



Innovations in Comprehensive Breast Cancer Reconstruction

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Disclosures

- I do not have any relevant financial relationships.

This presentation and/or comments will provide a balanced, non-promotional, and evidence-based approach to all diagnostic, therapeutic and/or research related content.

Cultural Linguistic Competency (CLC) & Implicit Bias (IB)

STATE LAW:

The California legislature has passed Assembly Bill (AB) 1195, which states that as of July 1, 2006, all Category 1 CME activities that relate to patient care must include a cultural diversity/linguistics component. It has also passed AB 241, which states that as of January 1, 2022, all continuing education courses for a physician and surgeon **must** contain curriculum that includes specified instruction in the understanding of implicit bias in medical treatment.

The cultural and linguistic competency (CLC) and implicit bias (IB) definitions reiterate how patients' diverse backgrounds may impact their access to care.

EXEMPTION:

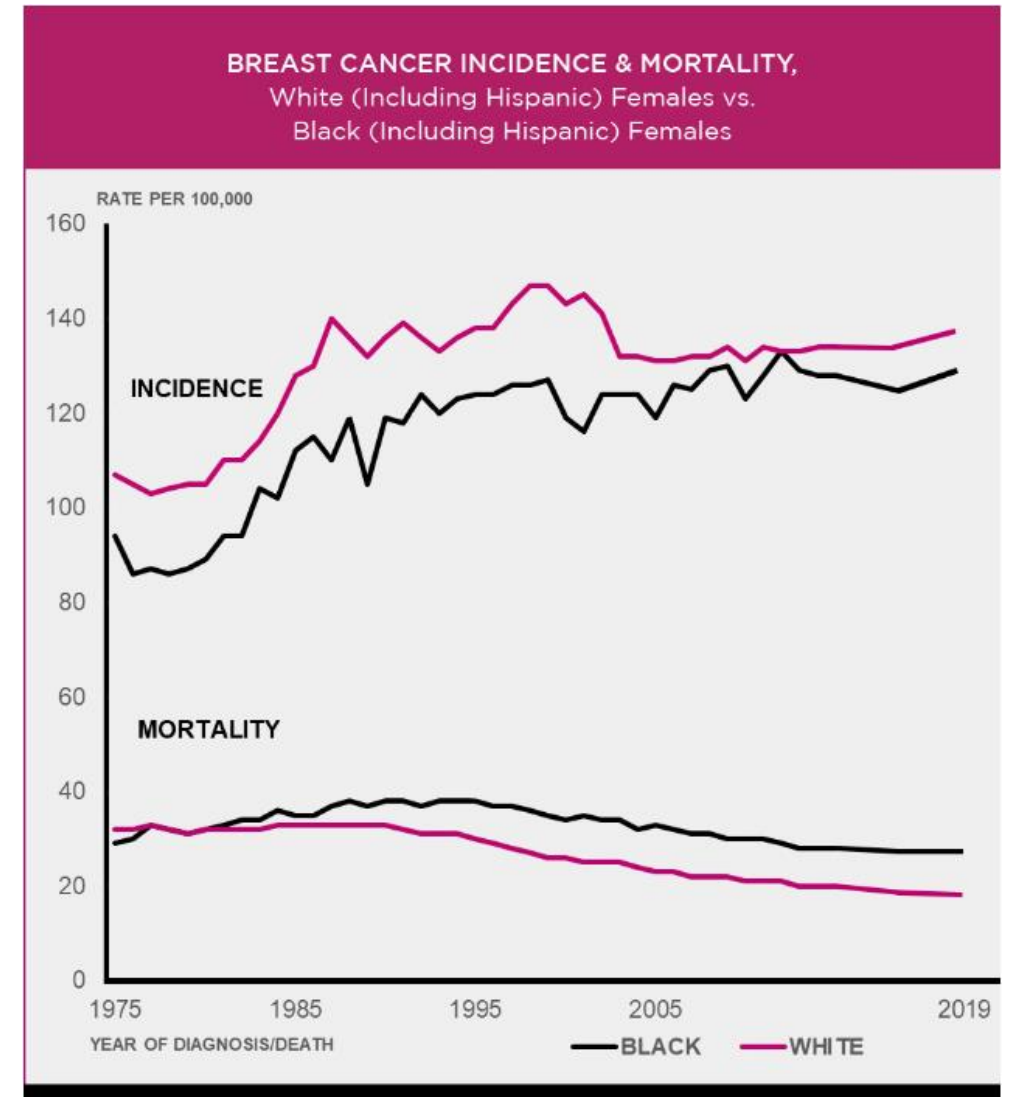
Business and Professions Code 2190.1 exempts activities which are dedicated solely to research or other issues that do not contain a direct patient care component.

The following CLC & IB components will be addressed in this presentation:

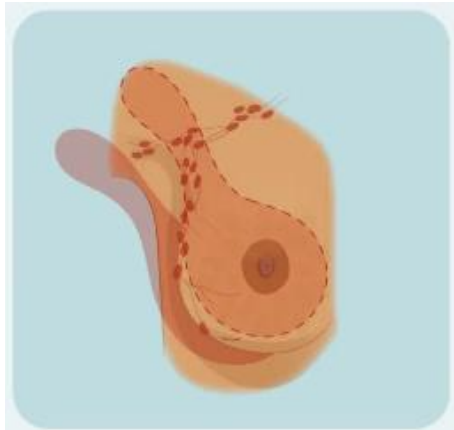
- *Discussion of increased risk of cancer associated lymphedema in underrepresented and minority communities*

Breast Cancer Incidence

- Common in women
- 131/100,000 or ~1:7 at risk
- Primary treatment is surgery
- Adjuvant/neo-adjuvant chemotherapy, radiation, hormone therapy

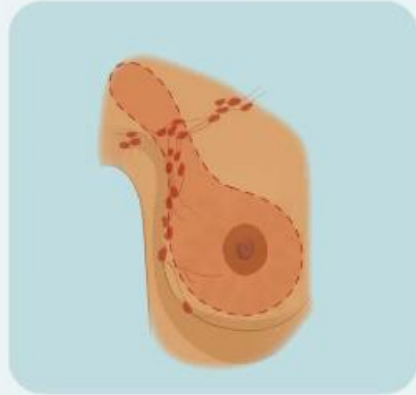


Types of Mastectomy



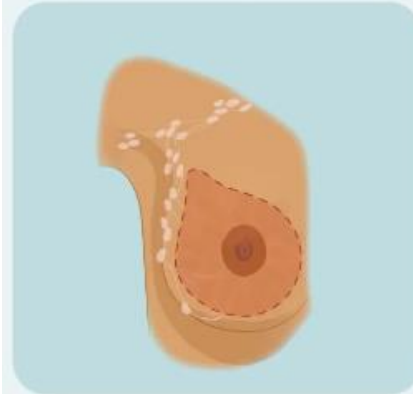
RADICAL MASTECTOMY

Radical mastectomy removes lymph node tissue more extensive than modified radical, and even goes as far as to remove some breast wall muscle tissue.



MODIFIED RADICAL MASTECTOMY

A modified radical mastectomy and radical mastectomy are very similar with the differences being in the amount of lymph node tissue removed.



TOTAL MASTECTOMY

A total mastectomy removes the entire breast, areola, nipple, and breast tissue.



PARTIAL MASTECTOMY

A partial mastectomy is removal of a small quadrant or lump in the breast tissue, sparing the rest.



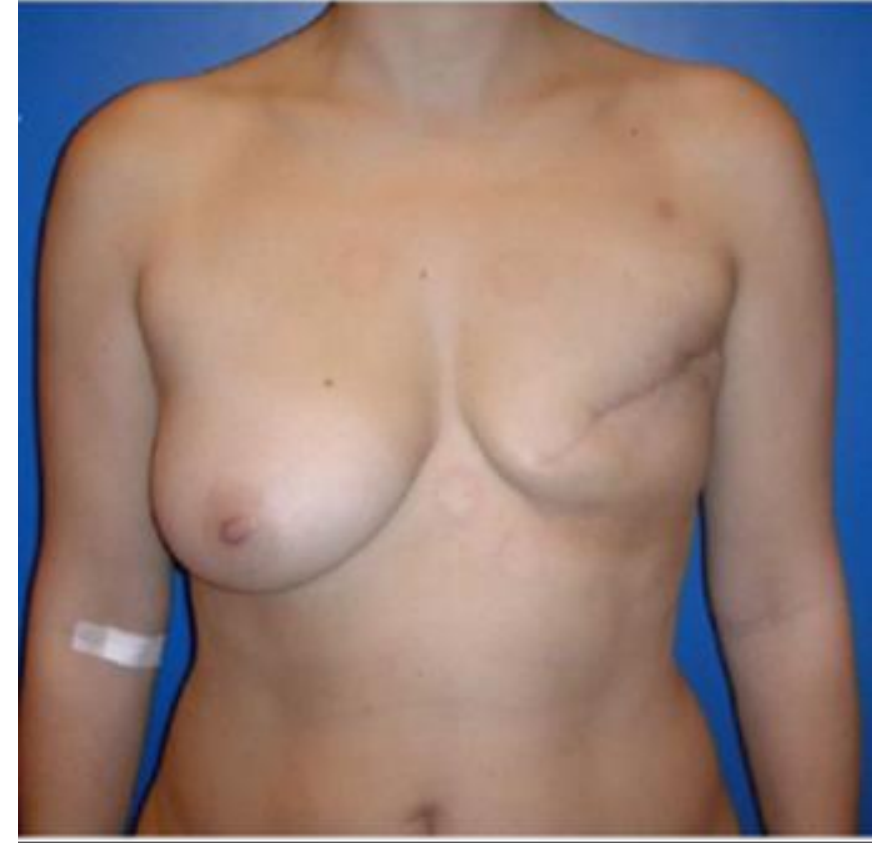
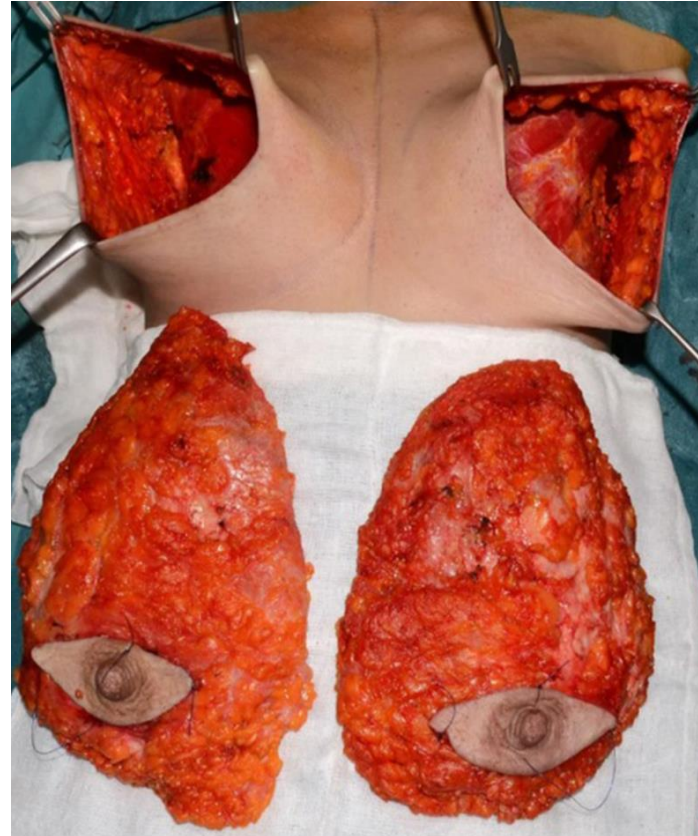
NIPPLE-SPARING MASTECTOMY

