

A watercolor illustration of a hand. The hand is rendered in shades of blue and white, with a yellow lymphatic vessel extending from the wrist towards the palm. A red arrow points to a small, circular anastomosis site where the vessel meets the skin. The background is a textured, light brown color.

Results from lymphatic reconstruction with
lympho-venous anastomosis for arm
lymphedema 2014-2018.

9th Aarhus Workshop in Breast Surgery

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- The symptoms can be controlled by compression and physiotherapy
- There is no cure for lymphedema

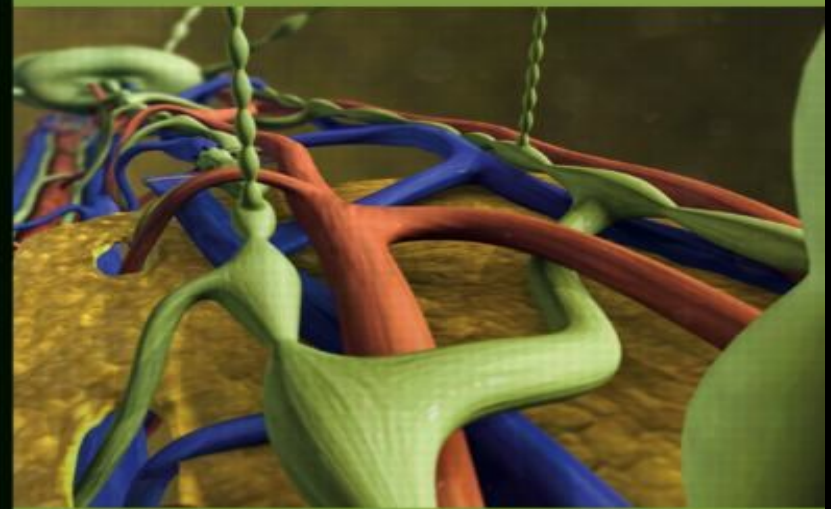


Why reconstructive surgery?

- New methods for visualization and understanding of the lymphatic system
- Better patient selection
- Super-microsurgery :
(0.3- 0.8 mm)

Lymphedema

Complete Medical and Surgical Management



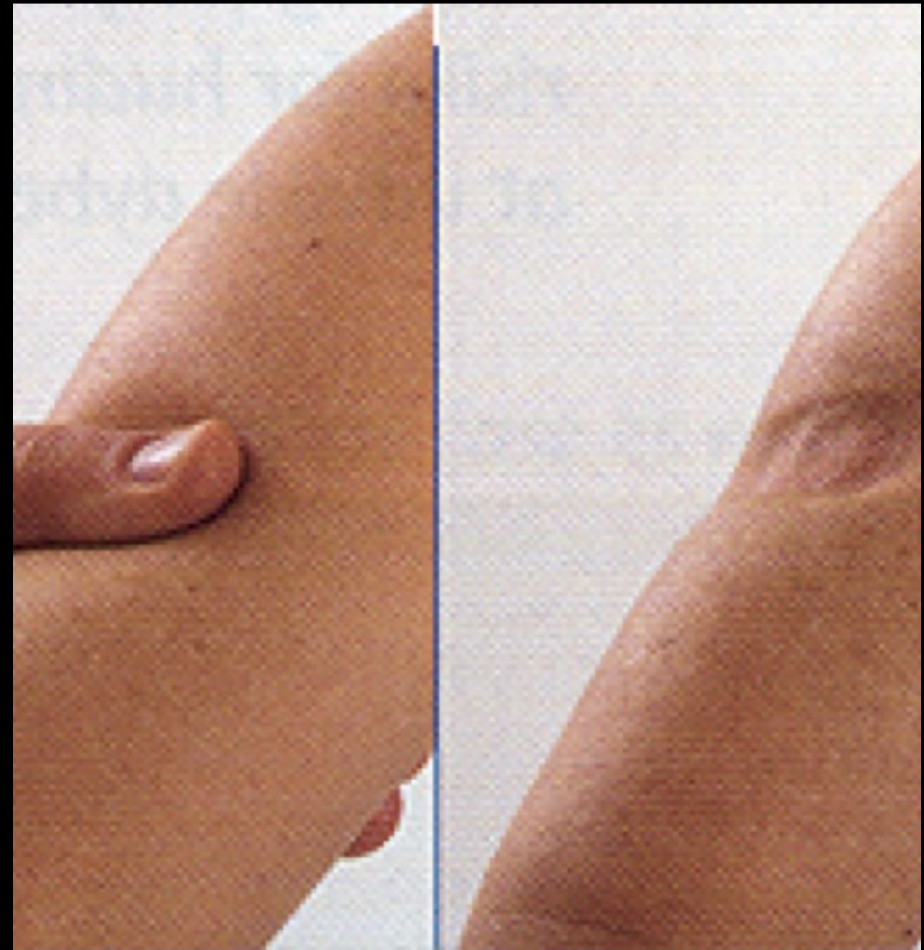
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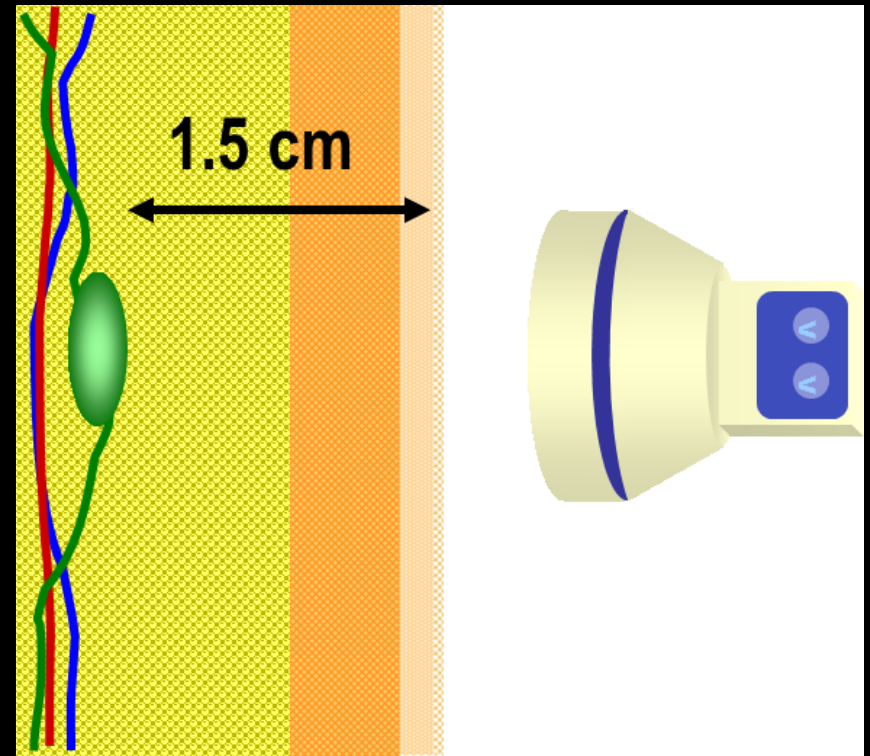
Eligible patients for Lymphatico-Venular anastomosis

