Surgical treatment of lymphedema

A State-of-the-Art review
by Byung-Boong LEE, Washington DC, USA.

Throughout the last century, the treatment of chronic lymphedema was mostly carried out by surgeons and based on excisional surgery to remove/debulk the lymphedematous tissue. This type of excisional surgery has been an indispensable part of chronic lymphedema management for many decades.

But the outcome of this mostly debulking procedure (eg, Charles procedure) has for the most part been quite disappointing due to various complications and the risk of lifetime morbidity. Most procedures have produced very limited benefits at best and failed to improve the quality of life.

But such poor outcomes were partly due to limited knowledge about lymphedema and to the indiscriminate use of surgery before a proper understanding of this unique condition was achieved.

Throughout the last few decades, the whole concept of chronic lymphedema has evolved drastically and the treatment strategy has changed.

Nonsurgical, conservative treatment based on decongestive lymphatic therapy (DLT) is now a mainstay of the management of all chronic lymphedema cases, mainly to prevent progression regardless of the condition/clinical stage/etiology of the lymphedema.

DLT consists of exercise/movement, manual lymphatic drainage, and compression therapy (bandaging, compression garments) in addition to basic skin care and education to reduce the risk of infections and trauma.

Nevertheless, DLT-based conservative management is only effective to delay the progression of the condition and does not result in a “cure.” Furthermore, it is effective only for the duration of the treatment program and frequently fails to prevent progression despite maximum care.

Therefore, interest in surgical treatment has been rekindled, even for the once-condemned excisional surgery and the newly developed reconstructive surgery in its various modalities.

Various curative/reconstructive surgery techniques have been proven effective for their unique role in improving the condition and may even achieve a cure when performed properly and in the early stages of lymphedema. Ablative/excisional surgery was thus reintroduced for its new role in the late stages of lymphedema as supplemental therapy to complement failing CDT.

When CDT-based conservative therapy fails and there appears to be very little chance of controlling the condition effectively, excisional surgery has a special role in such deadlocked conditions as a supplement to improve the overall outcome of the therapy.

Reconstructive surgery is most effective only when the residual lymphatic vessels used for the reconstruction remain functionally intact to relieve obstruction/lymph stasis and restore the lymphatic function following reconstruction.
However, the current status of reconstructive surgery is very much in jeopardy mainly due to delayed timing in implementing the procedure properly before it’s too late; often the lymphatic system has already been irreparably damaged by prolonged lymph stasis while waiting for surgery.

In order to reduce the morbidity involved with traditional excisional techniques, a new approach involving liposuction has been introduced to improve postmastectomy lymphedema. Instead of resecting the fibrosclerotic overgrowth in the late advanced stage of lymphedema, liposuction is carried out to obliterate the epifascial compartment by removing excessive adipose tissue by "circumferential" suction-assisted lipectomy under the assumption that removing excessive adipose tissue alone should NOT cause additional damage to the remaining lymphatic system.

However, at the end stage of lymphedema, by the time liposuction can be justified and there is no longer any risk of lymphatic tissue damage, the entire tissue has become fibrosclerotic and is hardly amenable to liposuction, which leaves minimal room for lipectomy.

The long-term results of liposuction should prove that it is safe and that the suction does not produce any collateral damage to the viable lymph vessels, as this would otherwise worsen the condition.

 Nonetheless, these various therapeutic surgical modalities have recently been found to be more effective when combined with DLT, which is in-line with the new concept of a multidisciplinary approach. The outcome of surgical therapy is heavily dependent on the patient’s compliance to maintain postoperative DLT.

Therefore, patient compliance to commit to lifelong maintenance of postoperative DLT therapy is the most crucial factor to achieve a successful long term outcome after reconstructive or excisional surgical therapy.

**CONCLUSION**

Surgical treatment, whether reconstructive or excisional, remains a viable option for chronic lymphedema management especially when DLT-based conservative management fails to stop its progression.

Surgical therapy in less ideal in the later stages of lymphedema as supplemental therapy warrants postoperative DLT and/or compression therapy for the long-term maintenance of satisfactory clinical improvement.