Dual Fluorescent Tracers for Reverse Lymphatic Mapping and Surgical Guidance: Preventing Donor Site Associated Lymphedema in Vascularized Lymph Node Transplant Surgery

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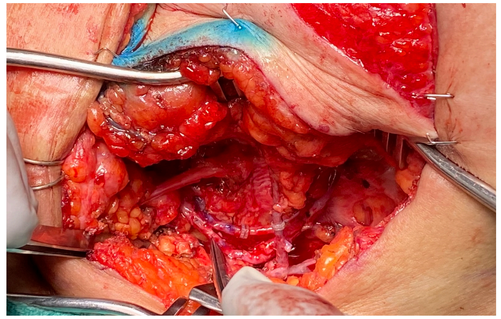
PURPOSE

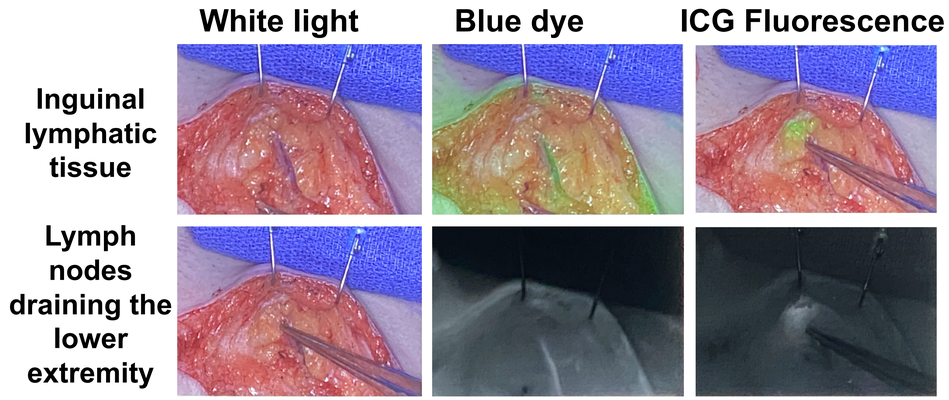
- Reverse lymphatic mapping (RLM) decreases the risk of iatrogenic lymphedema in vascularized lymph node transfer (VLNT).
- Radioactive exposure and expensive special material handling is often necessary.
- We propose a novel technique that allows for precise differentiation of lymphatic channels using dual fluorescence reverse lymphatic mapping.

METHODS

- Prospective analysis (n=25) was performed from September 2013 to August 2020.
- Demographics, intraoperative details, and surgical outcomes were recorded.

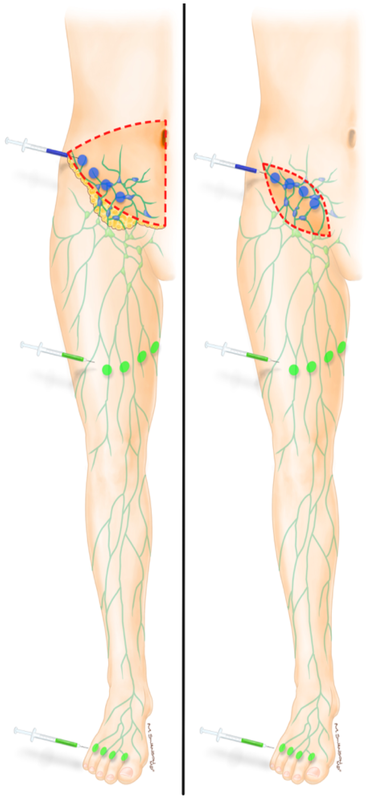


Inset flap with micro-anastomoses at the recipient site in the axilla.



CONCLUSION

RLM with dual ICG and blue dye fluorescent tracers provides a new means of real-time surgical guidance without radioisotopes with improved visualization in both white light and near infrared spectra. This allows preservation of critical structures within the flap and in situ at the donor site and avoids iatrogenic lymphatic dysfunction.



TECHNIQUE

- RLM of the lower extremity was performed with 1.6 mL of ICG were injected into dorsal web spaces and the medial thigh.
- Nodes emitting ICG draining the lower extremity were preserved
- Blue dye was utilized in both white light and near-infrared spectra for localization of donor site nodes of the lower abdominal wall
- Blue stained nodes were selected for harvest

RESULTS

- Mean follow-up of 43 months (range 17 months to 90 months).
- No cases of iatrogenic lymphedema.
- The donor site of the lymph node flap healed appropriately in 92% of patients.

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