Lower Extremity Lymphedema with Leg Dermal Backflow Stage 2-3 Treated By the Superior-Edge-of-the-Knee Incision Method: Is a Single Lymphaticovenular Anastomosis Enough?

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Background: Treating lymphedema is always challenging for microsurgeons. Application of the Superior-Edge-of-the-Knee Incision method for lymphaticovenular anastomosis is reported to have a strong therapeutic effect in patients treated for lower extremity lymphedema because lymph-to-venous flow at the anastomosis is enhanced by knee joint movement during normal walking. [1] We investigated whether a single lymphaticovenular anastomosis is adequate for early lower extremity lymphedema.

Methods: The study involved ten patients with lower extremity lymphedema characterized by

stage 2–3 dermal backflow and treated by a single lymphaticovenular anastomosis at the thigh via the Superior-Edge-of-the-Knee Incision method.[2] The lymphatic vessel and direction of flow were assessed intraoperatively, and reduction in lymphedema volume was assessed postoperatively.

Results: Use of our incision method yielded five anastomoses in the five patients with stage 2 dermal backflow and five anastomoses in the five patients with stage 3 dermal backflow. Mean diameter of the lymphatic vessel was 0.65 ± 0.08 mm (0.65±0.09 and 0.65±0.09 mm in the stage 2 and stage 3 patients, respectively; p=1.000). No venous reflux occurred in any patient. Mean follow up was 7.70 ± 3.30 months (9.60±3.29 months and 5.80±2.17 months for the stage 2 and 3 patients, respectively; p=0.068). The circumference of the affected limb was reduced in all patients. Mean reduction in the lower extremity lymphedema index was 20.160±9.892 (22.651±12.272 and 17.668±7.353 in the stage 2 and 3 patients, respectively; p=0.462).

Conclusions: A single lymphaticovenular anastomosis created by the Superior-Edge-of-the-Knee Incision method has a strong therapeutic effect in patients with stage 2–3 dermal backflow. Our treatment strategy using only a single lymphaticovenular anastomosis has the following advantages: only one microsurgeon with an operating microscope is needed;

operation time is shortened by a single site lymphaticovenular anastomosis; large lymphatic vessels of adequate size for anastomosis can be detected; imaging is not needed for detection of lymphatic vessels.

References:

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