

## Microsurgical Lymphvessel-Transplantation for the Treatment of Lymphedema: Experimental and First Clinical Experiences

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At the aid of the operating microscope it was possible to prepare lymphcollectors over a distance up to 25 cm. In order to perform the anastomoses we developed a tension free technique (1) using absorbable suture material (Polyglactin 910, size 10-12x0). The patency of 13 end to end anastomoses in rats was proved in all 13 anastomoses by histology and in 11 anastomoses by dye application. The mean observation time was 65 days.

In 10 dogs an experimental lymphedema had been induced (Method of *Clodius* and *Wirth* (2)) with a total blockage of the deep and the superficial system. Without therapy the animals die after this operation within 3 weeks. After the analogous lymphvesseltransplantation the animals survived. The increased circumference of about 50% of the affected legs was reduced to 10% within 7 weeks. When the transplants were removed, the circumferences reached values as before the transplantation. The intralymphatic "end-pressure", which was 2.5 torr in controls, rose to 12.5 torr during the edematous phase and diminished to normal levels with 3.5 torr after the transplantation.

In all 10 dogs the patency of at least one transplant could be demonstrated by histology. In 8 out of 10 dogs the patency of the transplants could be proved by inspection, lymphography and isotope-injection

In 3 patients, 2 women and one man we treated a secondary lymphedema at the arm and the lower leg by autologous lymphvesseltransplantation. The circumferences diminished quickly after the operation. The improved lymphatic transport could be seen also by injection of isotopes. The positive result has remained unchanged over a period of one year now in the first patient.

Autologous lymphvesseltransplantation is effective for treating a secondary lymphedema due to a blockage in a distinct area at the root of an extremity.

### References

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- 2 *Clodius L., W. Wirth:* A new experimental model for chronic Lymphedema of the Extremities. *Chir. Plastica (Berl.)* 2: 115, 1974

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