



Disruption Of The Axillary-Inguinal Lymphatic Pathway After Breast Cancer Treatment And Reconstructive Surgery

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BACKGROUND

- The axillary-inguinal (A-I) lymphatic pathway may act as a protective mechanism for patients who are at risk of developing truncal lymphedema after breast cancer surgery.
- This study characterizes the impact of specific breast cancer treatments and reconstructive procedures on the A-I pathway.

METHODS

Inclusion Criteria

- Suspicion for BCRTL
 - ICG Lymphography of chest
 - December 2014 – January 2024
- Multivariate regression analysis, controlling for confounders (mastectomy, ALND, reconstruction, radiation, chemotherapy, obesity, age)

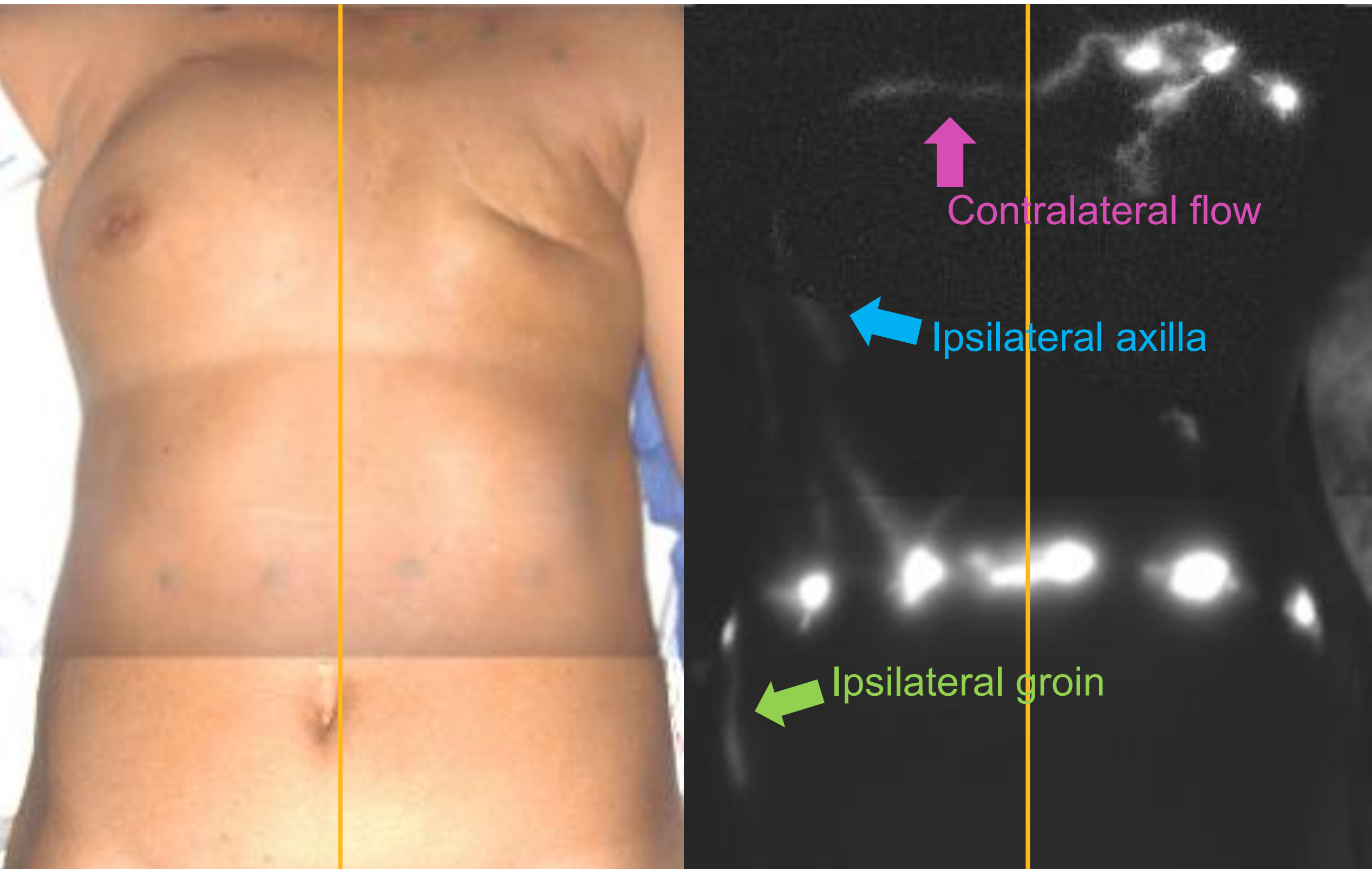
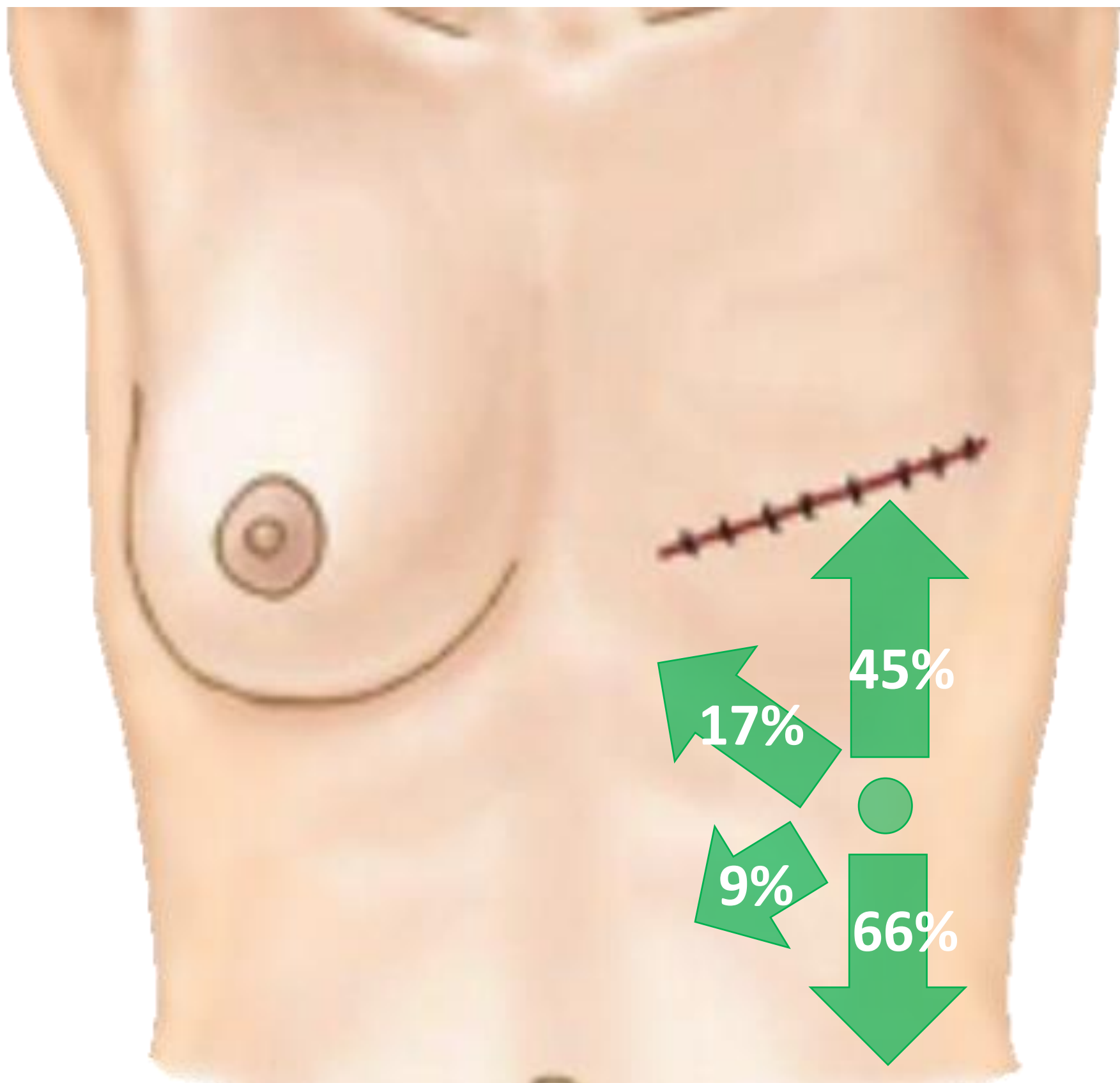