A nipple-sparing mastectomy is just that: removal of the tumor or breast tissue affected but sparing and saving the nipple.

Decision making and outcomes for breast reconstruction are highly dependent on type of mastectomy

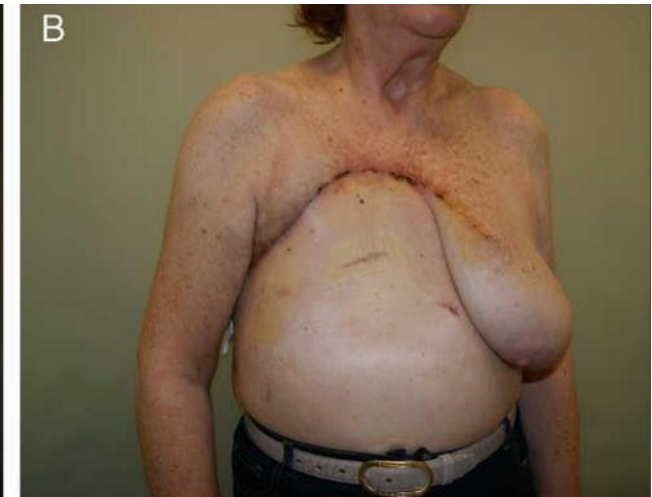
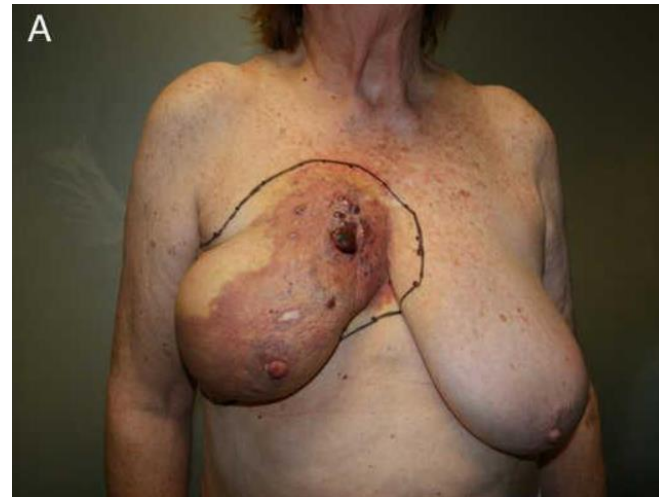
Total Mastectomy, Skin Sparing

- Most common referral from Breast Surgeon to Plastic Surgeon
- Gland is removed and majority of skin envelope is spared
- Nipple & areolar removed



Radical Mastectomy

- Rarely performed today
- Results in significant soft tissue defect
- Goal is soft tissue coverage with flap or skin graft
- Favorable aesthetic results are challenging to achieve
- Risk of arm lymphedema depending on # of lymph nodes removed



Benefits of Breast Reconstruction



4 Breast Reconstruction

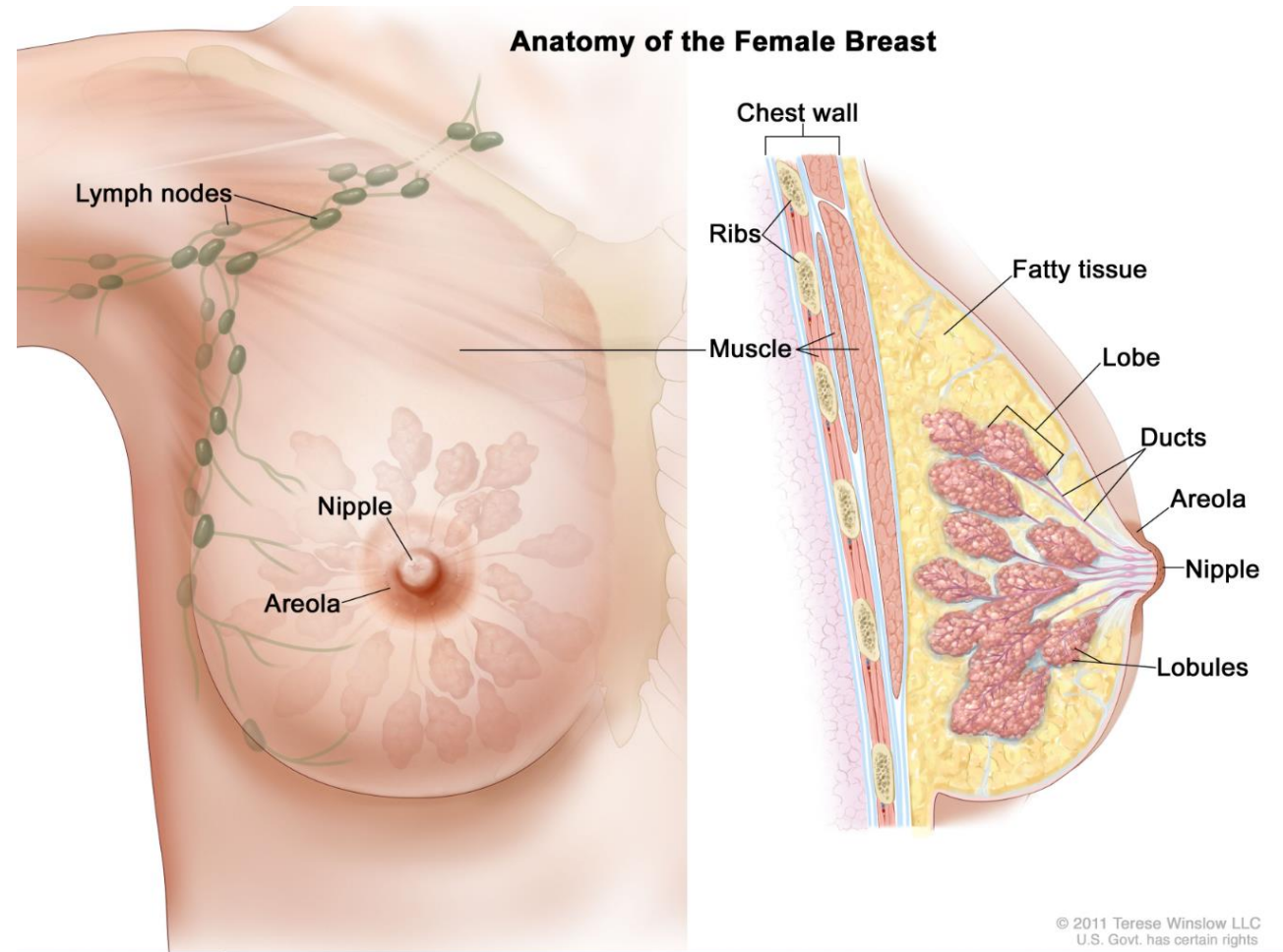
Benefits of breast reconstruction

Breast reconstruction is a physically and emotionally rewarding procedure for a woman who has lost a breast due to cancer or other condition.

The creation of a new breast can dramatically improve your self-image, self-confidence and quality of life. Although surgery can give you a relatively natural-looking breast, a reconstructed breast will never look or feel exactly the same as the breast that was removed.

