Mastectomy

- Therapeutic
  - Cancer is present
- Prophylactic
  - Cancer is not present
    - BRCA mutation carrier
    - have a breast cancer and want a mastectomy on the contralateral side

Indications for mastectomy

- Therapeutic
  - Multicentric
  - Inability to clear margins
  - Extensive DCIS
  - Unfavorable relationship of breast to tumor size
  - Local recurrence
  - Prior Radiation
  - Patient initiated

- Risk reducing
  - BRCA or other genetic syndrome
  - History contralateral mastectomy for breast cancer
  - Patient initiated

Mastectomy vs. Oncoplastic Surgery

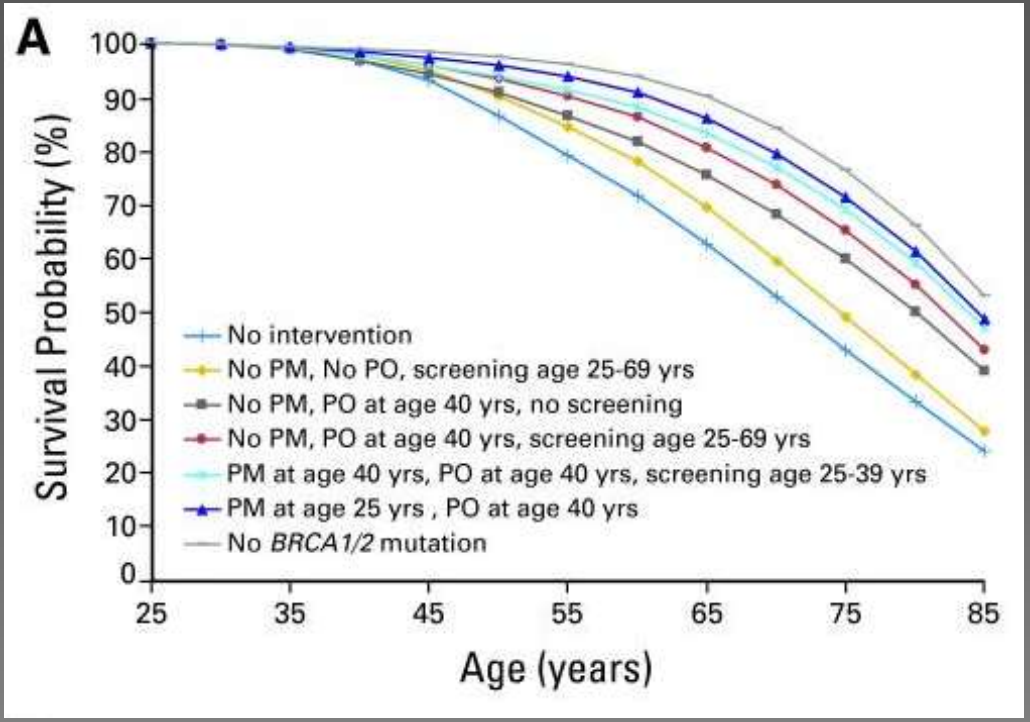
- When a large lumpectomy will distort the breast the remaining skin and breast tissue is rearranged using the techniques of breast reduction and mastopexy. The contralateral breast is also reduced or lifted for symmetry
- Done at the time of lumpectomy
- Volume displacement and Volume replacement techniques

SURVIVAL ANALYSIS OF CANCER RISK REDUCTION STRATEGIES FOR BRCA ½ MUTATION CARRIERS

BRCA1

Monte Carlo Model

- If no intervention- survival probability by age 70 is 53% (compared with 84% in general population)
- most effective combination strategy is PM age 25 + rrBSO age 40 providing a 26% survival gain by age 70
- Postponing PM to age 40 instead of at age 25 yields a 2% decrement in gain
- Similar with BRCA2 but less benefit since less cancer risk

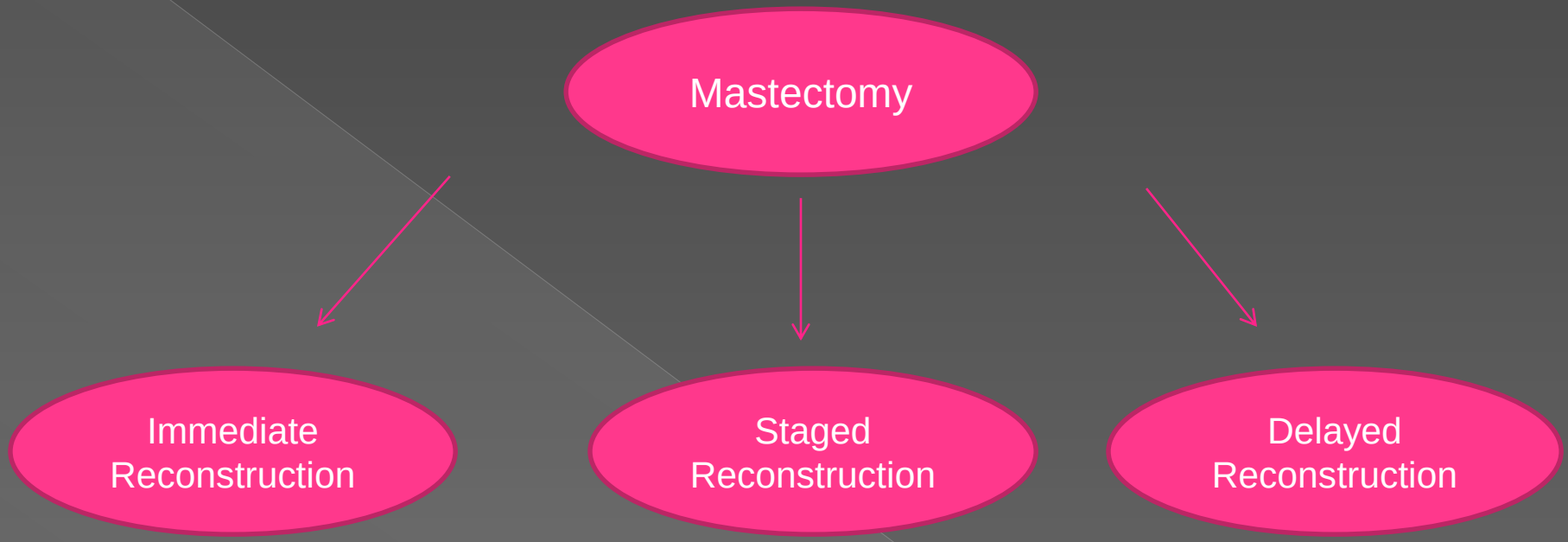


Kurian et al. J Clin Oncol 2009;28:222-231

Nipple Sparing Mastectomy

- Tumor to nipple distance < 2cm (imaging)
- Size tumor > ?
- Multicentricity
- Subareolar involvement
- Bloody nipple discharge
- Paget’s disease
- Clinically suspicious nipple