Figure 1. ICG lymphography of chest lymphatic pathways.

RESULTS



173 hemi-trunks (95 patients):
ALND: 55% Radiation: 42%
Chemo: 65% LD flap recon: 16%
DIEP flap recon: 5%

Figure 2. Lymphatic drainage in our study population.

No ALND	ALND
46%	39%
66%	65%
16%	20% OR 2.5 (p=0.04)

No Radiation	Radiation
45%	44%
60%	74% OR 3.8 (p=0.02)
11%	25% OR 2.8 (p=0.04)

Figure 4. Impact of breast cancer interventions on A-L pathway.

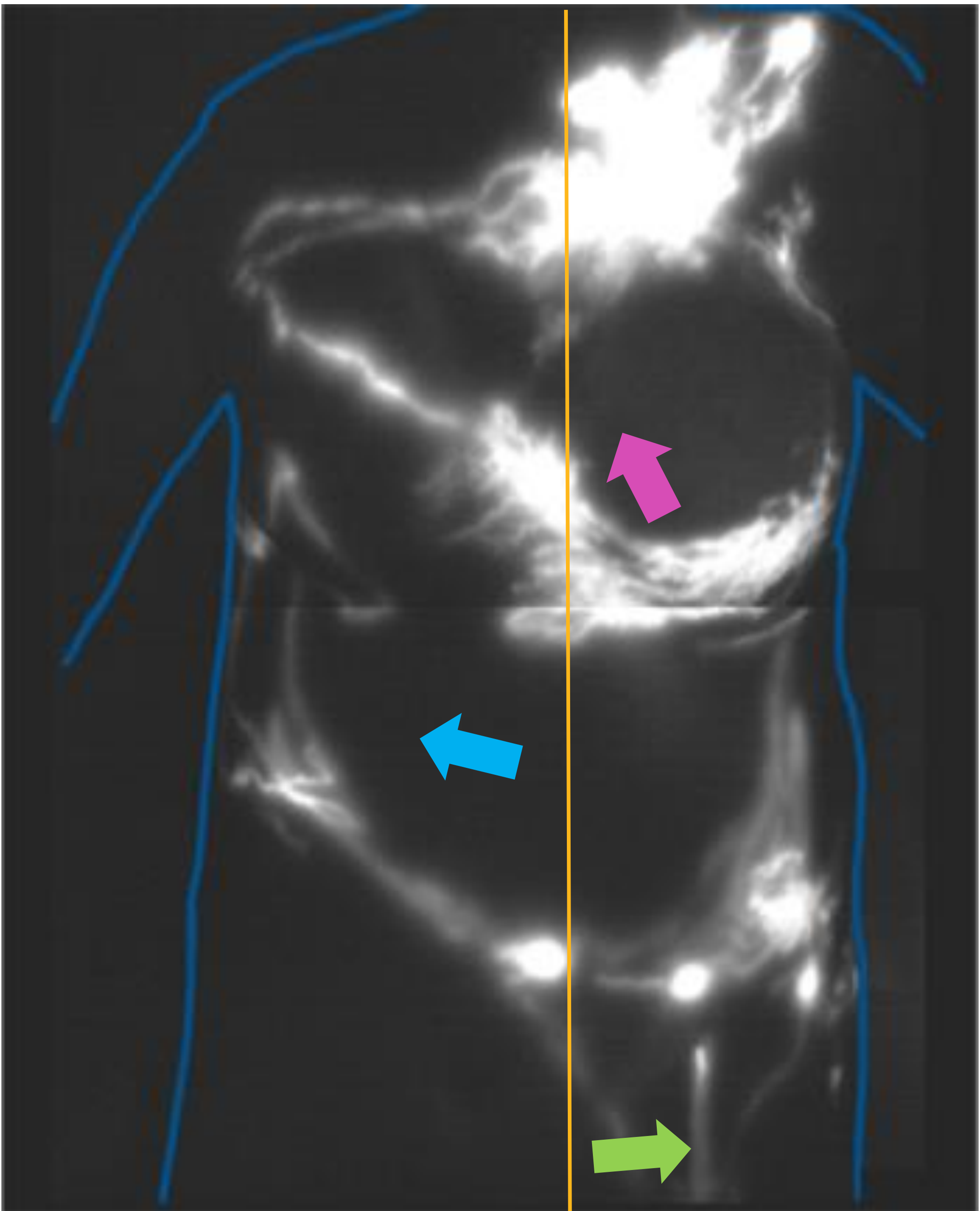


Figure 3. Truncal lymphatic drainage pathways.

Key

Ipsilateral Axilla
Ipsilateral Groin
Contralateral

No Chemo	Chemo
53%	40% OR 0.4 (p=0.03)
73%	62%
20%	15%

RESULTS

No LD Flap	LD Flap
43%	44%
73%	67% OR 0.3 (p=0.04)
12%	22%

No DIEP Flap	DIEP Flap
44%	56%
68%	33% OR 0.2 (p=0.04)
16%	33%

CONCLUSIONS

- This study demonstrates that breast cancer treatments and reconstructive procedures can significantly disrupt the axillary-inguinal pathway.

Risk Factors for Lymphedema:

- Lymph node dissection cuts off lymphatic flow
 - Radiation leads to cell death & fibrosis of lymphatic channels
- Chemotherapy is toxic to lymphatic channels
 - Reconstructive procedures transect lymphatics

- Preserving the A-I connection can reduce the incidence of truncal LE, and offers a target for manual lymphatic drainage.