Goal of Reconstruction: Replace Like with Like Tissue

- Anatomic units to consider:
 - Skin
 - Adipose
 - Connective tissue
 - Nipple/areola
 - Sensory nerves
 - Lymphatics

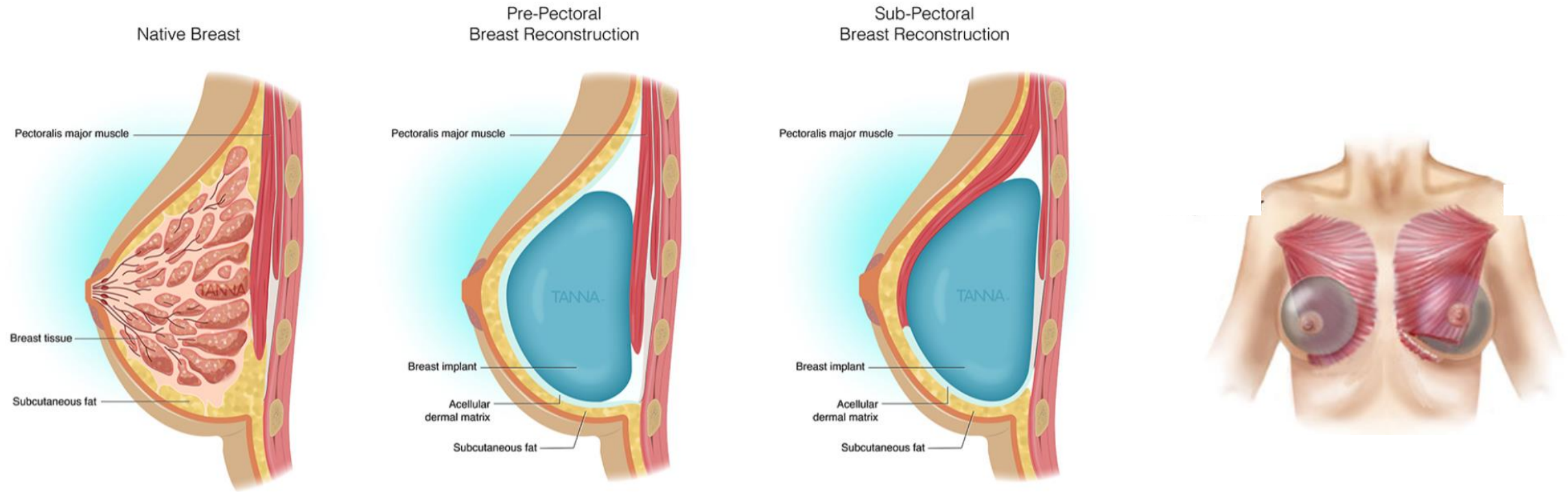


Breast Reconstruction Options

- No reconstruction
 - Skin closure
 - Flat closure
- Silicone implant
 - Staged vs. immediate
 - Use of tissue expander
 - Saline or silicone filled
- Rotational flap
 - i.e. Latissimus dorsi flap
- Microvascular free flap
 - Abdominal, thigh, other donor sites

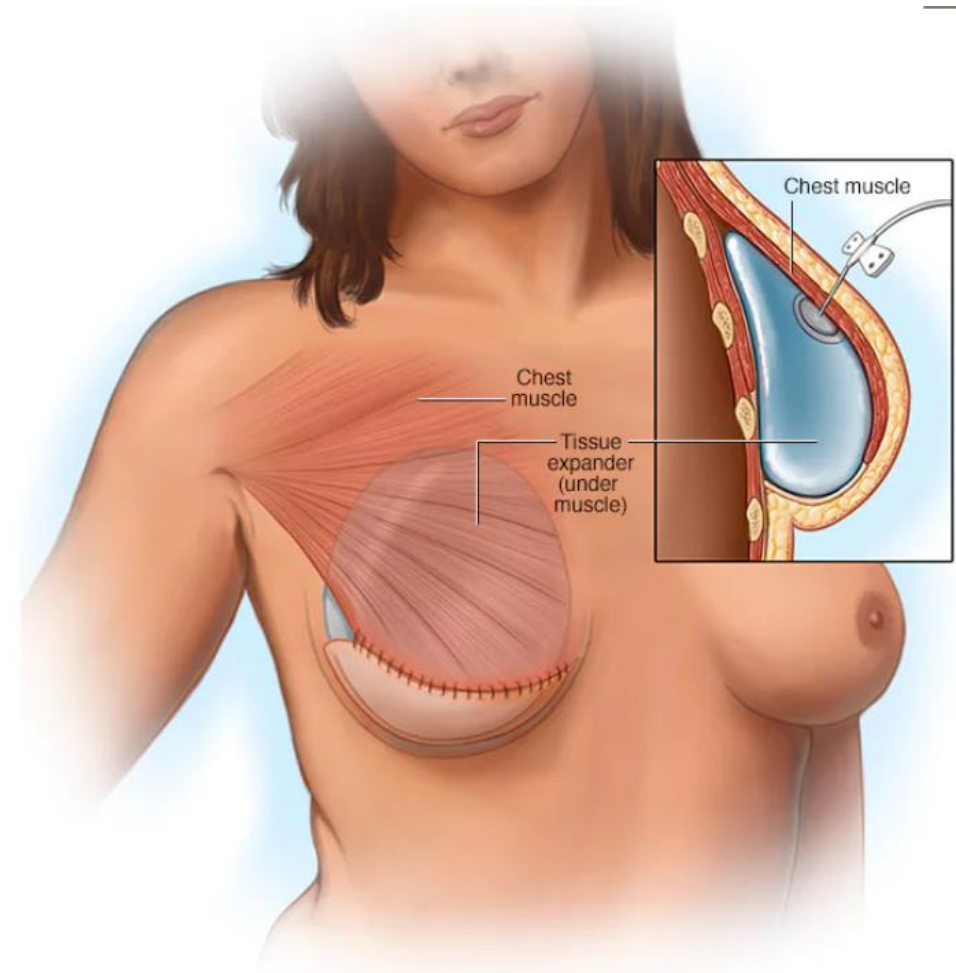


Immediate, One Stage, Implant Reconstruction



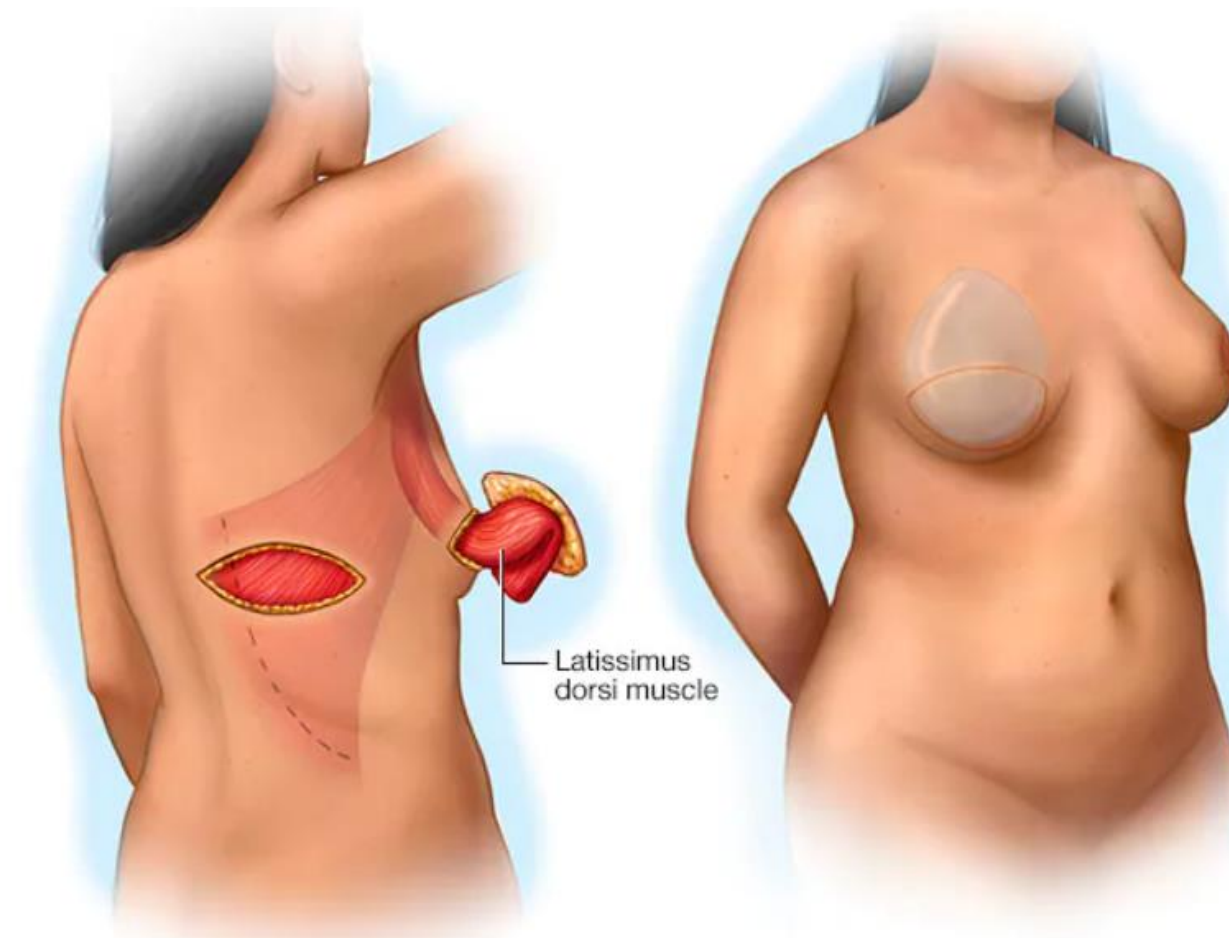
Tissue Expander Reconstruction

- Utilized when skin flaps are not sufficient to enclose implant of desired size
- Or when skin flap have areas of marginal blood flow
- Also, when patient wants increase in breast size
- Expansion occurs in clinic via magnetic needle port weeks after expander placement
- Subsequent exchange for expander to permanent silicone implant



