

*COMMENTARY***CONTEMPORARY ISSUES IN MANAGEMENT OF
CHRONIC LYMPHEDEMA: PERSONAL REFLECTION ON
AN EXPERIENCE WITH 1065 PATIENTS**

B.B. Lee

Professor of Surgery, Department of Surgery, Sungkyunkwan University School of Medicine and Director, Lymphedema Clinic, Samsung Medical Center, Seoul, Korea

Chronic lymphedema has been benignly neglected for decades as a relatively innocuous problem with little impact upon the quality of life (QOL). But it has lately been recognized as a more pressing issue with a real impact on the QOL causing serious disability, physically, psychologically and socioeconomically. In developed countries, secondary lymphedema following cancer management by surgery and/or radiation therapy is the most common cause of chronic lymphedema. Therefore, surgeons and physicians responsible for this "iatrogenic" condition can no longer evade their responsibility to provide the best preventive measures and must participate to minimize this life-long impact of cancer management.

Currently, several issues remain to be clarified concerning the contemporary management of chronic lymphedema, especially of chronic lymphedema of secondary origin.

Ignorance & Compliance

The ignorance of the responsible physicians and of related healthcare personnel of this potentially life-threatening condition remains the most serious issue. Patients, their families, and healthcare personnel must cooperate to maintain a life-long commitment

to the successful management of chronic lymphedema.

Moreover, a lifetime commitment to the cumbersome and complex treatment modalities to prevent a serious outcome, if left untreated, places a burden on all concerned. Therefore, ignorance and subsequent poor compliance have been blamed as the reasons for the avoidance of the responsibilities associated with chronic lymphedema, and the importance of properly understanding these critical issues, through precise evaluation, cannot be over-emphasized. This iatrogenic condition, inflicted unintentionally by surgeons/physicians, should not be accepted as tolerable with minimum morbidity. At the same time, patients should be properly educated not to accept this limb- if not life-threatening condition lightly. Patients must be encouraged to do their best to maintain treatment compliance and cooperate with physicians to prevent, or if not, to minimize disease progression, instead of abandoning proper care and learning to tolerate the condition. Chronic lymphedema should no longer be ignored or benignly neglected as an affordable minimum inconvenience to the surgeon/physician and the patient. It presents a substantial risk of morbidity and complications, and the potentially life-threatening condition (e.g., sepsis, angiosarcoma)

associated with end-stage chronic lymphedema should be viewed as such and managed as a major QOL issue.

Latent Edema & Subclinical Infection

The condition may be associated with a very unpredictable “latent” period before the lymphedematous condition becomes clinically obvious. But, most of the mythical nature of this “latent” period of chronic lymphedema has been removed by the new information on lymphodynamics. New knowledge of the “lymphangion” as the functional/ anatomical unit of lymphatic system has corrected the erroneous classical concept, which considered the lymphatic system as an auxiliary system to support the venous system with similar hemodynamic mechanisms (venodynamics). Hence, many questions related to this latent period are now viewed differently. Lymphedema is no longer considered as a simple “static” condition of lymphatic fluid accumulation, but as a “dynamic” condition that progresses steadily through this latent period. Not only is the superficial lymphatic system itself affected, but also surrounding structures from the skin through the soft tissue, a process known as dermatolipofibrosclerosis.

“Subclinical” infection was proposed as the major cause for the unexpected appearance of this lymphedema long after the normal condition following surgery/ radiation, explaining the edema latency. This latent period has been found to be the most crucial in terms of preventing or minimizing the progress to the chronic lymphedema, and remains a serious issue with respect to aggressive prevention strategies.

Simple Edema to Life-Threatening Condition

Prevention is a more effective and ideal approach than treatment, and all effort should be made during this latent period before full-blown clinical lymphedema starts.

Surgeons and physicians must take responsibility for this iatrogenic condition as

a part of the unavoidable process of current proper cancer management and should perform lymphadenectomy in a more discriminating manner (e.g., a sentinel node biopsy strategy as a proactive preventative measure). Moreover, judicious control and prevention of infection perioperatively should become the mainstay of passive prevention. Accordingly, proper education should be afforded to all related healthcare personnel and to the patient and family, and this should include the basic assessment of general (hygienic) skin care, weight control, diet, etc., from the very beginning. If chronic lymphedema is left neglected, it will manifest as one long series of clinical conditions and pursue an inexorable, steady progression through life. Once initiated, it will progress from a simple reversible edema to the far-advanced rock-hard condition involving entire soft tissue to skin, known as irreversible “dermatolipofibrosis,” and become a constant source of local and/or systemic sepsis.

Once chronic lymphedema reaches this advanced stage, it affects the Q.O.L. profoundly, causing severe disability at the physical, psychological and socioeconomic levels, and becomes potentially life-threatening, not only due to common bacterial and/or fungal sepsis but also to various occasional lymphoproliferative neoplastic diseases (e.g., lymphangiosarcoma, Kaposi sarcoma).

Accordingly, this post-surgical iatrogenic condition should no longer be casually acceptable or excusable, regardless of the difficulties in avoidance.

Iatrogenic Condition, No Longer Excusable

Postmastectomy lymphedema has been reported to follow in ~25% of various breast cancer operations; in ~38.3% with additive extensive axillary lymph node dissection combined with radiation therapy; and in ~28.4% following radical hysterectomy and pelvic lymphadenectomy. Surgeons often claim that this condition is an unavoidable

consequence of the “forced” sacrifice of lymph nodes and their collecting system. Thus, the condition is often excused as the justifiable price of successful cancer management. However, this several decades-old self-excuse has been gradually dismissed by the medical community, and by patients, who demand a new containment, if not a prevention strategy. The role of surgeons and/or physicians in the oncologic field in the developed countries has changed substantially in this context; they are now being encouraged to take a measure of responsibility for this aftermath.