- BMI no more than 28
- No lasting effect of either compression or physiotherapy
- Pitting oedema
- Response to compression
- Difference in limb circumference measure

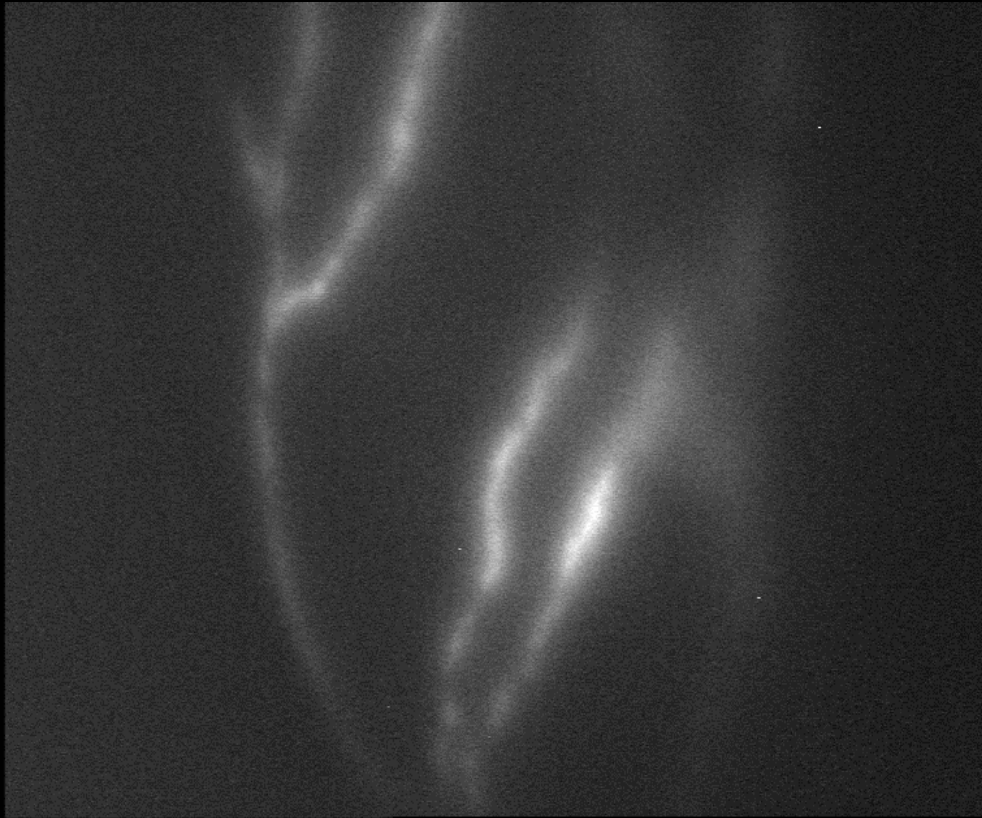


Preoperative imaging

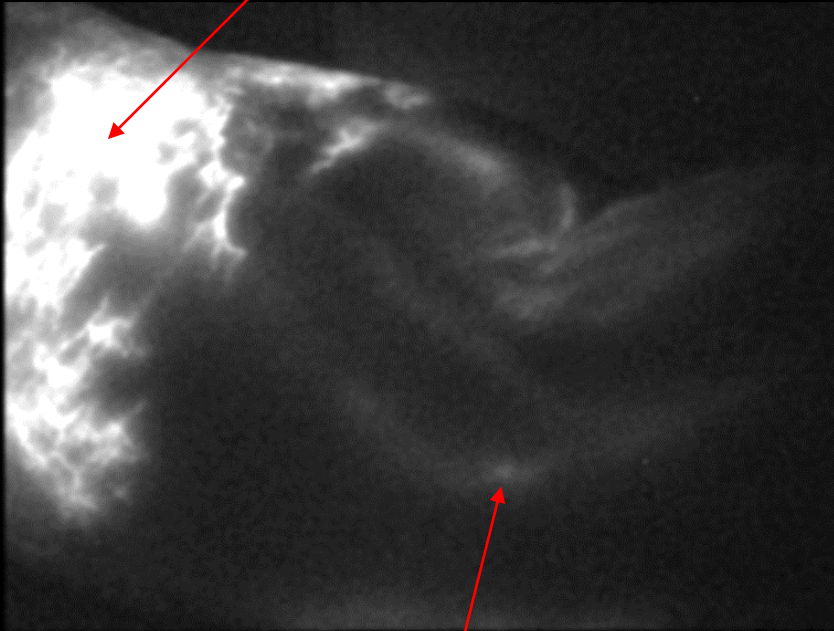
- Fluorescence lymphography



Linear pattern



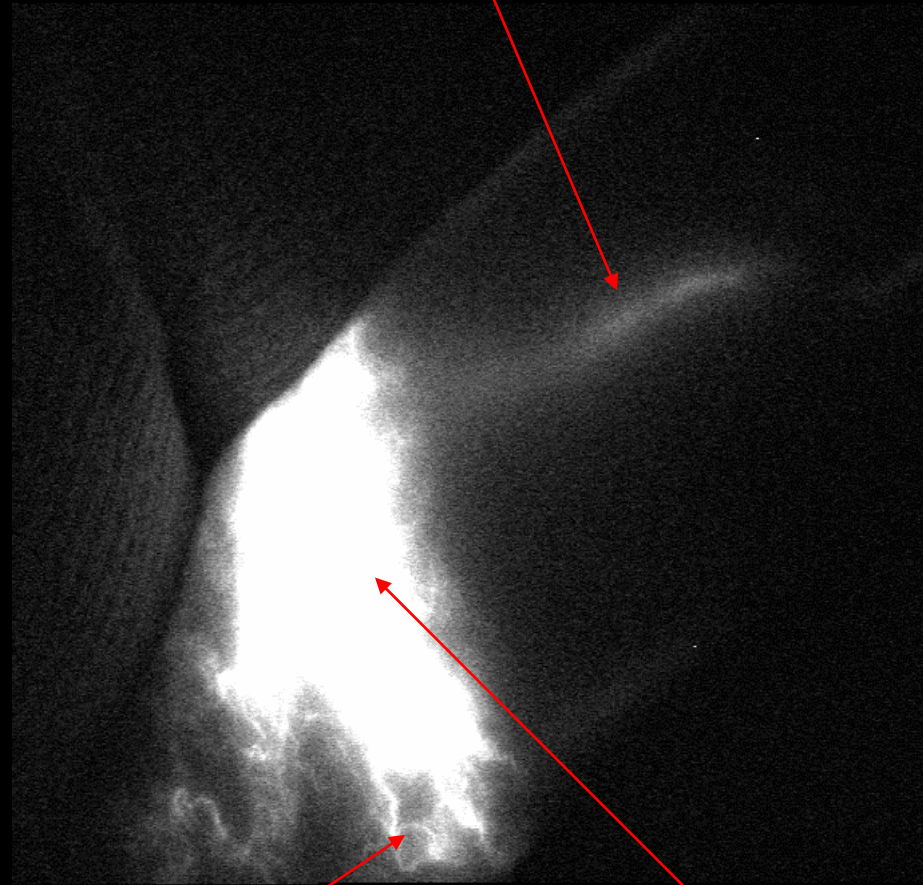