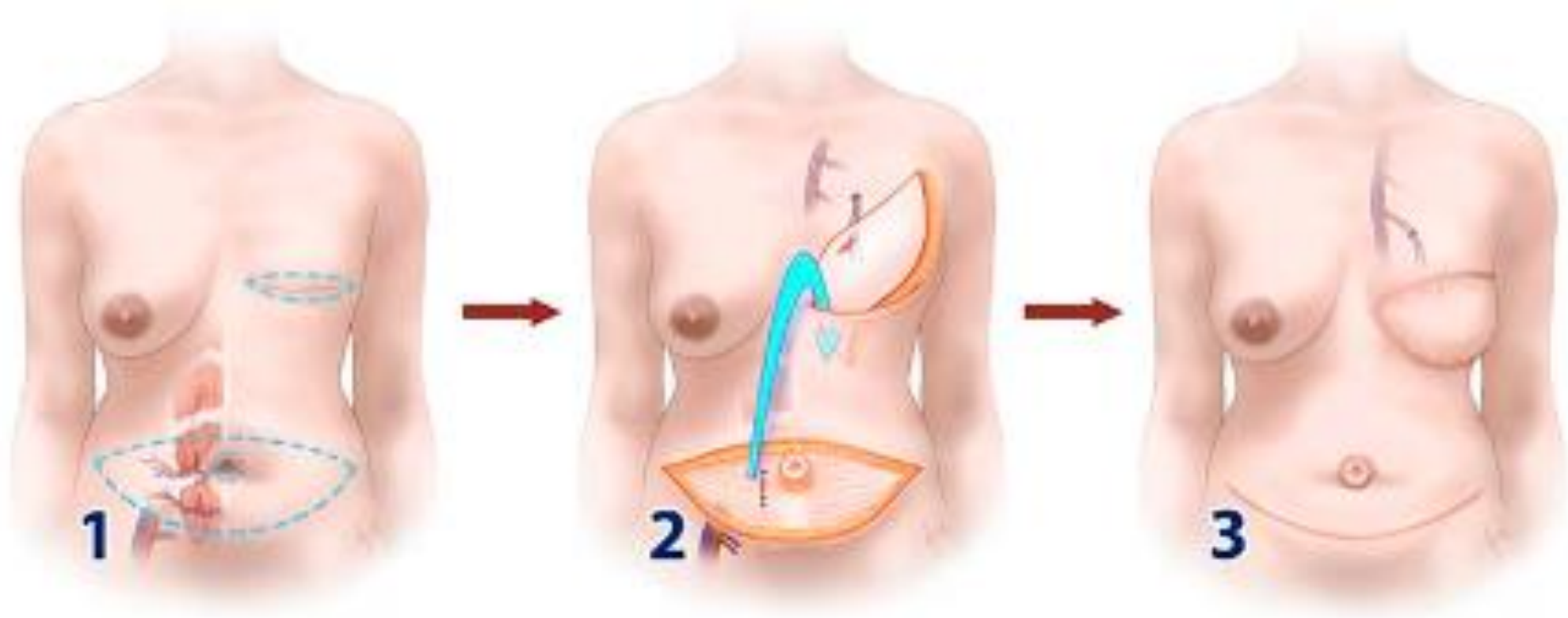
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Rotational Flap (+ Implant) Reconstruction

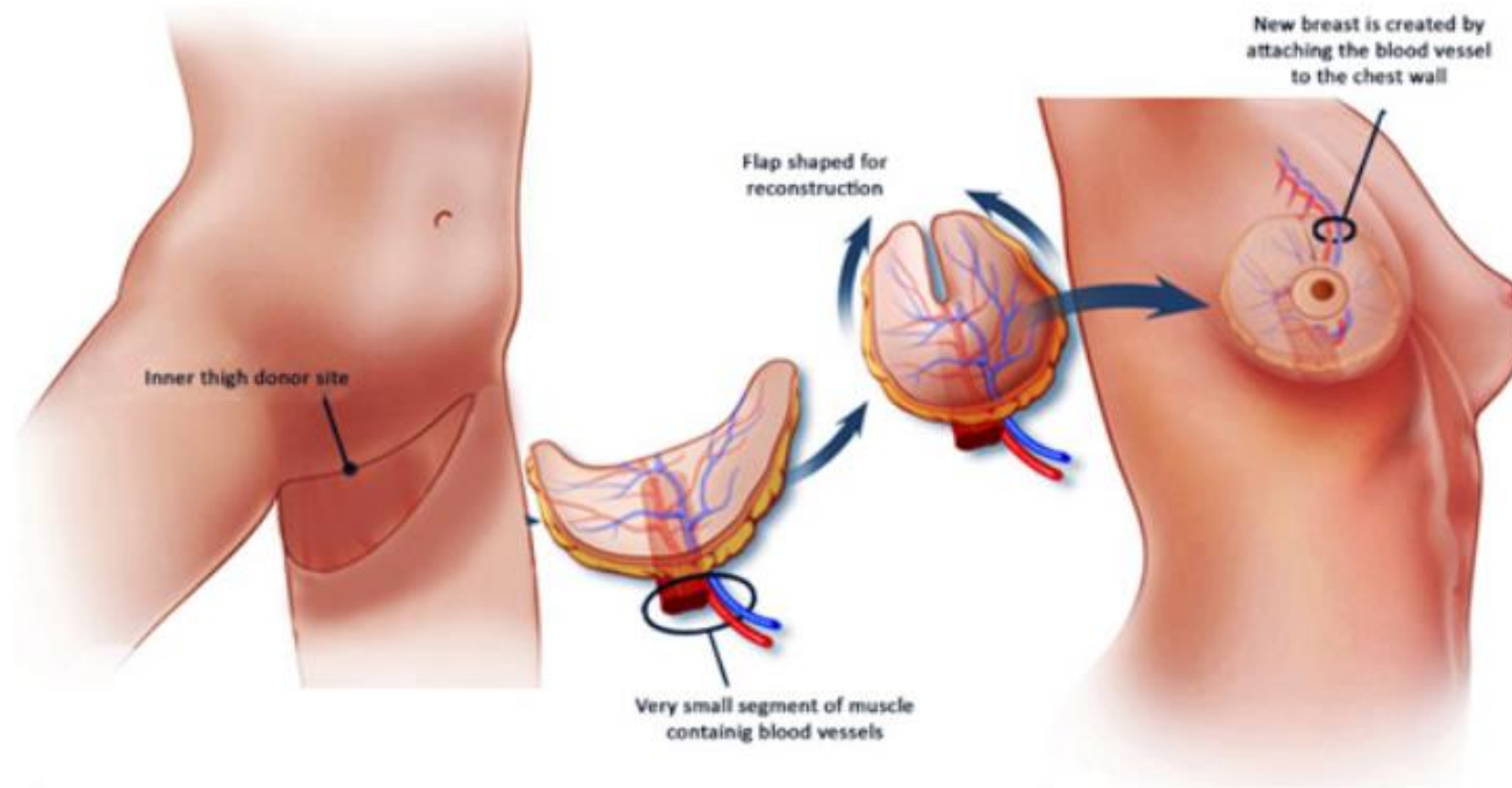


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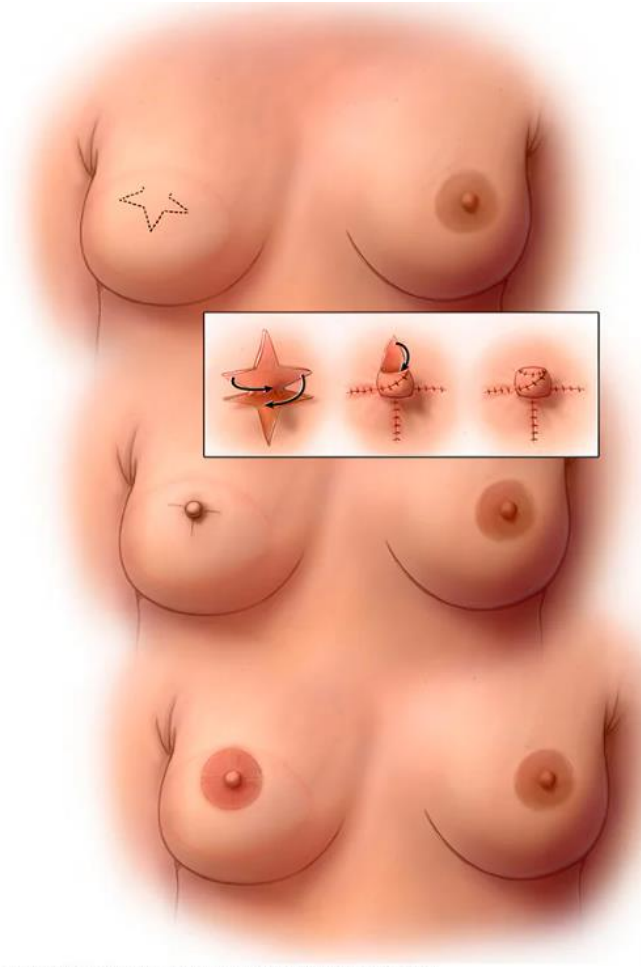
Microvascular Flap Reconstruction (Abdomen)



Microvascular Flap Reconstruction (Thigh)