Clinical Management

A reasonable strategy has been established with MLD (manual lymphatic drainage)-based CDT (complex decongestive therapy) as the main therapy while pressotherapy remains controversial. Although results are not yet fully convincing, various surgical treatments have also grown in acceptance either as independent therapy with the chance of cure or as supplemental therapy to reinforce failing CPT-based main therapy.

Our experiences¹ with these various therapies in 1065 patients in various clinical stages are worth mentioning as favorable. The majority (806/1065) in the age range of 21-82 years (mean age 53.3 years) presented with secondary lymphedema following cancer surgery and/or radiation therapy in various clinical stages. stage I-125, II-428, III-196, IV-34, and undetermined-23. In these 806 patients, 308 presented with upper extremity swelling following breast cancer management and 498 with lower extremity swelling after cervical/uterine cancer management. An appropriate combination of CDT-based treatment was implemented, depending upon patient compliance and the clinical stage of

the lymphedema—MLD-based CDT in the earlier stages (stages I & II) and additional pressotherapy with SPC (sequential pneumatic compression) in the later disease stages (stage III & IV). This protocol was modified based on progression and treatment response.

Various surgical approaches were added in 54 chronic lymphedema patients, including 39 post-surgical lymphedema patients, as supplemental therapies to 65 limbs to reinforce failing CDP and/or pressotherapy-based treatment, when the disease progressed despite maximum therapy. Venolymphatic reconstructive surgery (n=19), free lymph node transplant surgery (n=13), and palliative excisional surgery (n=33) were included.

Satisfactory clinical improvement following venolymphatic reconstructive surgery showed that compliance with post-operative CDT is a most crucial factor. Similar results were observed for free lymph node transplant surgery, and the results of palliative excisional surgery were more striking with a closer relationship to compliance. Satisfactory results of CDT were also highly dependent on patient compliance, that is, a steady commitment to continuous CDT and/or compressotherapy.

Of the patients treated only with CDT and/or pressotherapy, good compliance (618/1011) was able to prevent, or minimize disease progression in the majority (488/618), regardless of clinical stage. The impact of patient compliance on treatment/progress was more striking during the earlier stages of lymphedema (388/491) with a better response than during the later stage (98/187), and in pure post-surgical lymphedema unassociated with radiation therapy (219/299) than in radiation-combined lymphedema (128/388). The present treatment regimen, therefore, is not curative; rather it effectively prevents disease progression in principle and produces a satisfactory outcome in the majority, when the patient is compliant and maintains self-motivated home treatment following hospital-initiated care.

¹Lymphedema Clinic, Samsung Medical Center (January 1995-December 2002), Seoul, Korea

CONCLUSIONS

A more aggressive approach to improve the treatment of chronic lymphedema and QOL has been advocated, and now it is unacceptable to consider that only long-term survival matters in the treatment of cancer patients.

Surgeons are now being questioned as to whether lymphedema can be avoided or prevented, when the cancer management strategy includes the possibility of this complication. A commitment to reduce its incidence and an orchestrated effort focused on "total care management" is being demanded, from the initial prevention plan (e.g., sentinel node biopsy with/without selective lymph node excision) to the adoption of a preemptive aggressive approach immediately after cancer treatment to minimize the undesirable impact of chronic lymphedema as much as, and for as long as, possible. Surgeons should now give second thought to a "cavalier" approach to cancer management, before committing to surgical and/or radiological damage to lymphatic system. Surgeons also ought to be involved in the preventive process to guard against latent/subclinical infection through the post-operative and/or post-radiation period of cancer management, also known as the "latent edema" period. At the first sign, aggressive control should be initiated to forestall chronic lymphedema by adopting a multidisciplinary team approach without delay.

The progression of once-established lymphedema should also be handled aggressively, and the patient and family must be persuaded to maintain compliance, more specifically to be self motivated in maintaining a life-time commitment to the management of this "incurable but manageable" condition.

After all, the biggest enemies are ignorance and abandonment by us and by the patient. "The greatest incurable thing after all, is not the lymphedema itself but ignorance and poor compliance" (P. Carlos Mayall, 1995).

REFERENCES

1. Bernas, MJ, CL Witte, MH Witte: The diagnosis and treatment of peripheral lymphedema. *Lymphology* 34 (2001), 84-91.
2. Casley-Smith, Judith R, JR Casley-Smith: *Modern Treatment for Lymphedema*. Adelaide, Lymphoedema Association of Australia, 1994, 245 pp.
3. Hwang, JH, JW Kwon, KW Lee, et al: Changes in lymphatic function after complex physical therapy for lymphedema. *Lymphology* 32 (1999), 15-21.
4. Kim, DI, BB Lee, S Huh, et al: Excision of subcutaneous tissue and deep muscle fascia for advanced lymphedema. *Lymphology* 31 (1998), 190-194.
5. Lee, BB, DI Kim, JH Hwang, et al: Contemporary management of chronic lymphedema – personal experiences. *Lymphology* 35(Suppl) (2002), 450-455.
6. Olszewski, WL: Episodic dermatolymphangioadenitis (DLA) in patients with lymphedema of the lower extremities before and after administration of benzathine penicillin: A preliminary study. *Lymphology* 29 (1996), 126-131.
7. Pappas, CJ, TF O'Donnell: Long term results of compression treatment for lymphedema. *J. Vasc. Surg.* 16 (1992), 555-562.

B.B. Lee, MD
c/o S. Simonian, MD
Vein Institute
3301 Woodburn Rd, Suite 102,
Annandale, Va. 22003, USA
Phone: 703-573-5500
Fax: 703-573-3620
Email: bblee38@hotmail.com