Splash pattern



Linear pattern



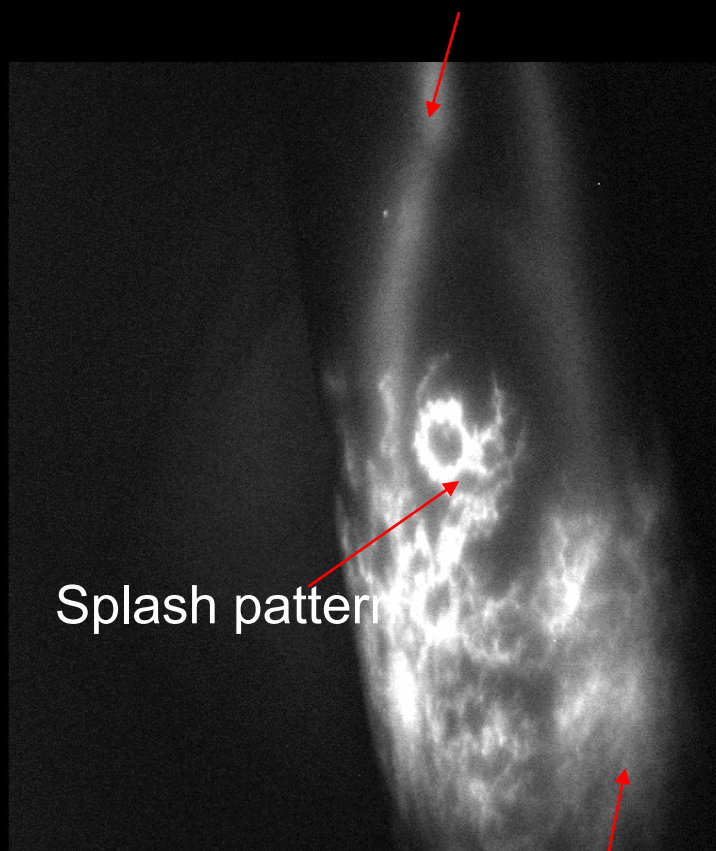
Linear pattern



Splash pattern

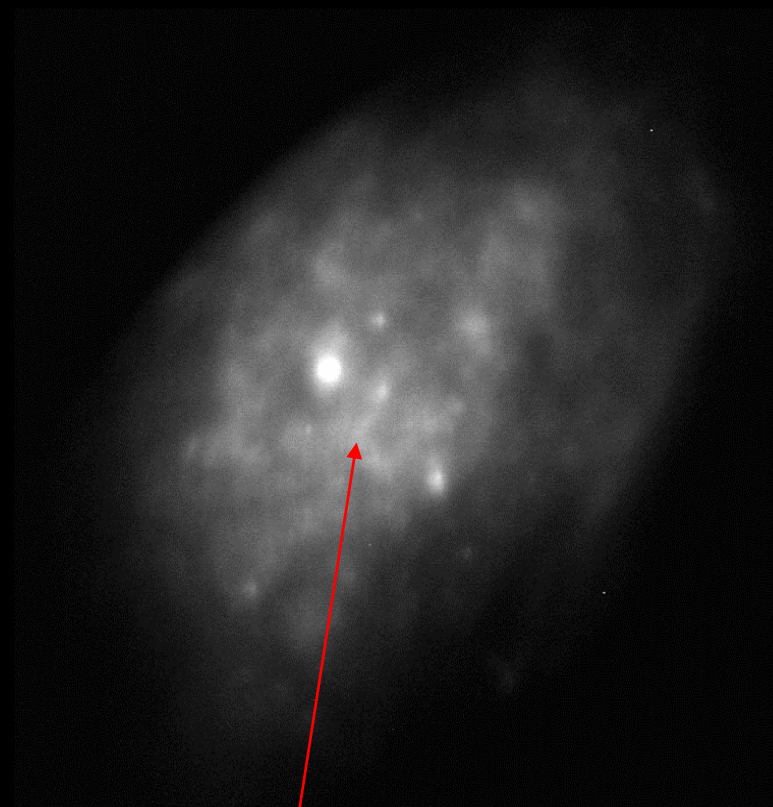
Diffuse pattern

Linear pattern



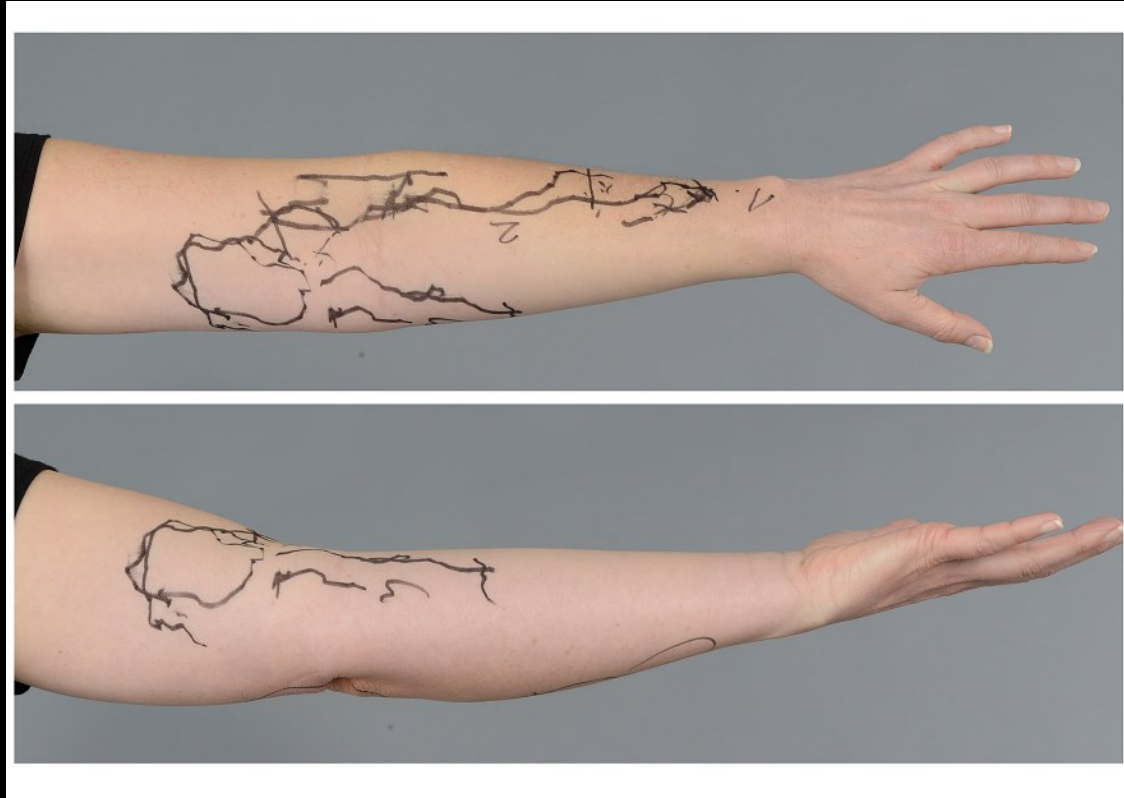
Splash pattern

Diffuse pattern

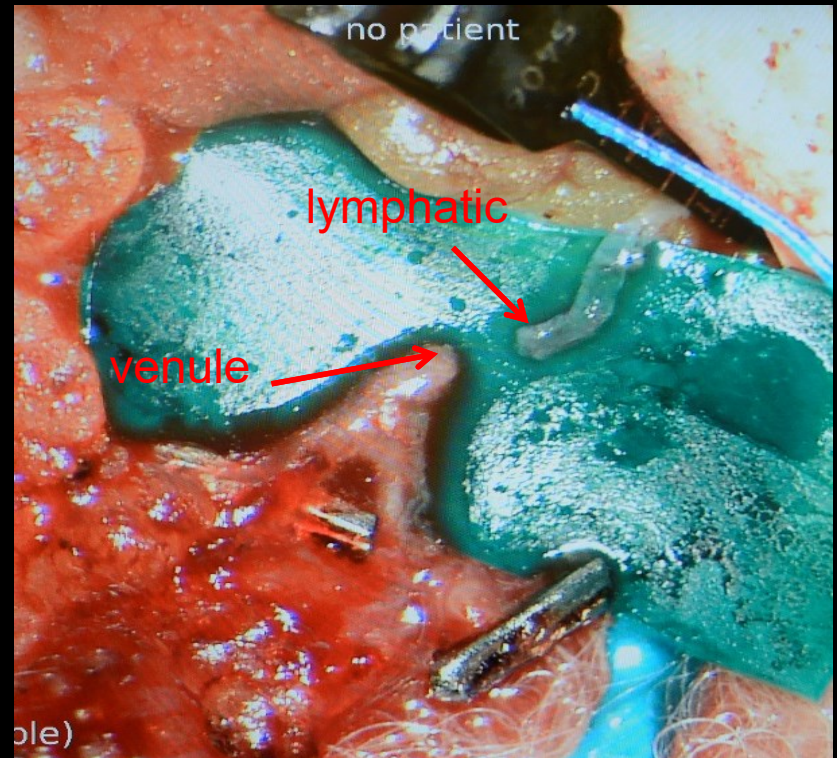
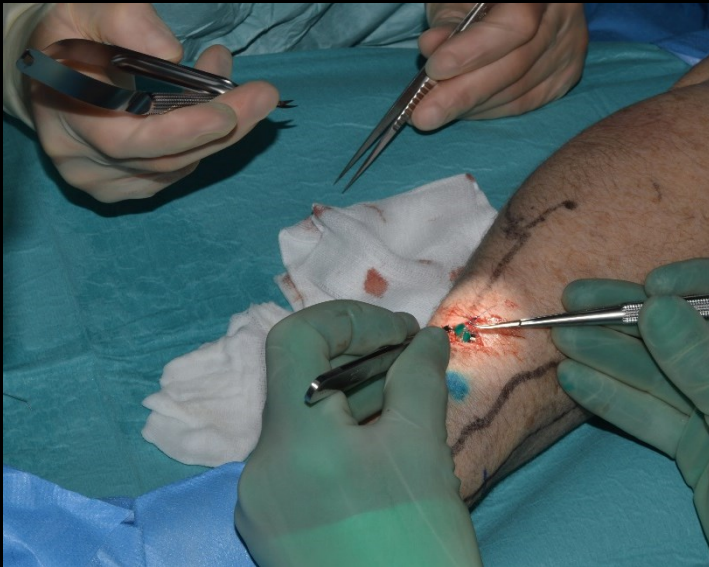