Nipple Areola Reconstruction



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Impact of Radiation Therapy

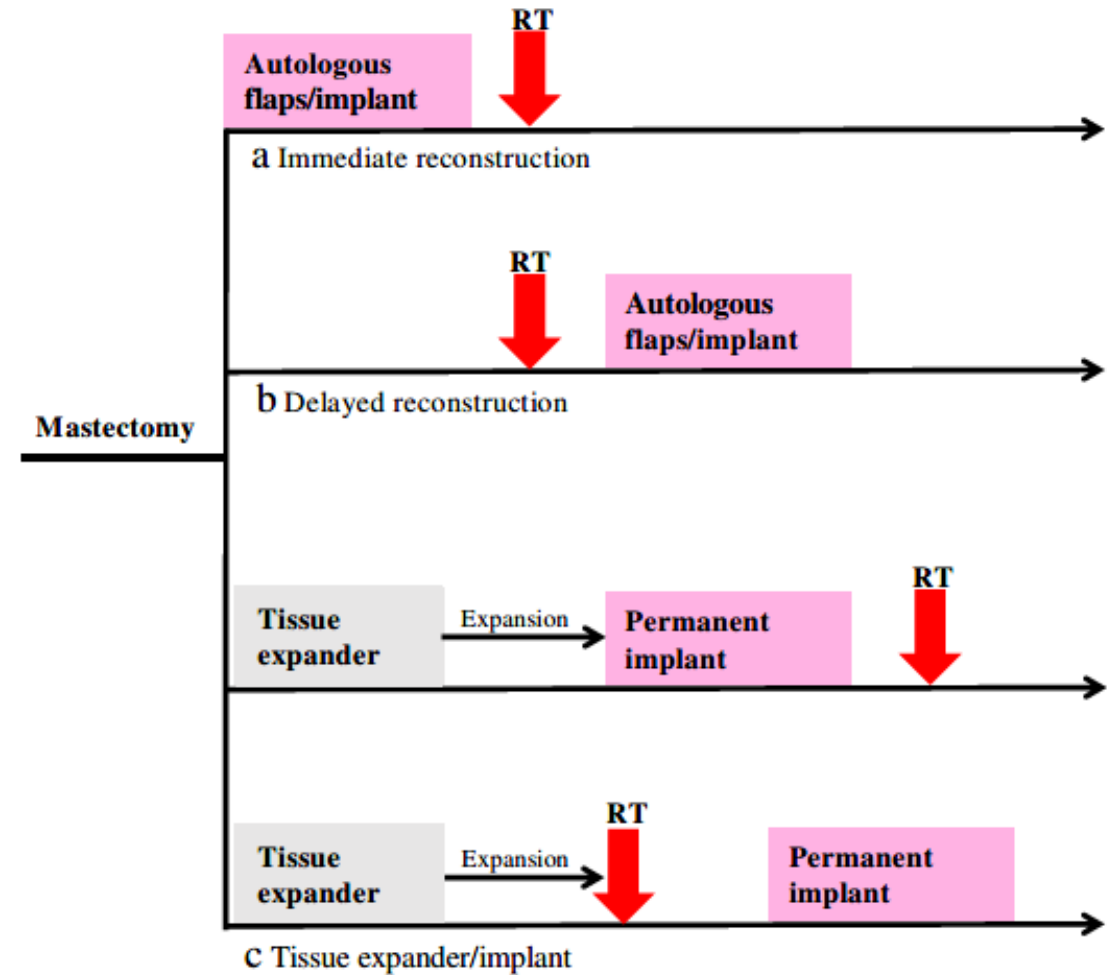
Current Breast Cancer Reports
<https://doi.org/10.1007/s12609-019-00344-0>

TOPICS IN BREAST CANCER (K HUNT, SECTION EDITOR)

A Clinical Algorithm for Breast Cancer Patients: Exploring Reconstructive Options after Radiation

Cynthia Sung¹ · Roy P. Yu¹ · Anjali C. Raghuram¹ · Alex K. Wong¹

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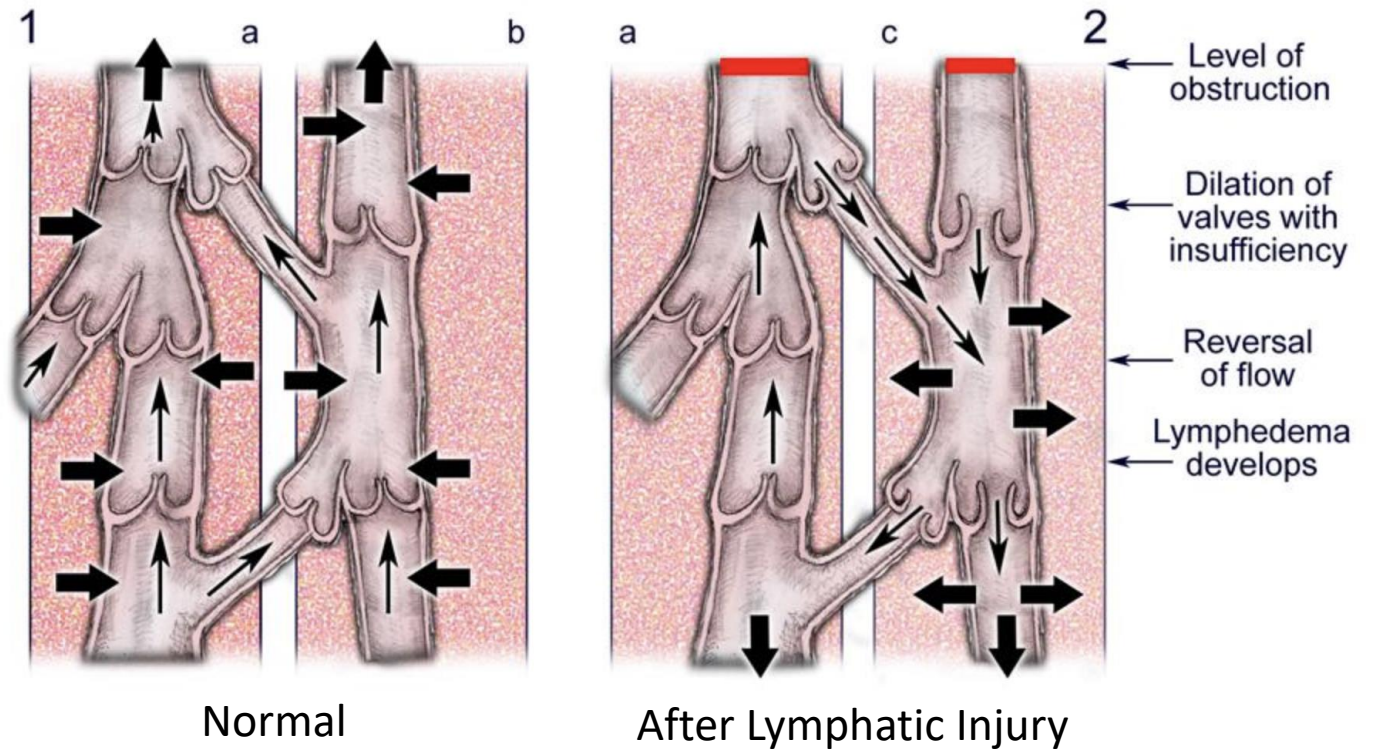


Innovations in Total Breast Reconstruction

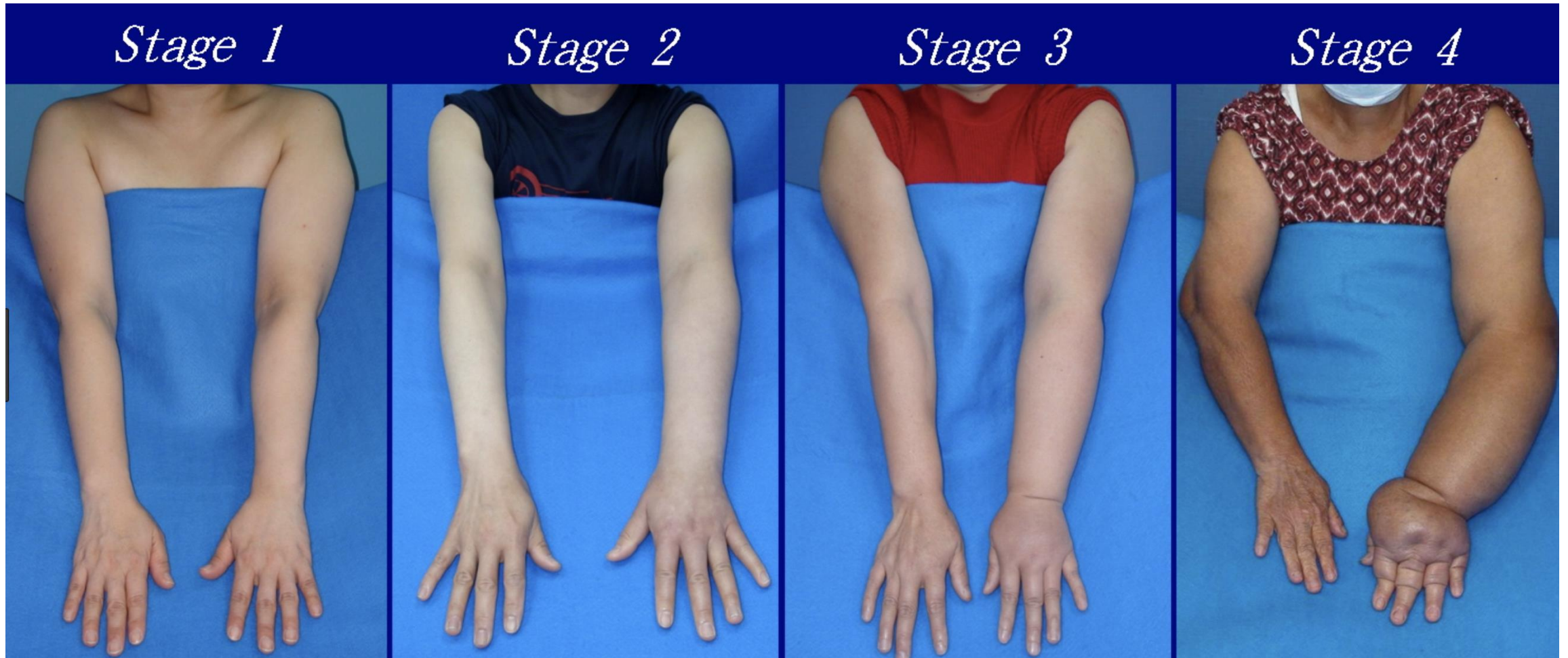
- Many options for breast mound reconstruction, decades of experience
- Current challenges:
 - Lymphedema after axillary lymph node surgery
 - Insensate breast skin