Timing of Reconstruction



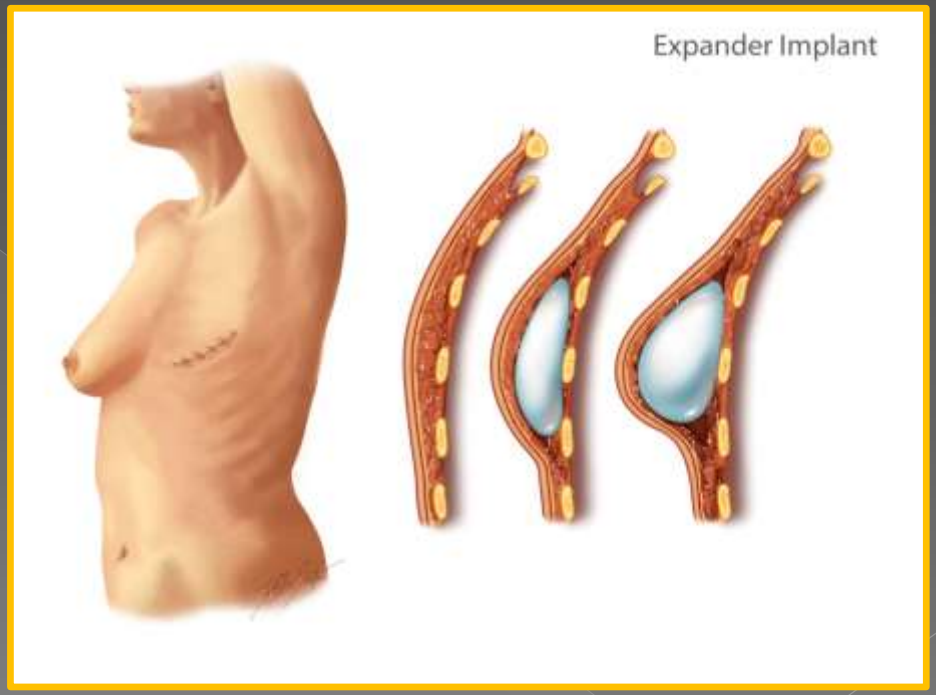
-Prophylactic mastectomy
-Will not need Chemo or radiation

-Unsure of desired reconstruction
-Will need chemo or radiation
-Significant Breast Asymmetry
-Large breasts
-Ptotic breasts

-Metastatic disease
-Multiple medical problems
-Patient choice

Tissue Expanders

- Temporary Implant
- Placed during mastectomy surgery
- Stretch the skin and muscle to create a breast pocket



Reconstructive options

Implant

Autologous Tissue

Autologous Tissue with Implant

Abdomen:
DIEP
SIEA
TRAM

Back:
Latissimus Dorsi
TDAP

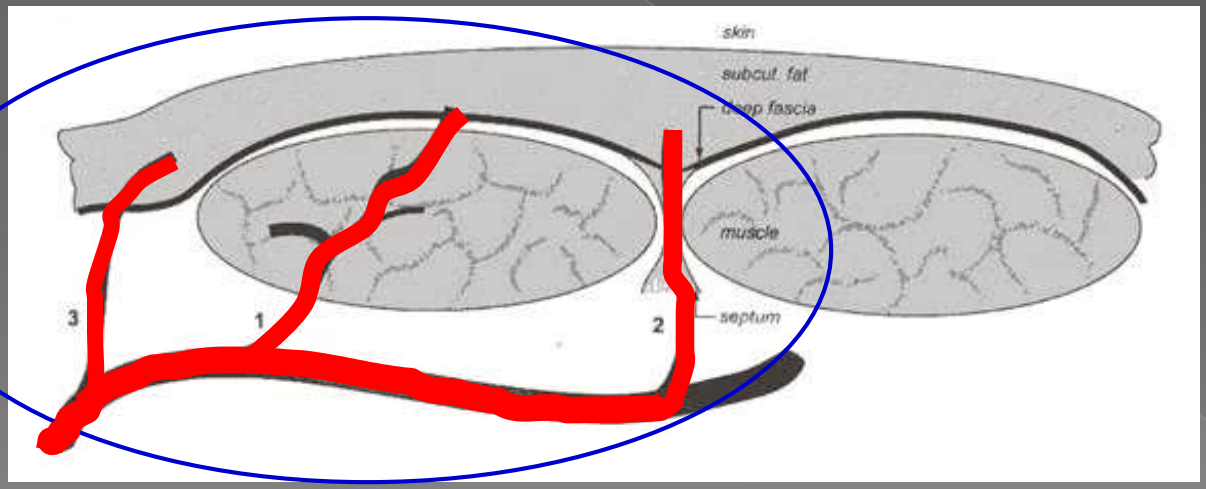
Buttock
SGAP
IGAP

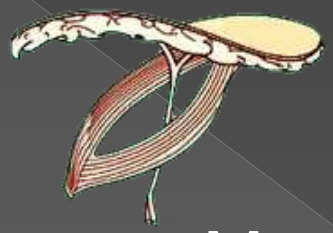
Inner thigh
TUG

Conventional Flap

All tissue components with its dominant pedicle

- Increased morbidity of the flap donor site
- Increased pain, recovery time & hospital stay