Stardust pattern

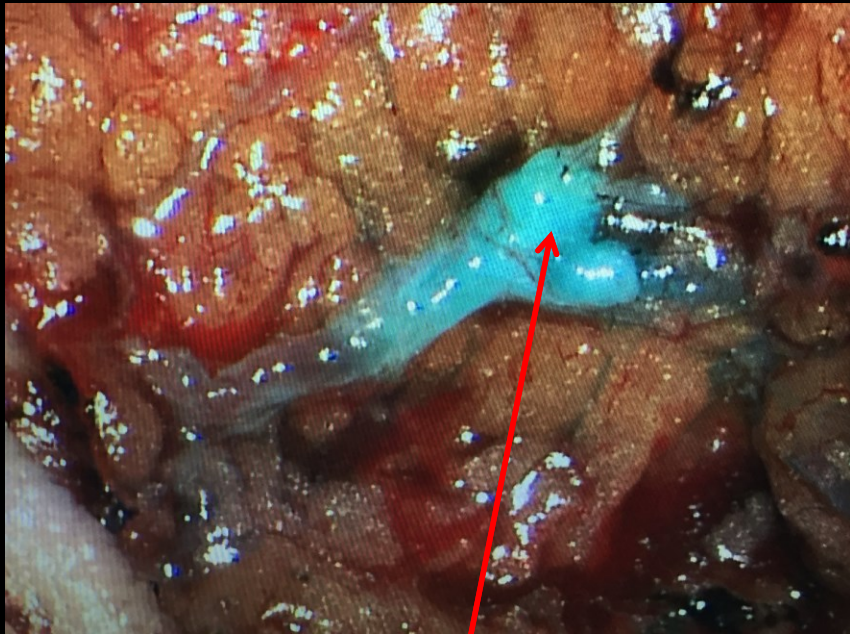
Markings on the patient



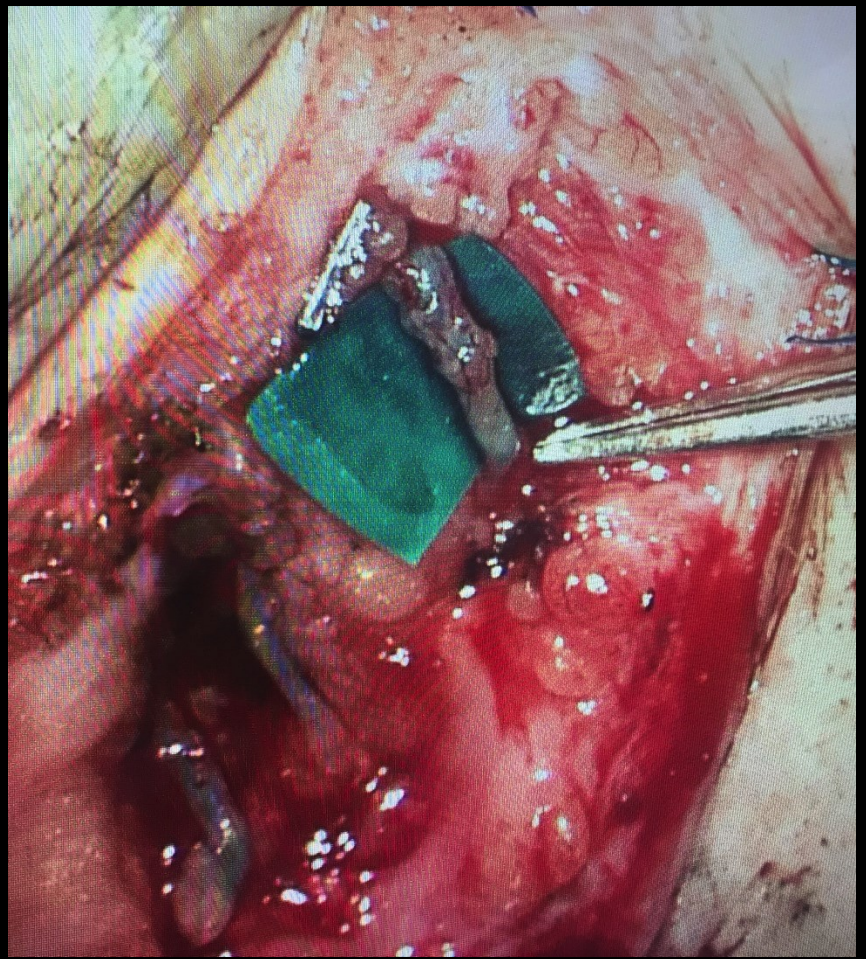
Lymphatico-venular anastomosis

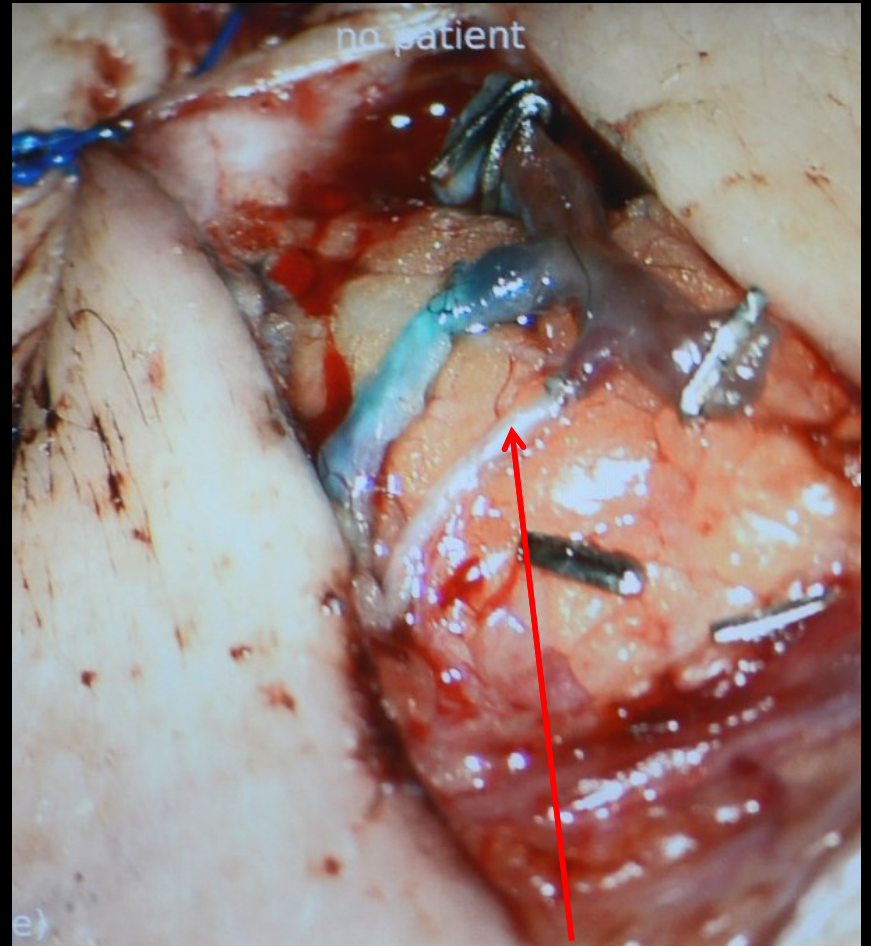
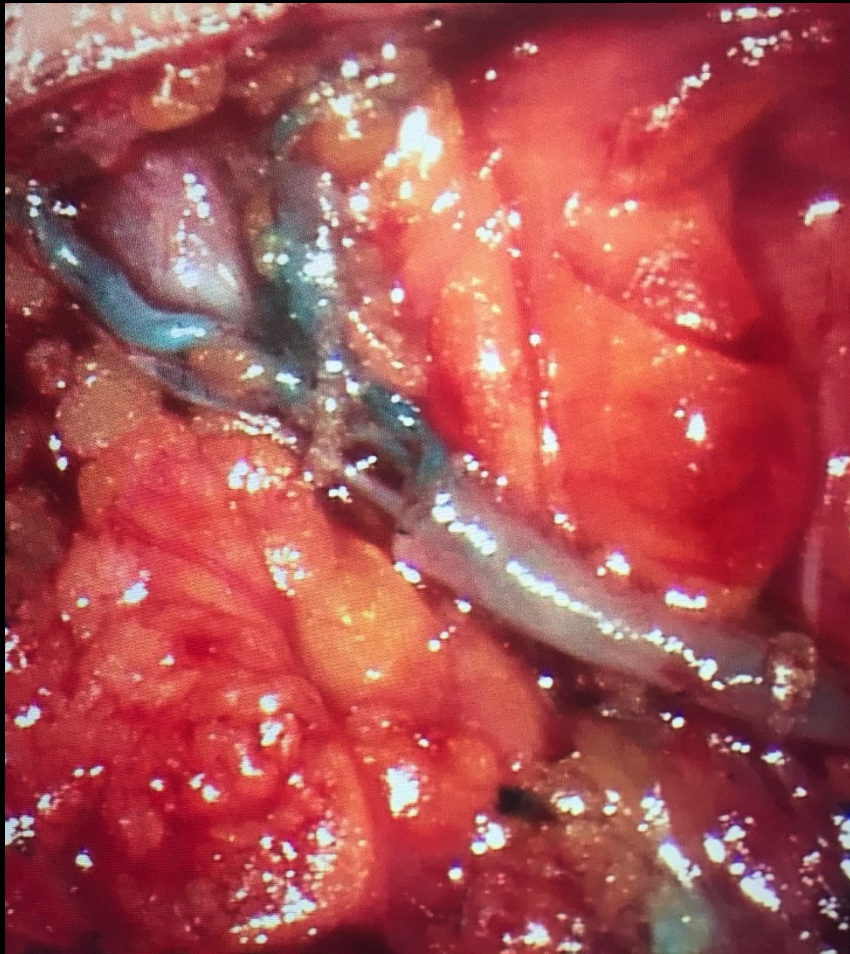


Patent blue passes the anastomosis into the venous system.