Breast Cancer Associated Lymphedema

- Axillary lymphadenectomy = 15 to 30 % risk of arm lymphedema

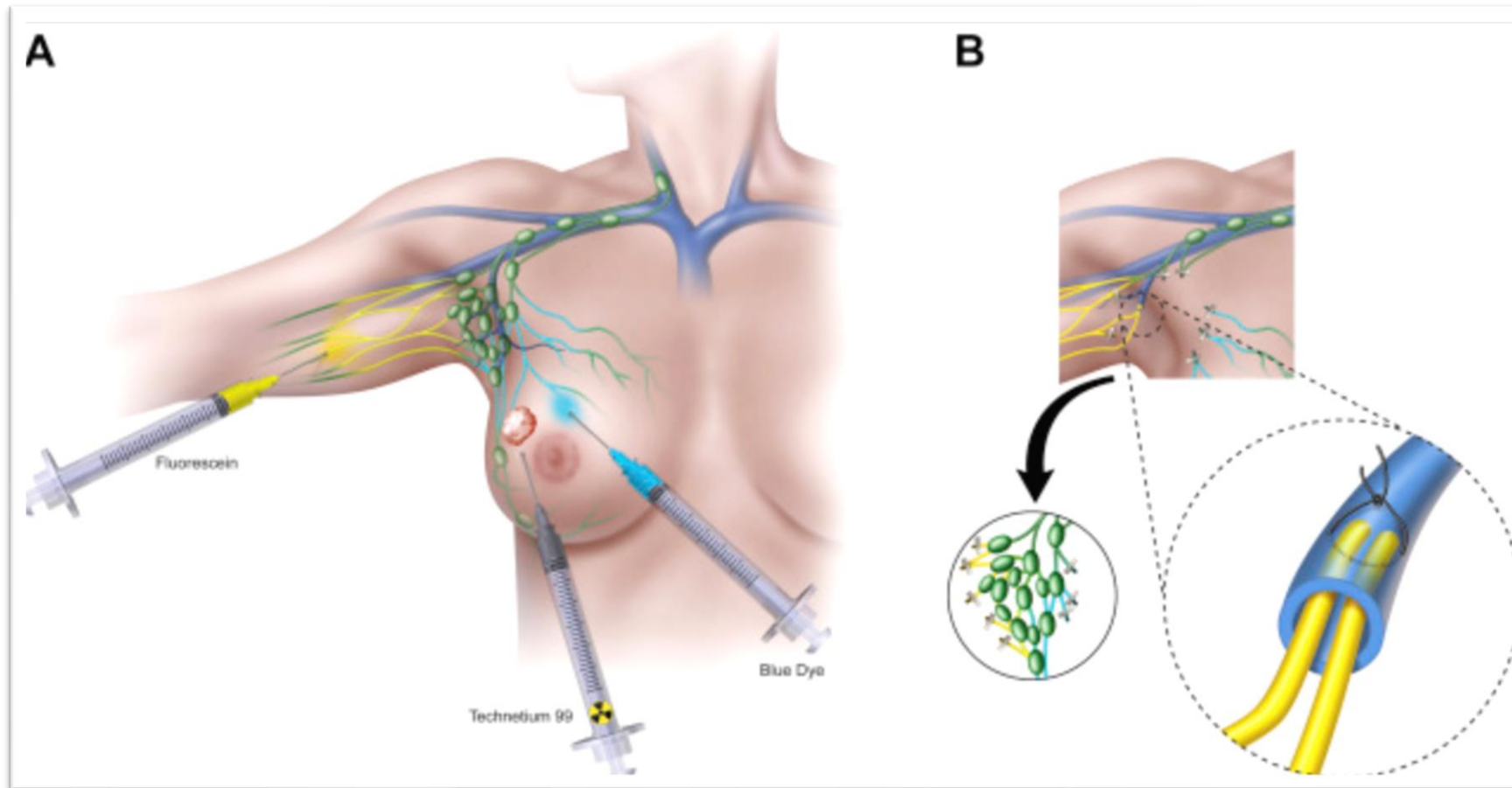


Breast Cancer Associated Lymphedema

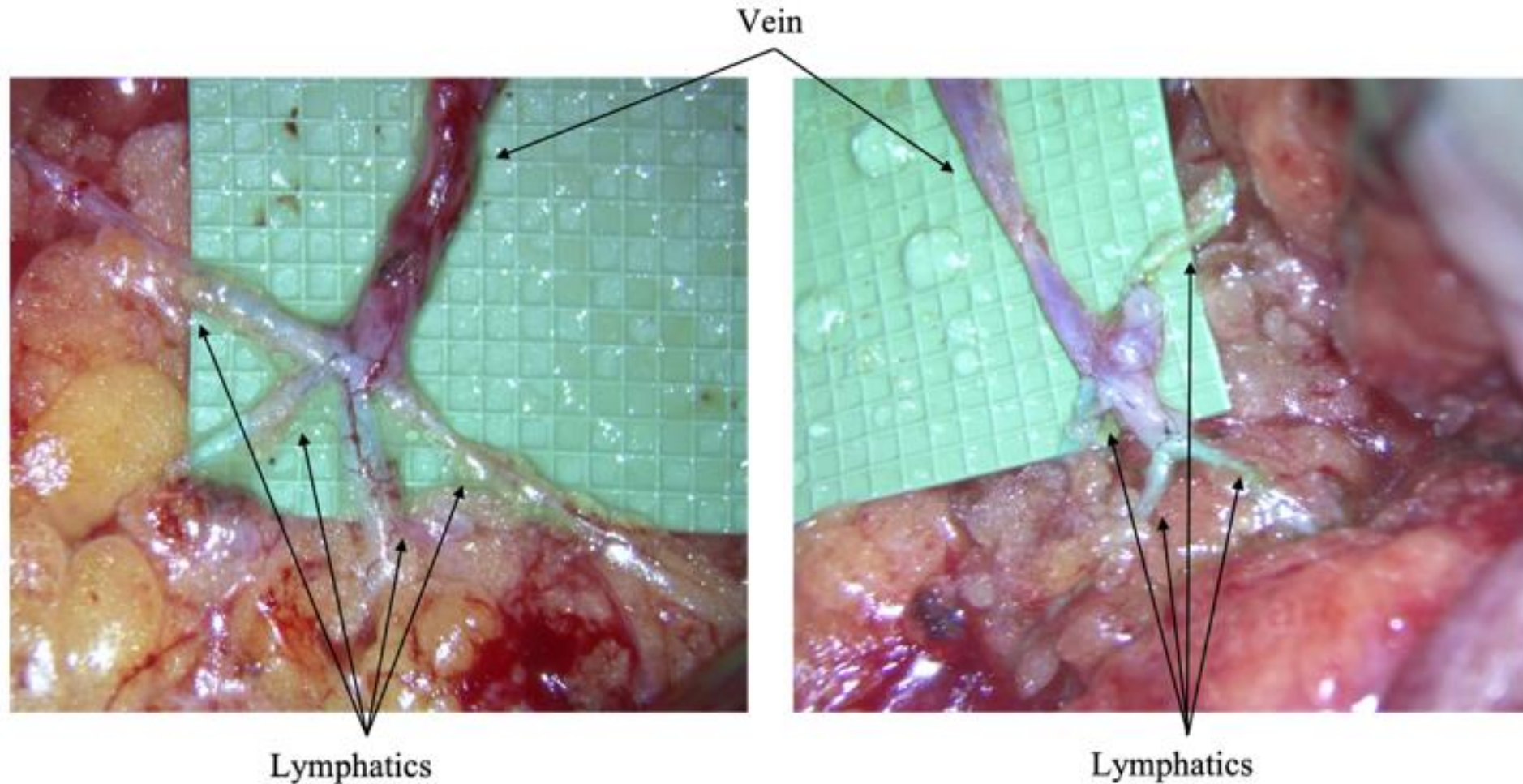


Immediate Lymphatic Reconstruction

- Decreases risk of lymphedema to <5%



Immediate Lymphatic Reconstruction



The Clinical Problem

The New York Times

After Mastectomies, an Unexpected Blow: Numb New Breasts



Dane'e McCree with her daughters, Marleigh, left, and Brooklyn, in Grand Junction, Colo. "I can't even feel it when my kids hug me," Ms. McCree said after a breast reconstruction surgery.
Barton Glasser for The New York Times

By [Roni Caryn Rabin](#)

Jan. 29, 2017

After learning she had a high genetic risk for breast cancer, Dane'e McCree, like a growing number of women, decided to have her breasts removed. Her doctor assured her that reconstructive surgery would spare her nipples and leave her with natural-looking breasts.

It did. But while Ms. McCree's rebuilt chest may resemble natural breasts, it is now completely numb. Her nipples lack any feeling. She cannot sense the slightest touch of her breasts, perceive warmth or cold, feel an itch if she has a rash or pain if she bangs into a door.

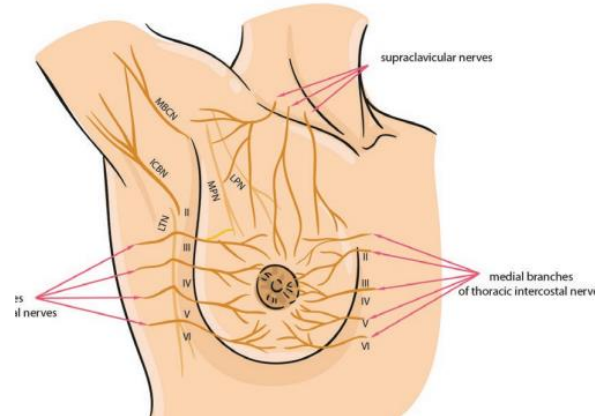
And no one warned her.

"I can't even feel it when my kids hug me," said Ms. McCree, 31, a store manager in Grand Junction, Colo., who is raising two daughters on her own.

Why does a mastectomy result in numb breasts?