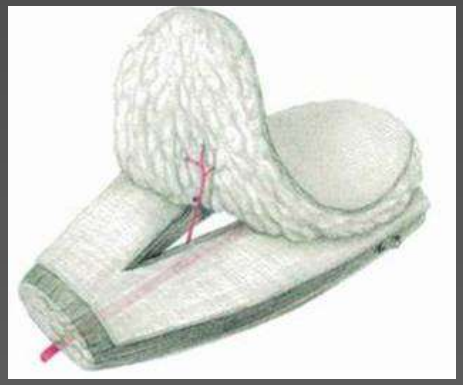


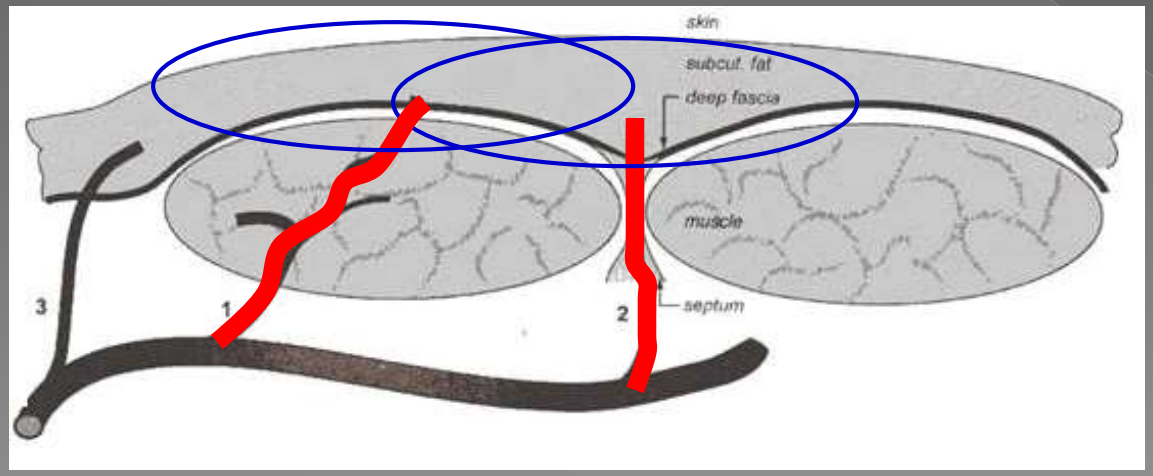
Perforator Flap

- Musculocutaneous perforator flap

  a skin flap vascularized by a muscle perforator.
- Septocutaneous perforator flap

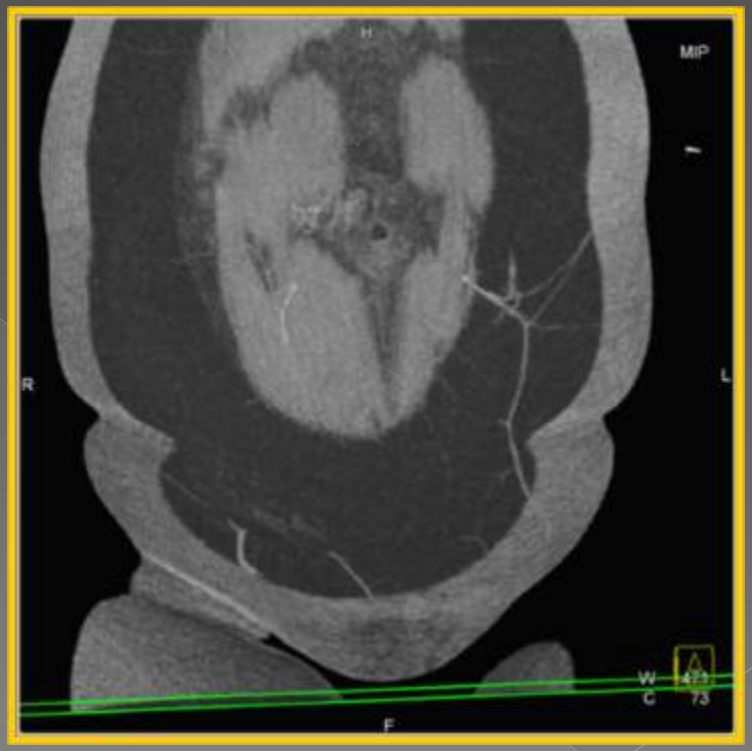
  a skin flap vascularized by a septal perforator.





Pre-operative CT Scan to identify perforators

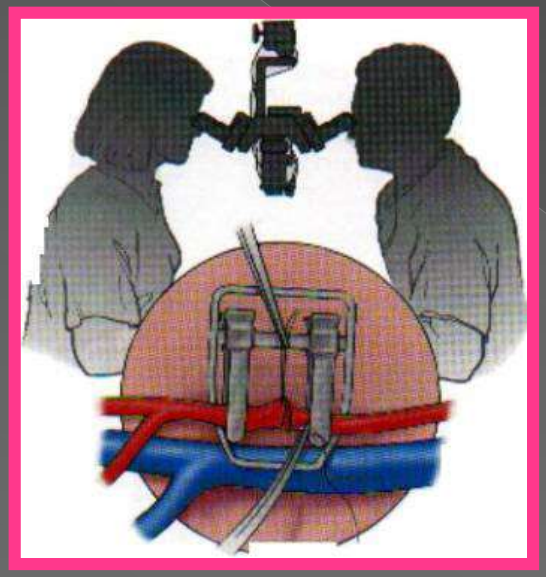
- Performed before surgery
- Uses IV contrast dye
- Evaluates and maps the blood vessels

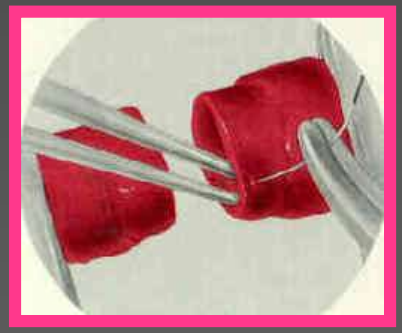


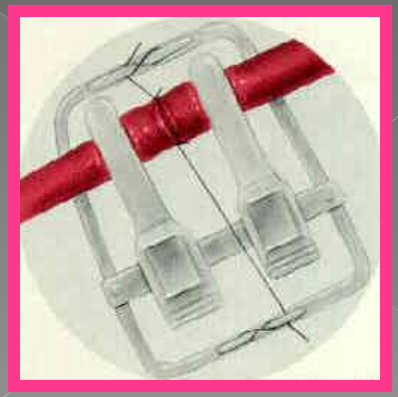
DIEP vs TRAM Flap

	Pedicled TRAM	Free TRAM	DIEP
Operative time	Shorter operation	Longer operation	Longer operation
Flap loss	Potential for partial flap loss and fat necrosis	Potential for complete flap loss	Potential for complete flap loss
Donor site complications	Removes rectus muscle +++Hernia/bulge ++Abdominal weakness	Removes a portion of the rectus muscle ++Hernia/bulge +Abdominal weakness	Spares rectus muscle +Hernia/bulge
Donor site advantages	"Tummy Tuck" Removes excess abdominal tissue and tightens abdomen	"Tummy Tuck" Removes excess abdominal tissue and tightens abdomen	"Tummy Tuck" Removes excess abdominal tissue and tightens abdomen

