before surgery impacting health and wellbeing. Following large-volume liposuction, patients report gait improvement and less fatigue on walking, legs do not swell at day's end, and lipoedema-associated pain is no longer present. Patients whose occupations involve hand usage, for example, hairdressers, benefit from debulking of arm fat. Current literature supports the notion that large-volume liposuction can positively affect cardiovascular risk factors, metabolic balance, and insulin resistance.[2]

How does surgical treatment of lipoedema affect lymphatic function? What precautions are taken to minimise risk of developing/exacerbating lymphoedema?

Historically, liposuction for lipoedema was contraindicated because of the risk of damage to the lymphatic system and the risk of causing lymphoedema post-lipoedema surgery. Fortunately, new technologies such as WAL have mitigated that risk,[1] allowing plastic surgeons to use WAL with good outcomes. Patients who have or are suspected of having lymphoedema have indocyanine green (ICG) testing to check their lymphatic channel status. ICG can diagnose lymphoedema based on the lymphatic disruption and visible lymphatic pooling. If diagnosed, patients are referred to the appropriate specialist.

Patients are advised to optimise lymphatic flow preoperatively and immediately postoperatively through compression therapy, lymphatic

pumps, and regular mobility exercises. During surgery, additional precautions ensure that liposuction is performed in longitudinal patterns parallel to lymphatic channels to minimise damage.

How do you educate patients about realistic expectations of surgery? What lifestyle/therapeutic interventions are recommended to maintain results?

Patient education is a critical part of management, allowing patients to understand the complexity of lipoedema diagnosis and management and tempering expectations to keep them realistic. All patients are told that the treatment of lipoedema is about control, not a cure, as in diabetes, where you can control and lead very productive and effective lives without expecting a possible cure. All interventions, conservative or surgical, must be viewed in this context. Conservative treatments that help maintain results include compression, exercise, diet, and MLD therapy, and are essential pre and postoperatively. This practice is lifelong and is clearly explained to patients in consultations.

How important is the multidisciplinary approach for successful management of lipoedema?

It takes a 'village' to care for lipoedema patients, indicating the critical nature of multidisciplinary care involving physiotherapists, lymphoedema therapists, lymphatic massage therapists, garment experts, dieticians/nutritionists, metabolic health experts, and surgeons.

Preoperative workups and treatments done by multiple specialities are critical to ensuring the success of surgery. Postoperatively, results can only be maintained if patients diligently receive good postoperative care from their surgeon and good lipoedema care from their multidisciplinary team.

Post-surgery, failure to comply with multidisciplinary-recommended multimodality care will impact not only the immediate outcomes but also the longevity of the results, impacting patient wellbeing and quality of life.

References

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