Nerves send signals
to the brain



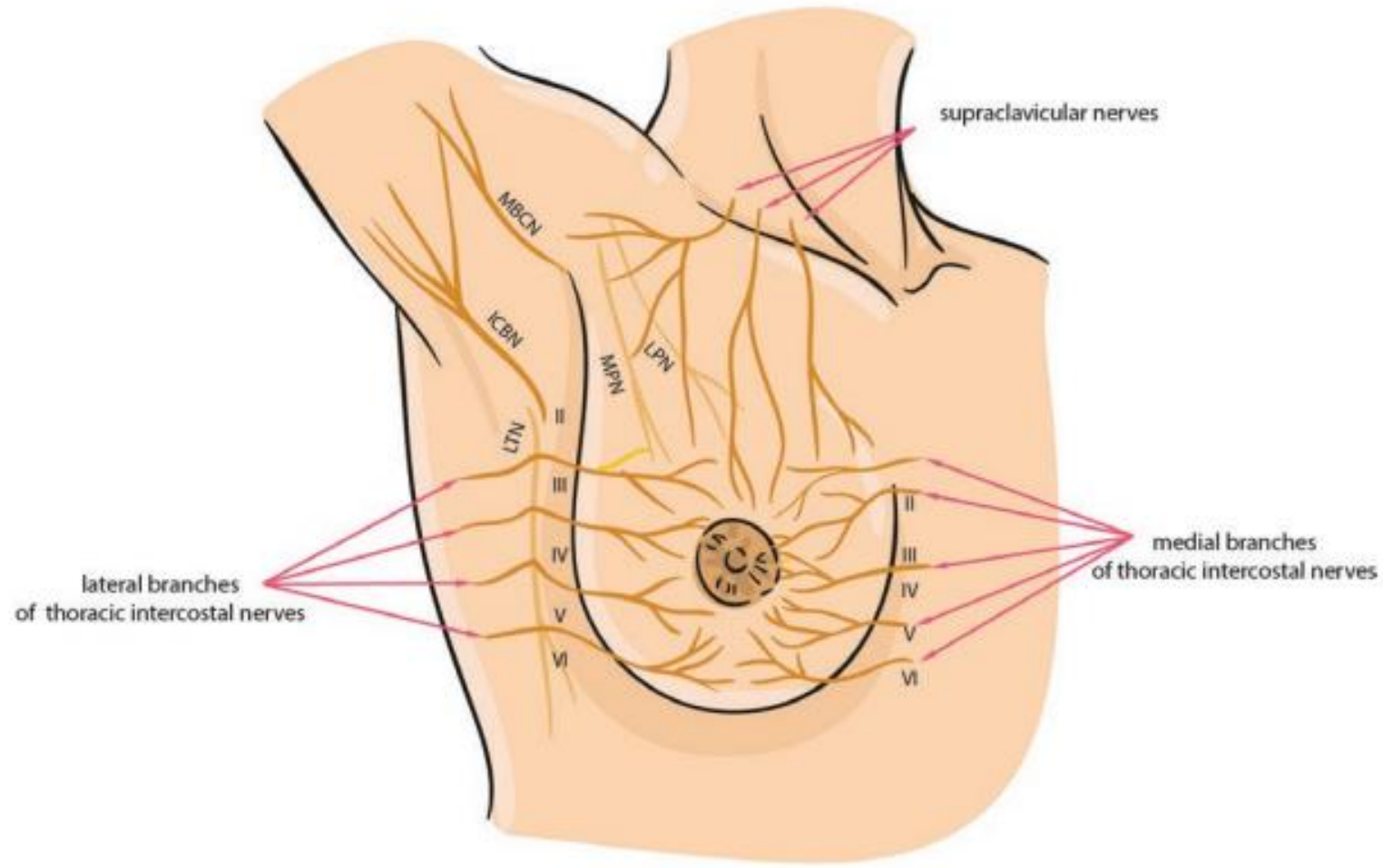
Nerves are cut when
breast tissue is removed