MICROSURGERY







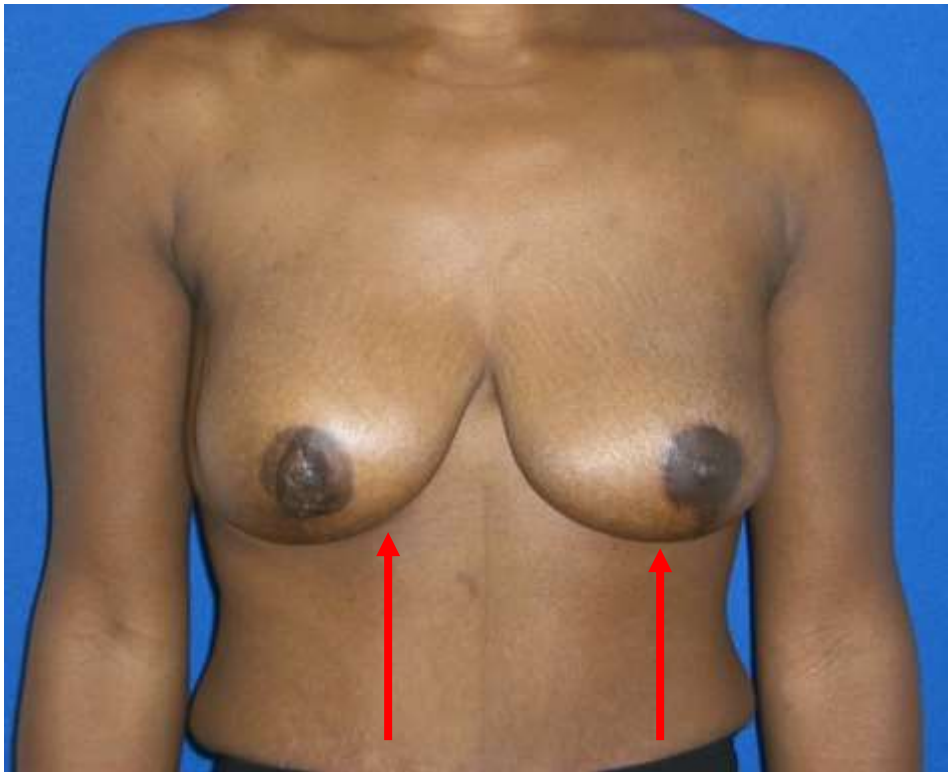
Bilateral Mastectomy and DIEP flaps

Bilateral Mastectomy and DIEP flaps

BILATERAL MASTECTOMY
BILATERAL DIEP FLAP

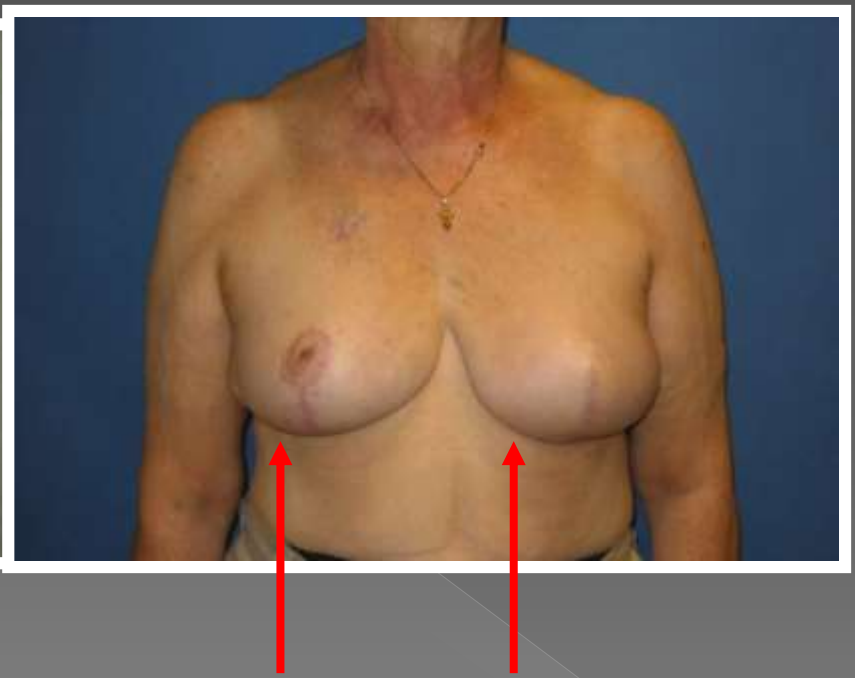
BILATERAL MASTECTOMY
LEFT DIEP FLAP
RIGHT IMPLANT RECONSTRUCTION

Free DIEP & Contralateral Reduction



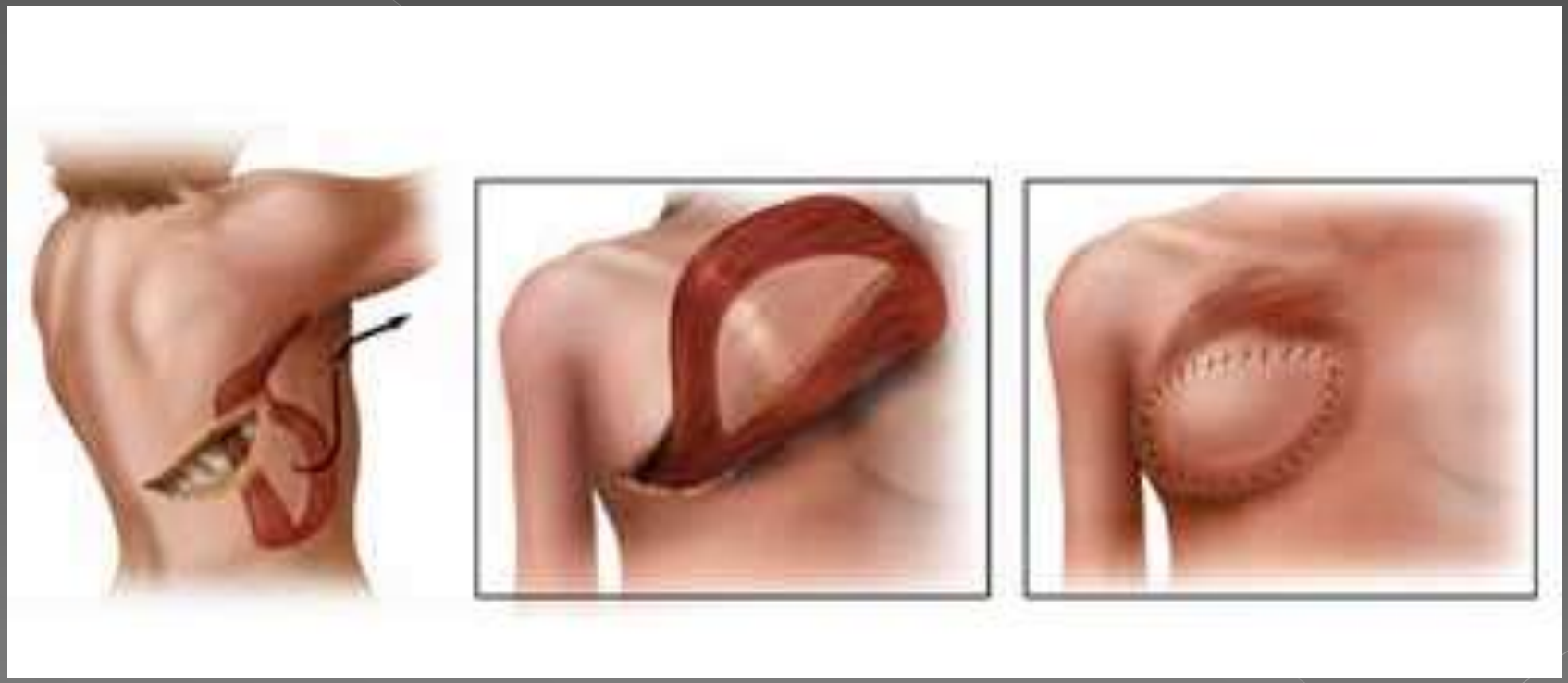
DIEP Reduction

Free DIEP & Contralateral Reduction



ReductionDIEP

LATISSIMUS DORSI FLAP



Mayo foundation for Medical education and research

LATISSIMUS DORSI FLAP

ADVANTAGES	DISADVANTAGES
Less operative time compared to a TRAM or a DIEP	Often requires an implant for adequate volume
Very reliable flap (pedicled and hearty)	Uses a muscle/potential weakness
Minimal down time	Incision on back
Delivers healthy vascularized tissue	

Left Mastectomy with radiation
left Latissimus dorsi & implant reconstruction
right Mastopexy & augmentation

Latissimus dorsi back scar

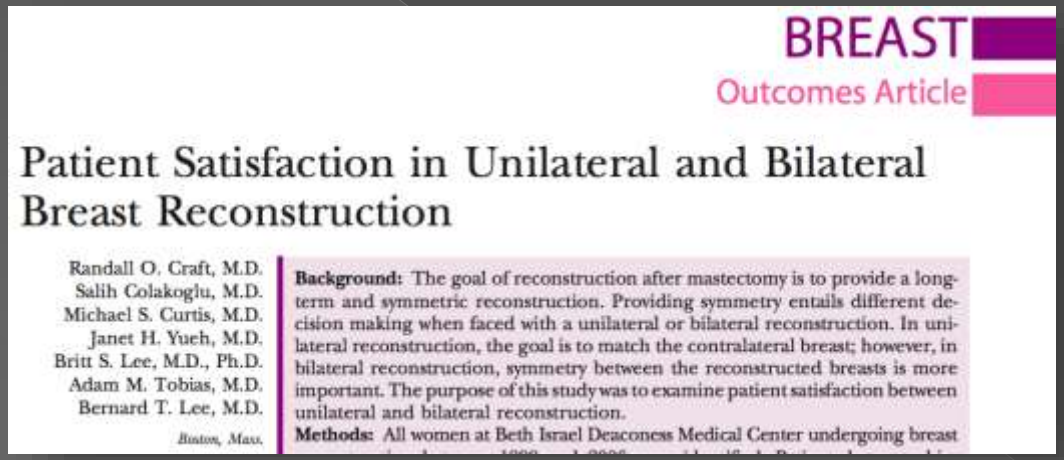