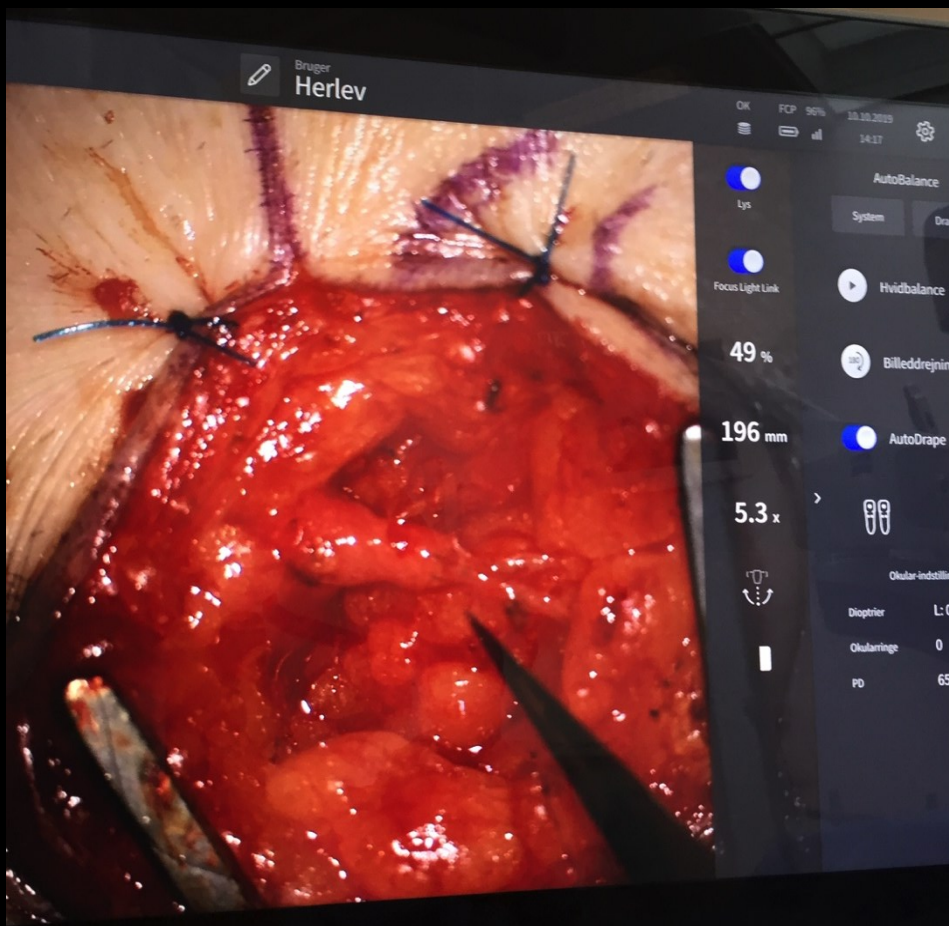
Telescope technique





Sometimes the lymphatic vessel are very sclerotic

Fluorescence guided surgery



Follow -up programme

- 6 months post op: clinical evaluation and circumference measures
- 12 months post op. : clinical evaluation + circumference measures

Patient characteristics

58 patients

- 55 females,
- 3 males

Age: 38-77 years (mean 53)

Cause:

C. Mammae: 56 pts

Melanoma : 2 pts



Patient characteristics

- CLDN: 53 pts
- Sentinel node alone: 5 pts
- Radiation Therapy: 55 pts
- No radiation: 3 pts



Preoperative ISL-Stage

<i>Stage</i>	<i>N</i>	<i>%</i>
1	11	19
2a	34	59
2b	13	22

Time from lymphedema onset to LVA surgery

Years	<i>N</i>
< 2	13
2 -5	33
>5	12

- Number of LVA's
Median: 5 (4-7)

Complications:

Yes: 5 (9 %)

No: 51 (91 %)

Missing: 2



Outcomes

- Smaller circumference
- Less or no use of compression
- Symptom relief (pain, heaviness, mobility)
- Less episodes of erysipelas

Reduction in lower arm circumference

	Mean circumference, cm (SD)
Pre-op, mean (sd)	26.1 (3.1)
Post-operative 12 or 6 month measurement	25.4 (3.2)
Change from Pre-operative	-0.8 (95% CL -1.2; -0,4)
	P= 0.0006

Use of compression garments after surgery

Compression	<i>n</i> =58	%
Continued use	24	42
Less use	18	32
Discontinued use	15	26
Missing	1	-