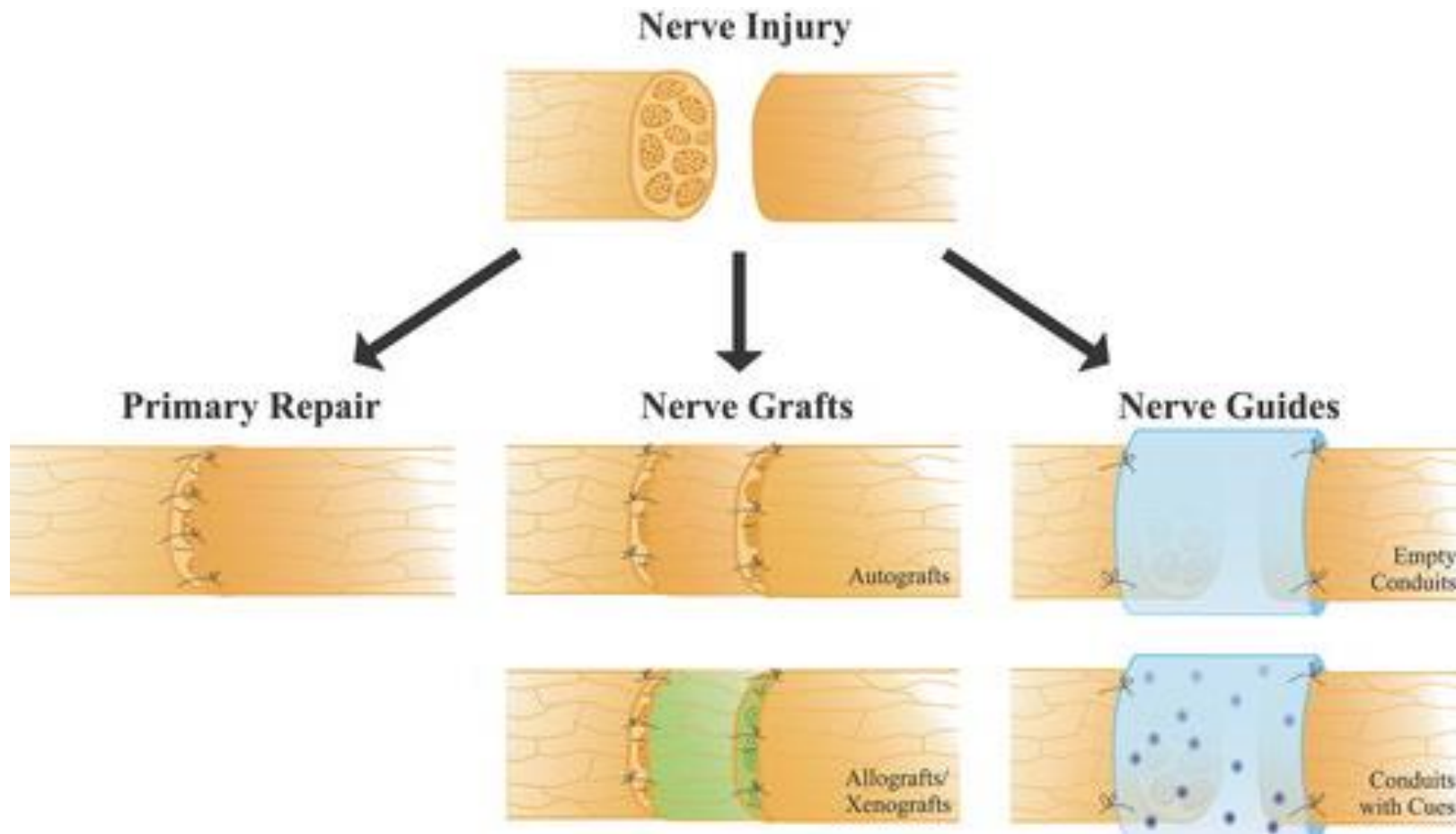
No signal =
loss of feeling

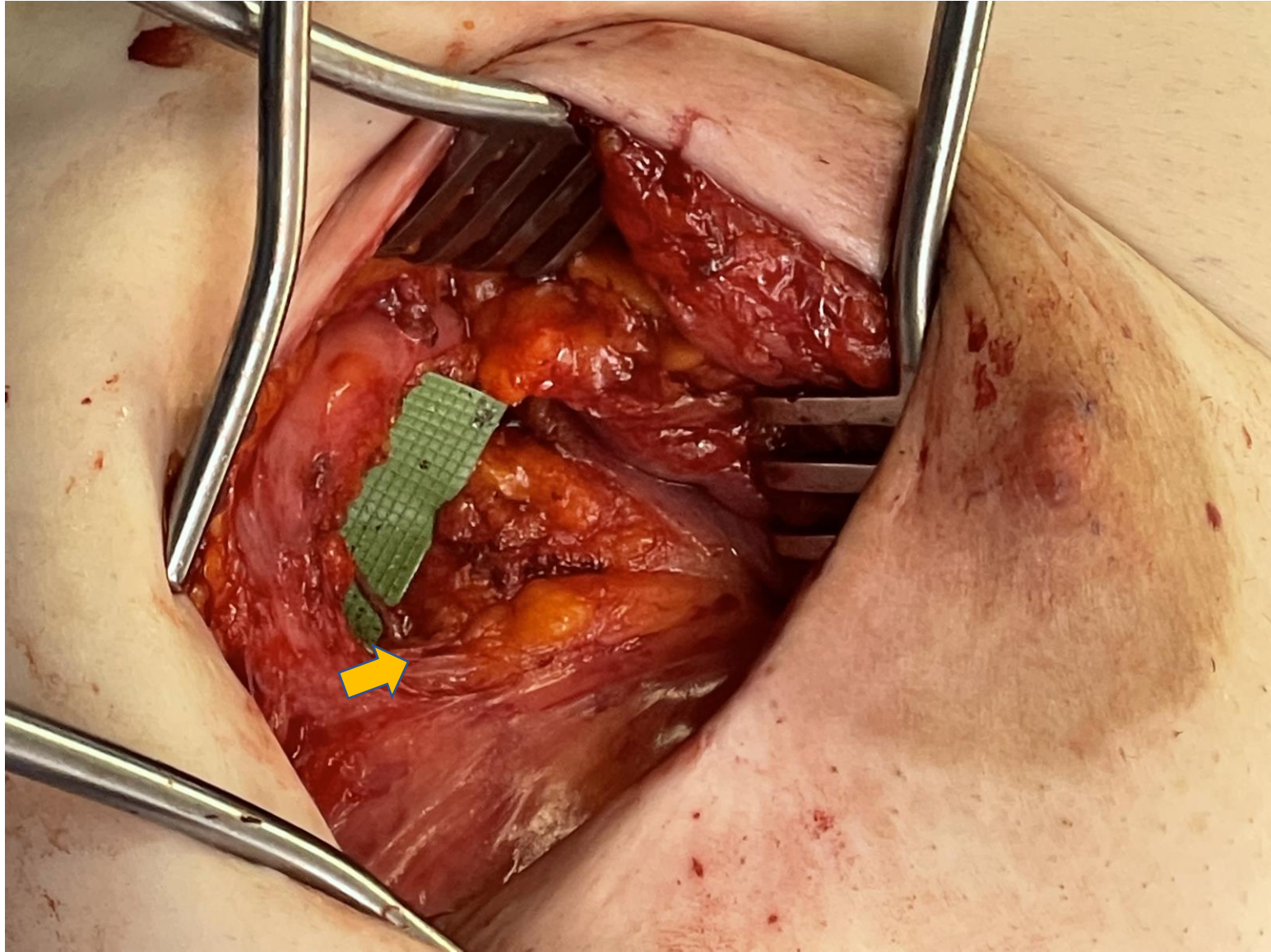
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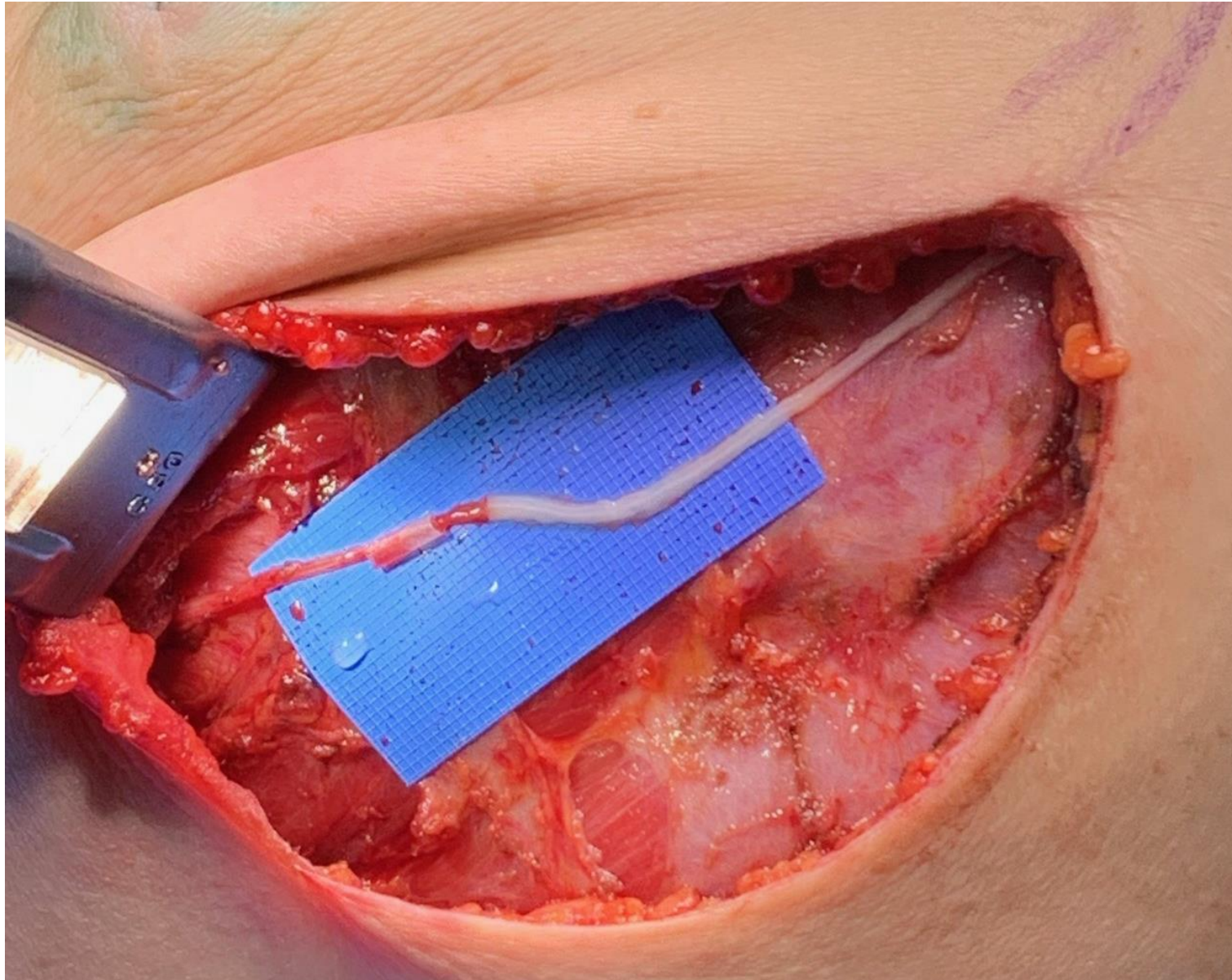
Sensory Innervation of the Breast



Nerve Repair







Immediate NSM & Implant Reconstruction

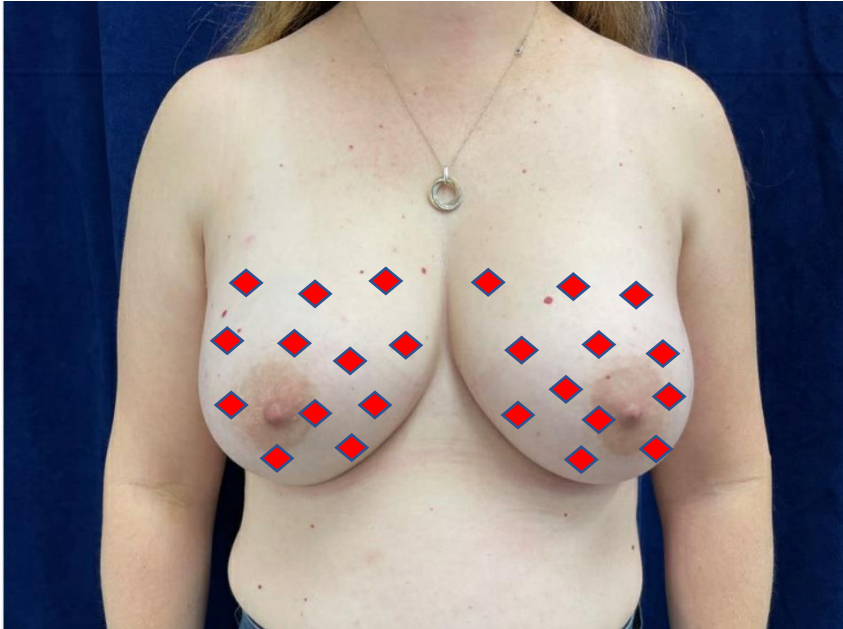


Pre-Op: 41 y/o with RIGHT cT1b, cN0, G2, ER+, PR+, HER2- breast cancer. History of bilateral breast implant augmentation (400 cc)

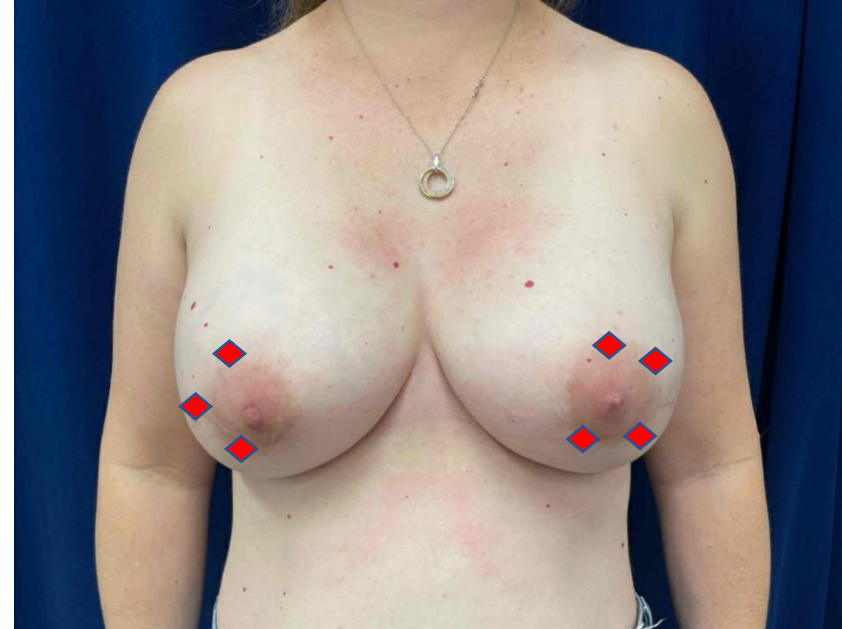


4 Months Post-Op: Bilateral nipple sparing mastectomy (L.Taylor), Immediate Pre-pectoral silicone gel implants (650cc), T4 intercostal nerve allograft to sub-areolar plexus

Pre-Op and Post-Op Breast Sensation



Pre-Op: 41 y/o with RIGHT cT1b, cN0, G2, ER+, PR+, HER2- breast cancer. History of bilateral breast implant augmentation (400 cc)



4 Months Post-Op: Bilateral nipple sparing mastectomy (L.Taylor), Immediate Pre-pectoral silicone gel implants (650cc), T4 intercostal nerve allograft to sub-areolar plexus

Summary

- Breast cancer is common, affecting nearly 1:7 women
- Breast reconstruction restores form and improves quality of life
- Multiple options for breast mound including implants and flaps
- Current innovations are focused on
 - Lymphatic reconstruction to prevent lymphedema
 - Sensory nerve reconstruction to provide sensation