Right mastectomy & radiation right Latissimus dorsi & IMPLANT left mastopexy augmentation

Latissimus Dorsi with Implant

Implant vs Autologous

	Implant	Autologous
Surgery	Shorter operation (1-2hrs)	Longer operation (6-8 hrs DIEP TUG SGAP) (3-4 hrs TRAM latissimus)
Hospitalization	Outpatient	Pedicled flap 1-2 days Microsurgery 3-4 days
Recovery	1-2 weeks	6-8 weeks
Scars	Mastectomy scar only	Mastectomy scar + Donor Site scar
Shape and feel	Less sag/ptosis Firmer	More sag/ptosis Softer
Opposite breast	More difficult to match	Easier to match
Complications	Capsular contracture Infection Rippling Rupture	Flap Failure 1-3% Fat necrosis Hernia/ Bulge Weakness

Patient Satisfaction: Implant vs Autologous



BREAST

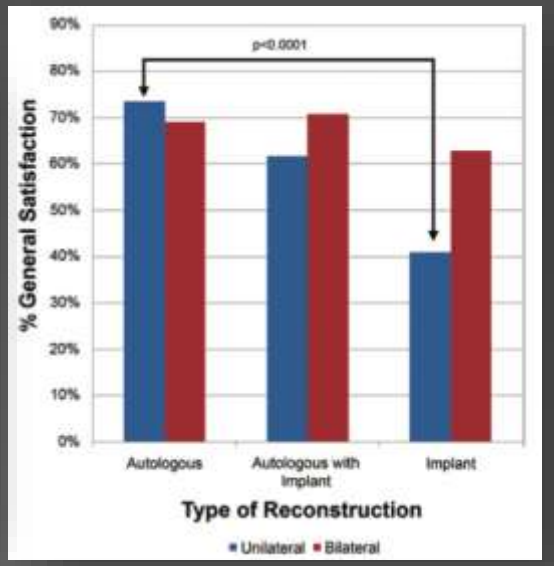
Outcomes Article

Patient Satisfaction in Unilateral and Bilateral Breast Reconstruction

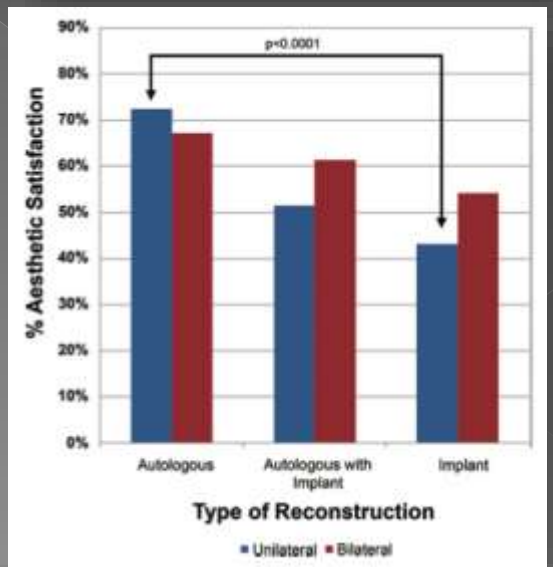
Randall O. Craft, M.D.
Salih Colakoglu, M.D.
Michael S. Curtis, M.D.
Janet H. Yueh, M.D.
Britt S. Lee, M.D., Ph.D.
Adam M. Tobias, M.D.
Bernard T. Lee, M.D.
Boston, Mass.

