Liposuction Normalizes Lymphedema Induced Adipose Tissue Hypertrophy in Elephantiasis of the Leg – a Prospective Study with a Ten-Year Follow-up

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BACKGROUND: Patients with long-standing pronounced non-pitting lymphedema do not respond to conservative treatment or microsurgical procedures because slow or absent lymph flow, as well as chronic inflammation, cause the formation of excess subcutaneous adipose tissue, which cannot be removed by these methods.[1] The swelling of chronic non-pitting arm lymphedema following breast cancer can be completely reduced by liposuction and has not recurred during more than 21 years' follow-up. Encouraged by this experience, we decided to evaluate the effectiveness of liposuction on leg lymphedema.[2]

METHODS: 56 patients with an age of 52 years (range, 17-76) and duration of leg swelling of 14 years (range, 2-50) underwent liposuction due to non-pitting, chronic lymphedema. There were 29 primary (PL), and 27 secondary lymphedemas (SL) following cancer therapy. Age at cancer treatment and interval between cancer treatment and lymphedema start were 43 years (range, 20-65), and 3 years (range, 0-26) respectively. Age at onset of PL was 32 years (range, 4-63). All patients had received conservative treatment before surgery without further reduction. All were wearing compression garments before surgery. Aspirate and leg volumes were recorded.

RESULTS: Preoperative excess volume was 3935 ml (range, 1200-8475). Aspirate volume was 3872 ml (range, 1210-8475) with an adipose tissue concentration of 94% (range, 61-100). Postoperative mean reduction was 83% (range, 22-135) at 3 months and 104% (range, 75-163) at 1 year, and more than 100% during 10 years' follow-up when it was 115% (range, 112-119), i.e. the lymphedematous leg was somewhat smaller than the healthy one.

CONCLUSION: Liposuction is an effective method for treatment of chronic, non-pitting leg lymphedema in patients who have failed conservative treatment. It is the only known method that completely reduces excess volume at all stages of lymphedema. The removal of hypertrophied adipose tissue is a prerequisite to complete reduction (Figure 1 and 2). The reduced volume is maintained through constant use of compression garments.

REFERENCES:

1. Brorson H, Ohlin K, Olsson G, Karlsson MK. Breast cancer-related chronic arm lymphedema is associated with excess adipose and muscle tissue. Lymphat Res Biol 2009;7:3-10

2. Brorson H, Ohlin K, Svensson B, Svensson H. Controlled compression and liposuction treatment for lower extremity lymphedema. Lymphology 2008;41:52-63

FIGURE LEGENDS:

Figure 1. A 32-years-old woman with a non-pitting secondary leg lymphedema of 7 070 ml since 12 years following treatment of a synovial sarcoma in the right groin.

Figure 2. Complete reduction 6 months after liposuction.