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Interosseous Membrane Release for Long-Standing Upper Limb Lymphedema: A Procedure Often Neglected

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The incidence of secondary lymphedema in breast cancer patients, undergoing axillary node dissection or postmastectomy irradiation, is increasing up to 30%, despite the improvement in diagnosis and treatment.¹ Once lymphedema occurs, they are being treated by general surgeons and plastic surgeons. Ninety percent of patients with lymphedema respond to conservative treatment and do not need surgery. However, some of them may develop advanced lymphedema, leading to multiple functional problems. Currently surgery is being reported to improve limb size, sensation of heaviness, and rate of infectious episodes, so that both patients and surgeons are satisfied enough with good control of cancer as well as lymphedema.² However, with extended life expectancy of breast cancer survivors, optimum upper limb function is important for a higher quality of life. When there is long-standing lymphedema, the interosseous membrane can become fibrotic, with limitations in hand movement, especially supination of the forearm. Delayed washout of chemical mediators, as well as increased pressure, contributes to persistent swelling and chronic pain. Prolonged high protein edema creates an environment conducive to infection. Joint stiffness due to lymphostatic tendinosis or ligamentosis can occur.¹ To improve torsional rigidity of the forearm during pronation and supination, we suggest releasing of the forearm interosseous membrane. Performed through a distal to proximal longitudinal surgical incision, it allows the muscle masses to enlarge and redistribute, reducing intracompartmental pressure. The procedure is usually undertaken as part of other aggressive surgical debulking therapies, such as massive suction-assisted lipectomy, or radical reduction with preservation of perforators localized dermolipectomy.³ The incision starts in supination forearm, lateral to biceps tendon (avoids radial artery running medially) to radial styloid according to A. K. Henry (Fig. 1).

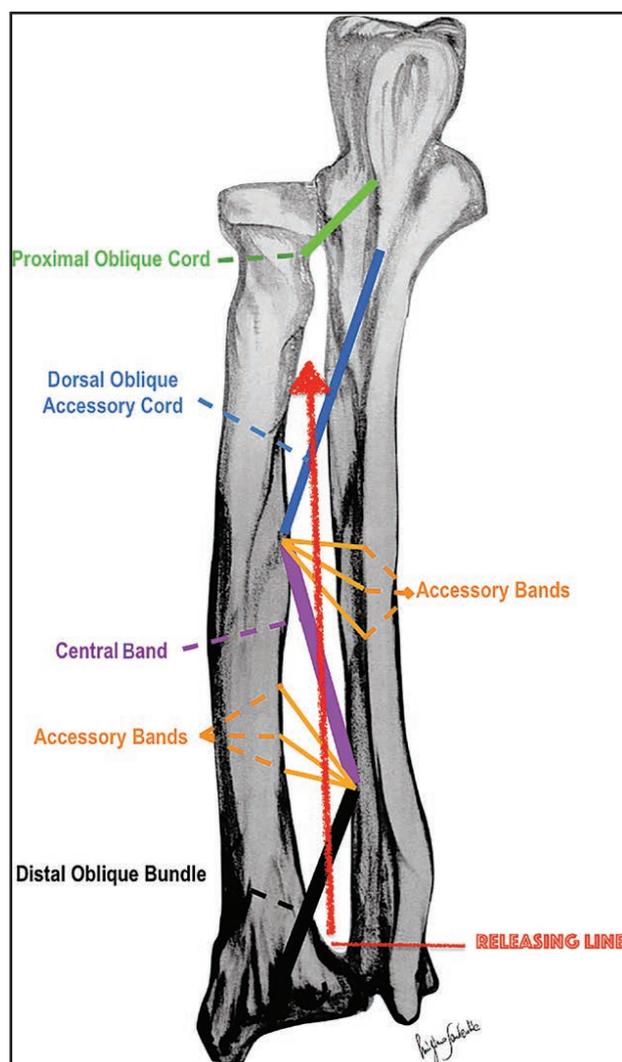


Fig. 1. Dorsal view of interosseous membrane of the forearm. The fibrous membrane consists of multilayered connective bundles thickened by interlacing and transversely overlapping fibers. This arrangement allows for strength while decreasing stiffness.

It is easy to perform and also helps to decrease swelling of the hand and forearm, improving function by reversing excess fluid between the tissues. This procedure is often neglected in lymphedema approach. The benefits include improved pronation–supination and decreased risk of intracompartmental syndrome. In case of anterior interosseous artery injury, the most important complication is bleeding. The risk of anterior interosseous nerve damage (a purely motor branch of the median nerve trunk) also exists, since surgical access takes place ventrally. It give rise to the anterior interosseous

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nerve syndrome, which sums up in weakness of thumb, index finger, and middle finger movement.⁴

So far lymphedema surgery has focused on decreasing limb size, with less attention paid to the basic principles of hand surgery, that are quite relevant in upper extremity lymphedema. In our unit, a multidisciplinary team of hand/plastic surgeons and physiotherapists treat these patients. We have been using this technique routinely on all being affected who undergo aggressive soft-tissue debulking, at late stage III lymphedema⁵ with functional improvement and no complications found in 5-year follow-up. This problem should be further considered in the future. For this purpose, we are reviewing long-term results, in preparation for a case series.

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DISCLOSURE

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