Background: The goal of reconstruction after mastectomy is to provide a long-term and symmetric reconstruction. Providing symmetry entails different decision making when faced with a unilateral or bilateral reconstruction. In unilateral reconstruction, the goal is to match the contralateral breast; however, in bilateral reconstruction, symmetry between the reconstructed breasts is more important. The purpose of this study was to examine patient satisfaction between unilateral and bilateral reconstruction.

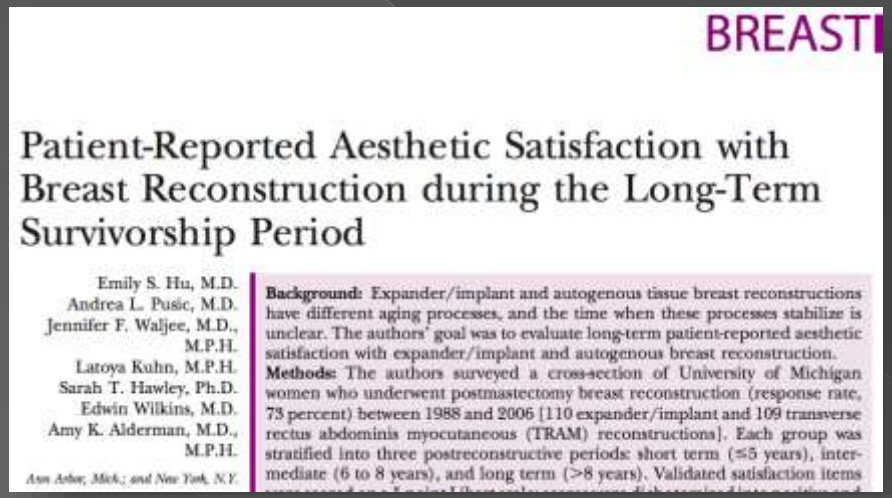
Methods: All women at Beth Israel Deaconess Medical Center undergoing breast



- 494 unilateral, 208 bilateral reconstructions
- For unilateral reconstruction patients with autologous were more satisfied



Patient Satisfaction: Implant vs Autologous



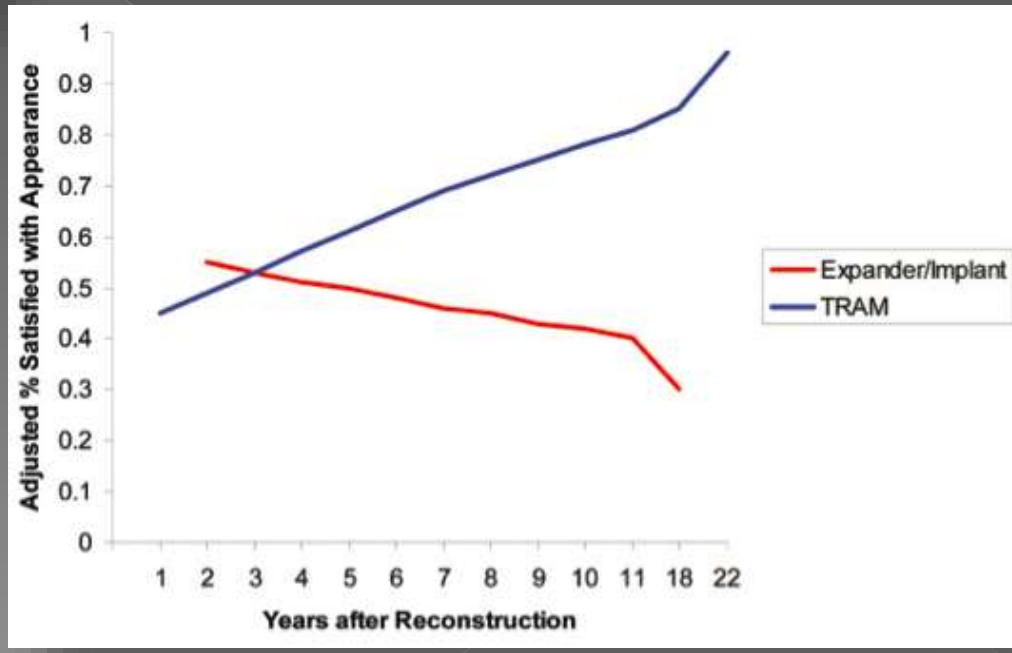
BREAST

Patient-Reported Aesthetic Satisfaction with Breast Reconstruction during the Long-Term Survivorship Period

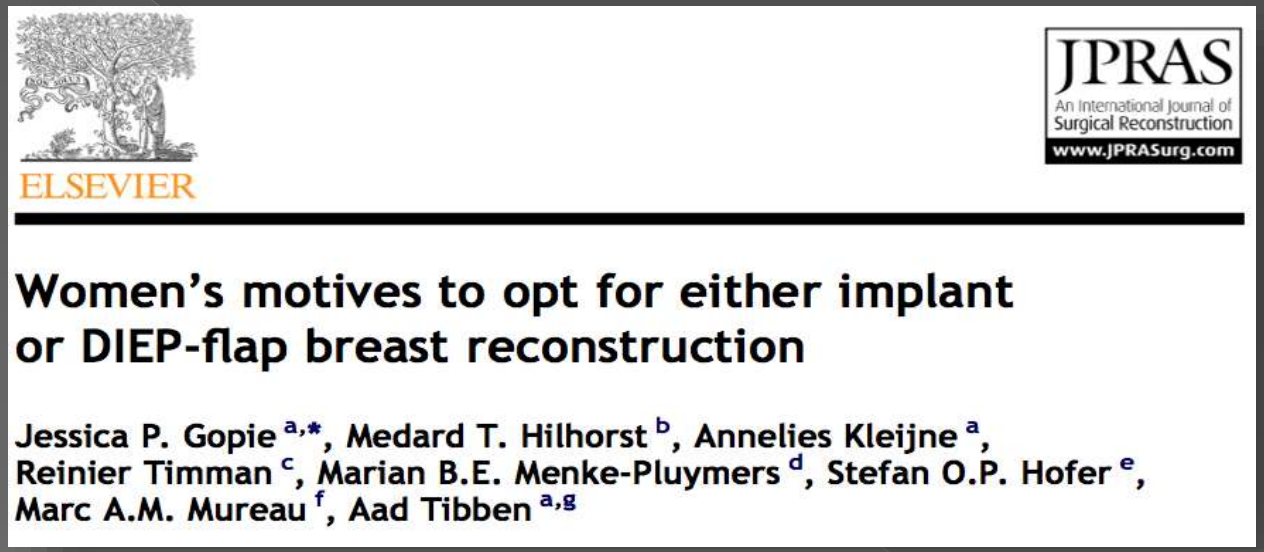
Emily S. Hu, M.D.
Andrea L. Pusic, M.D.
Jennifer F. Waljee, M.D., M.P.H.
Latoya Kuhn, M.P.H.
Sarah T. Hawley, Ph.D.
Edwin Wilkins, M.D.
Amy K. Alderman, M.D., M.P.H.
Ann Arbor, Mich.; and New York, N.Y.