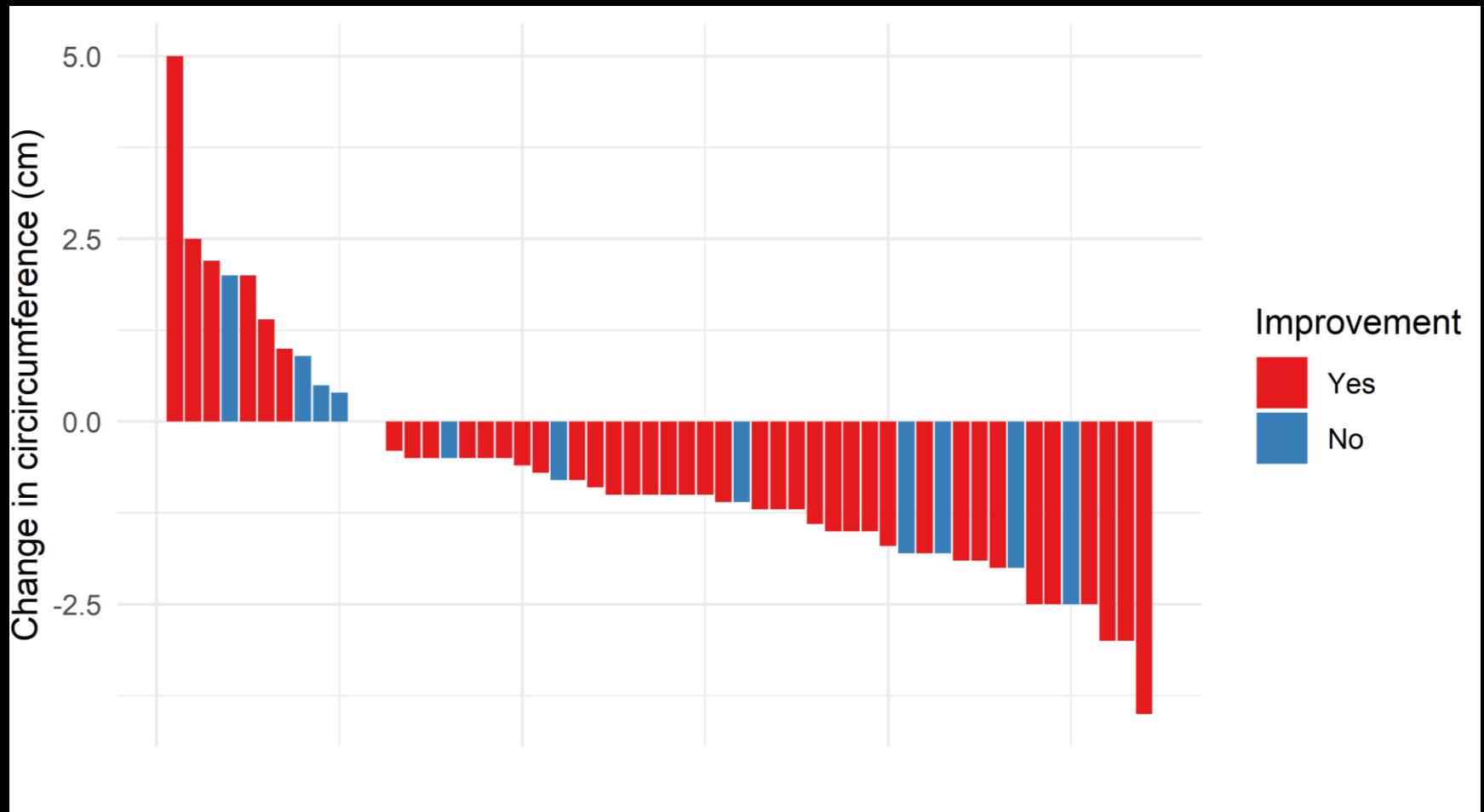
Erysipelas

	Pre-operatively	Post-operatively	Of those with pre-operative erysipelas	New cases
Yes	22 (38%)	9 (16%)	4	5
No	36 (62%)	48 (83%)		
Missing		1		