Background: Expander/implant and autogenous tissue breast reconstructions have different aging processes, and the time when these processes stabilize is unclear. The authors' goal was to evaluate long-term patient-reported aesthetic satisfaction with expander/implant and autogenous breast reconstruction.
Methods: The authors surveyed a cross-section of University of Michigan women who underwent postmastectomy breast reconstruction (response rate, 73 percent) between 1988 and 2006 [110 expander/implant and 109 transverse rectus abdominis myocutaneous (TRAM) reconstructions]. Each group was stratified into three postreconstructive periods: short term (≤5 years), intermediate (6 to 8 years), and long term (>8 years). Validated satisfaction items

- Average 6.5 year follow up
- TRAM vs implant reconstruction
- Over time greater satisfaction with autologous
- Reflects lifespan of implants



Patient Decision Making Implant vs Autologous



ELSEVIER

JPRAS
An International Journal of Surgical Reconstruction
www.JPRASurg.com

Women's motives to opt for either implant or DIEP-flap breast reconstruction

Jessica P. Gopie [a,*], Medard T. Hilhorst [b], Annelies Kleijne [a], Reinier Timman [c], Marian B.E. Menke-Pluymers [d], Stefan O.P. Hofer [e], Marc A.M. Mureau [f], Aad Tibben [a,g]

Implant

- Shorter recovery
- Fewer scars

DIEP

- Natural appearance
- Removal of tissue

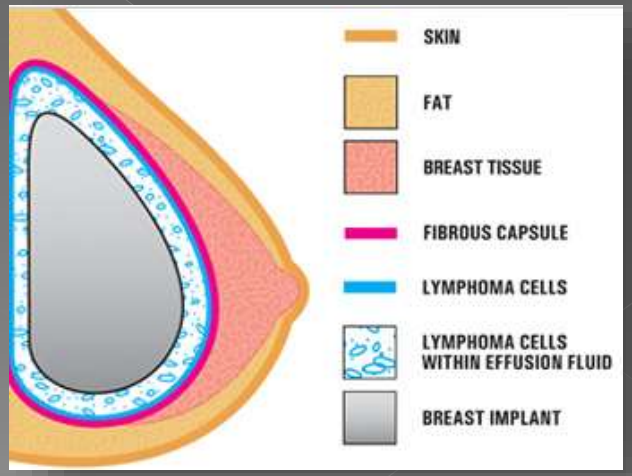
Implant options

- Filler (saline vs silicone)
- Shell (smooth vs texure)
- Shape (round vs shaped)
- Profile (low moderate high)
- Volume

Silicone Controversy

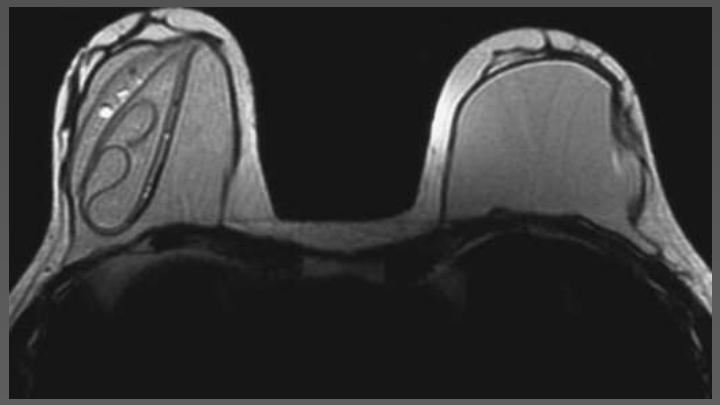
- Implant leak & silicone migration
- Prohibited for cosmetic use 1992-2006
- Dow Corning $3.2 billion settlement

- Autoimmune disease? No
- Carcinogenesis? No
- ALCL? Maybe…



Current FDA guidelines

- Allergan, Mentor, Sientra
- Reconstructive>18years
  Cosmetic>22years
- MRI: initial 3 year post-op
  every 2 years thereafter
- Patient information booklet
- ALCL
  - Suspect in late-onset/persistent seroma→ send fluid for cytology
  - Report to FDA