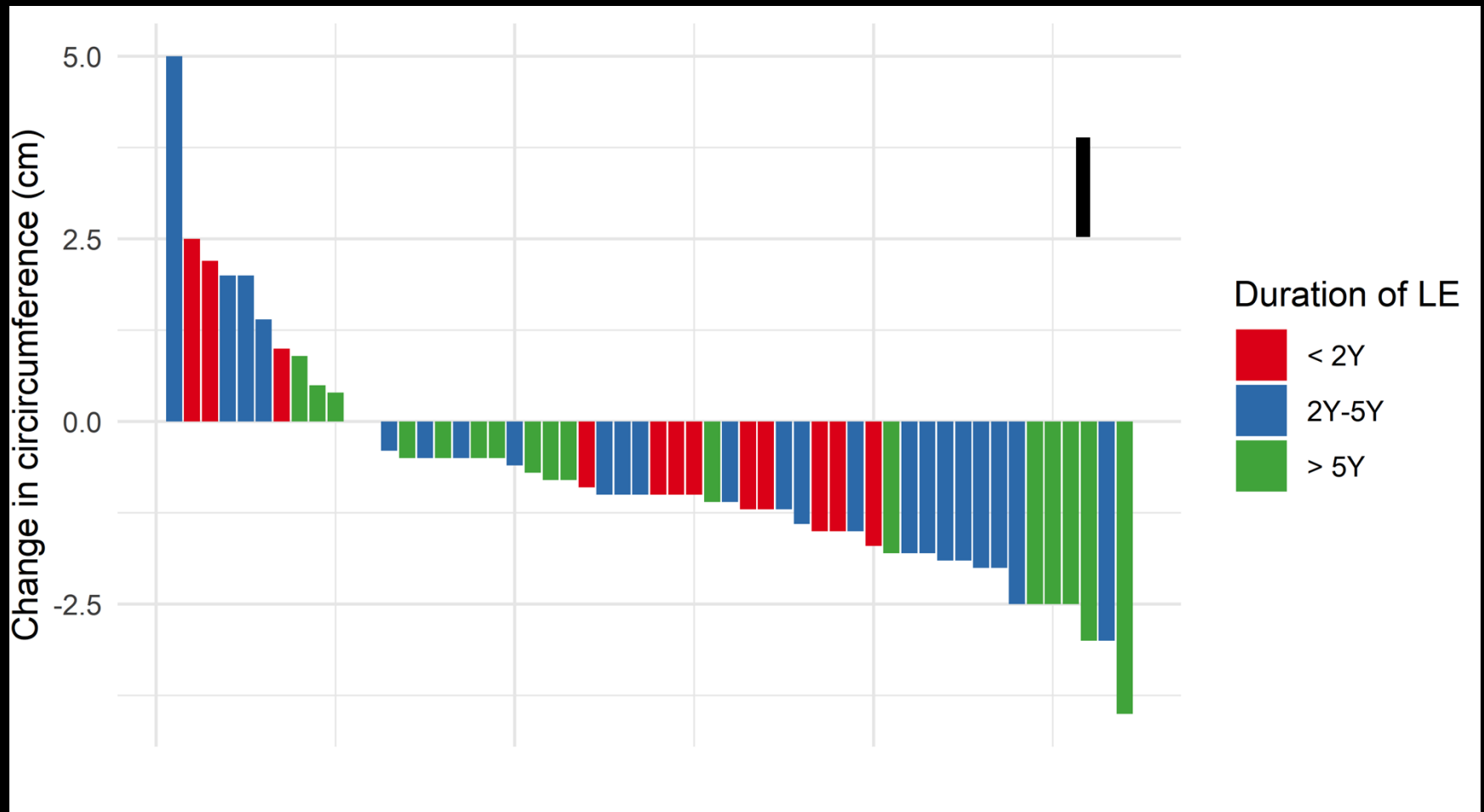
Patient reported improvement

Improvement	Arm	
	<i>N</i>	<i>%</i>
Yes	44	77
No	13	23
Missing	1	

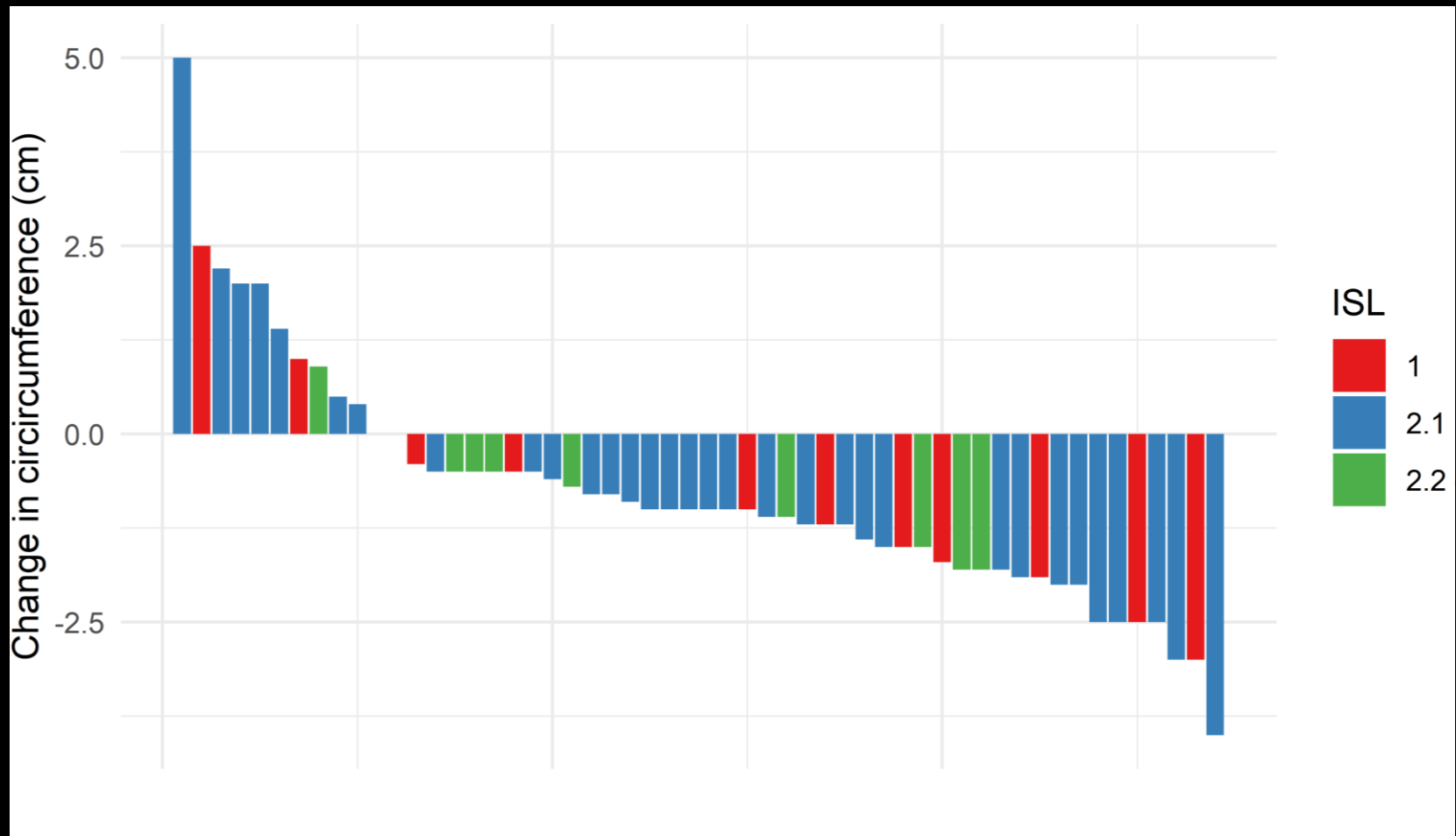
Change in circumference of forearm and patient-reported improvement



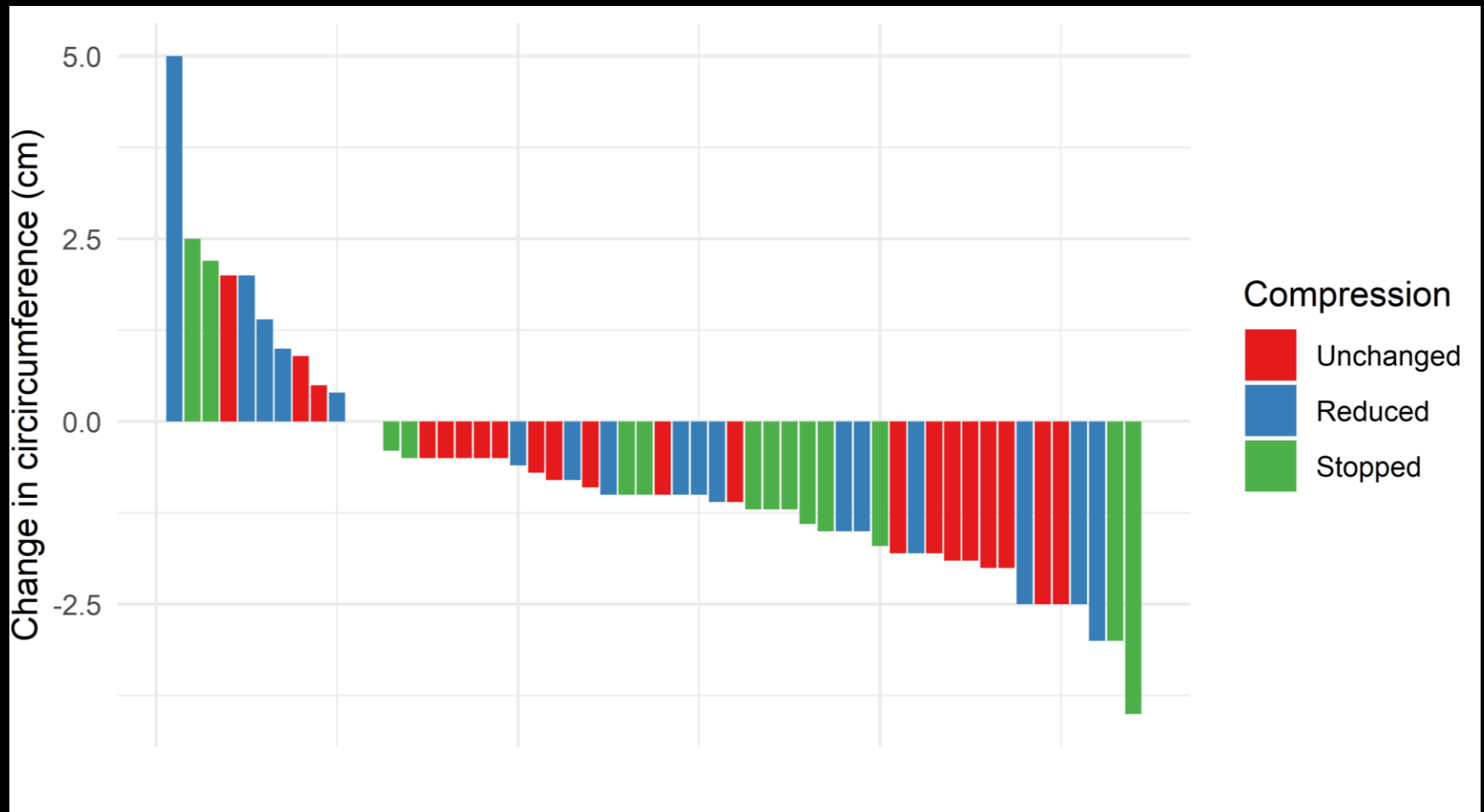
Change in circumference of forearm and duration of LE



Change in circumference of forearm and ISL stage



Change in circumference of forearm and use of compression



Conclusion

- Most patients had a significant reduction of forearm circumference after LVA surgery
- Discontinued use of compression garments: 26 %
- Less use of garments: 32%
- Patient reported improvement: 77% (pain, heaviness, better movement, less episodes of erysipelas)

Surgical treatment of arm lymphedema in Denmark

- Lympho-venous anastomosis (LVA): Herlev
- Liposuction for stage 3 patients: Odense
- Experimental treatment with stemcells to the axilla: Odense

A close-up photograph of a blue surgical robot arm. The arm is made of a smooth, metallic blue material. In the center, there is a curved panel with the text "Welcome to Super-Microsurgery!" printed in a yellow, sans-serif font. The text is slightly angled upwards. There are several silver screws visible on the blue surface. In the foreground, two large, black, circular components, likely part of the robot's gripper or tool holder, are visible. The background is dark and out of focus, suggesting a clinical or laboratory setting.

Welcome to Super-Microsurgery!