BILATERAL NIPPLE SPARING MASTECTOMY IMPLANT RECONSTRUCTION

BILATERAL NIPPLE SPARING MASTECTOMY IMPLANT RECONSTRUCTION

BILATERAL NIPPLE SPARING MASTECTOMY IMPLANT RECONSTRUCTION

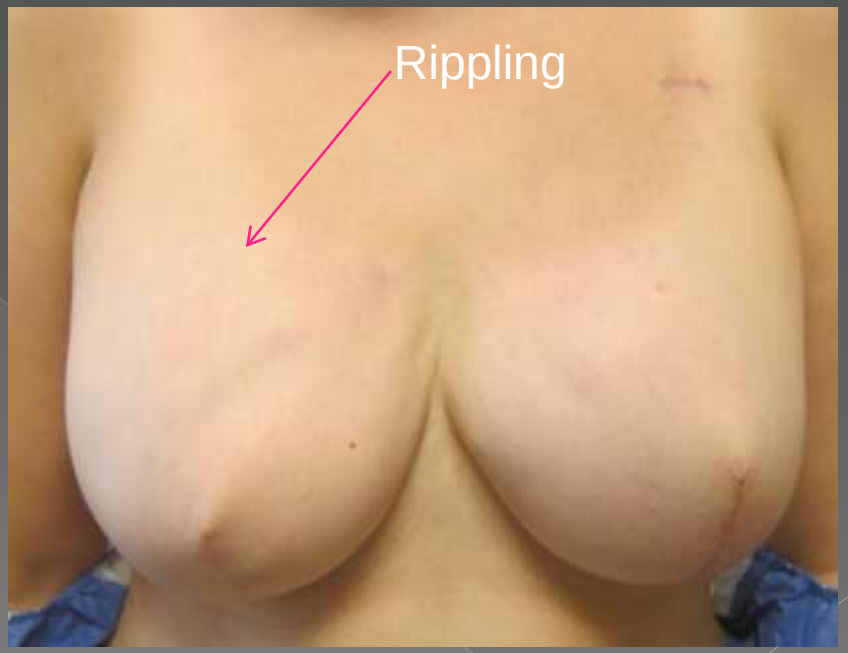
PROPHYLACTIC BILATERAL NIPPLE SPARING MASTECTOMY IMPLANT RECONSTRUCTION

PROPHYLACTIC BILATERAL NIPPLE SPARING MASTECTOMY IMPLANT RECONSTRUCTION

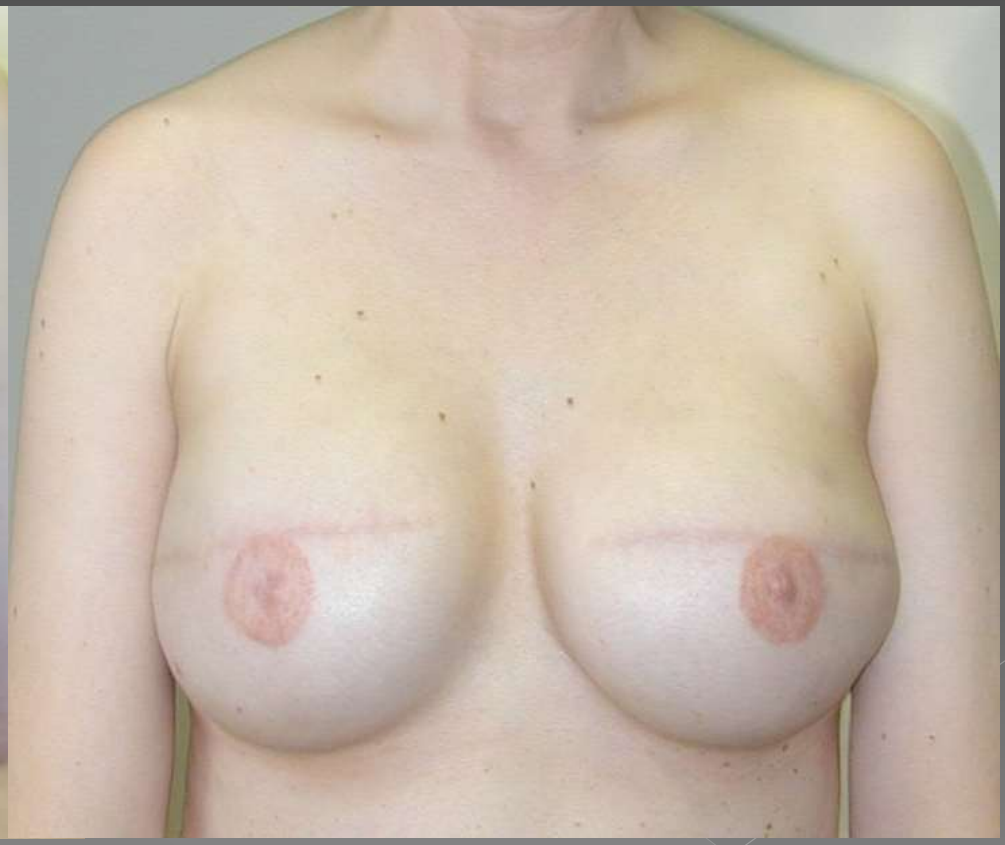
HISTORY OF REDUCTION
BILATERAL NIPPLE SPARING MASTECTOMY
IMPLANT RECONSTRUCTION

BILATERAL MASTECTOMY IMPLANT RECONSTRUCTION

BILATERAL MASTECTOMY IMPLANT RECONSTRUCTION



Bilateral Mastectomy and implant reconstruction

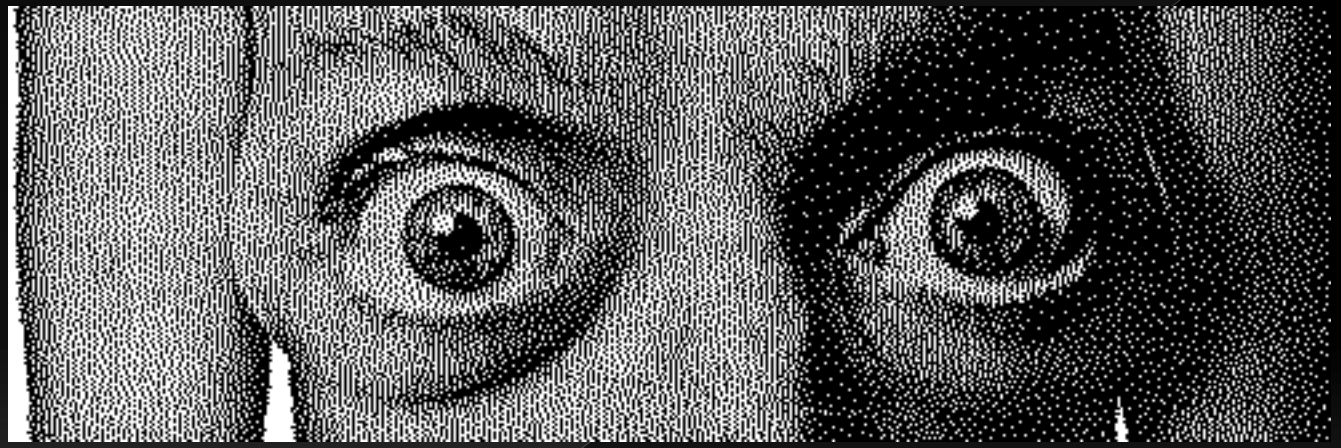


BILATERAL MASTECTOMY IMPLANT RECONSTRUCTION

Nipples

"The signature of the breast"

"The eyes of the breast"



3D NIPPLE TATTOO

Oncoplastic Surgery

- When a large lumpectomy will distort the breast the remaining skin and breast tissue is rearranged using the techniques of breast reduction and mastopexy. The contralateral breast is also reduced or lifted for symmetry
- Done at the time of lumpectomy
- Volume displacement and Volume replacement techniques

Oncoplastic Surgery Techniques

- Resected tissue is clearly marked
- Clips placed in tumor bed
- Consider leaving the lumpectomy side slightly larger than contralateral side in anticipation of radiation
- Some centers will wait 3-6 months before operating on contralateral breast to allow for radiation changes and fluctuations in weight due to chemo

Indications for Oncoplastic Surgery

- Resected volume greater than 20% of estimated breast volume (medially up to 5% lateral pole 15%)
- Macromastia
- Severe ptosis or asymmetry
- Need for large skin resection in mammoplasty area
- Central, medial and inferior tumors
- Previous plastic surgery in breast

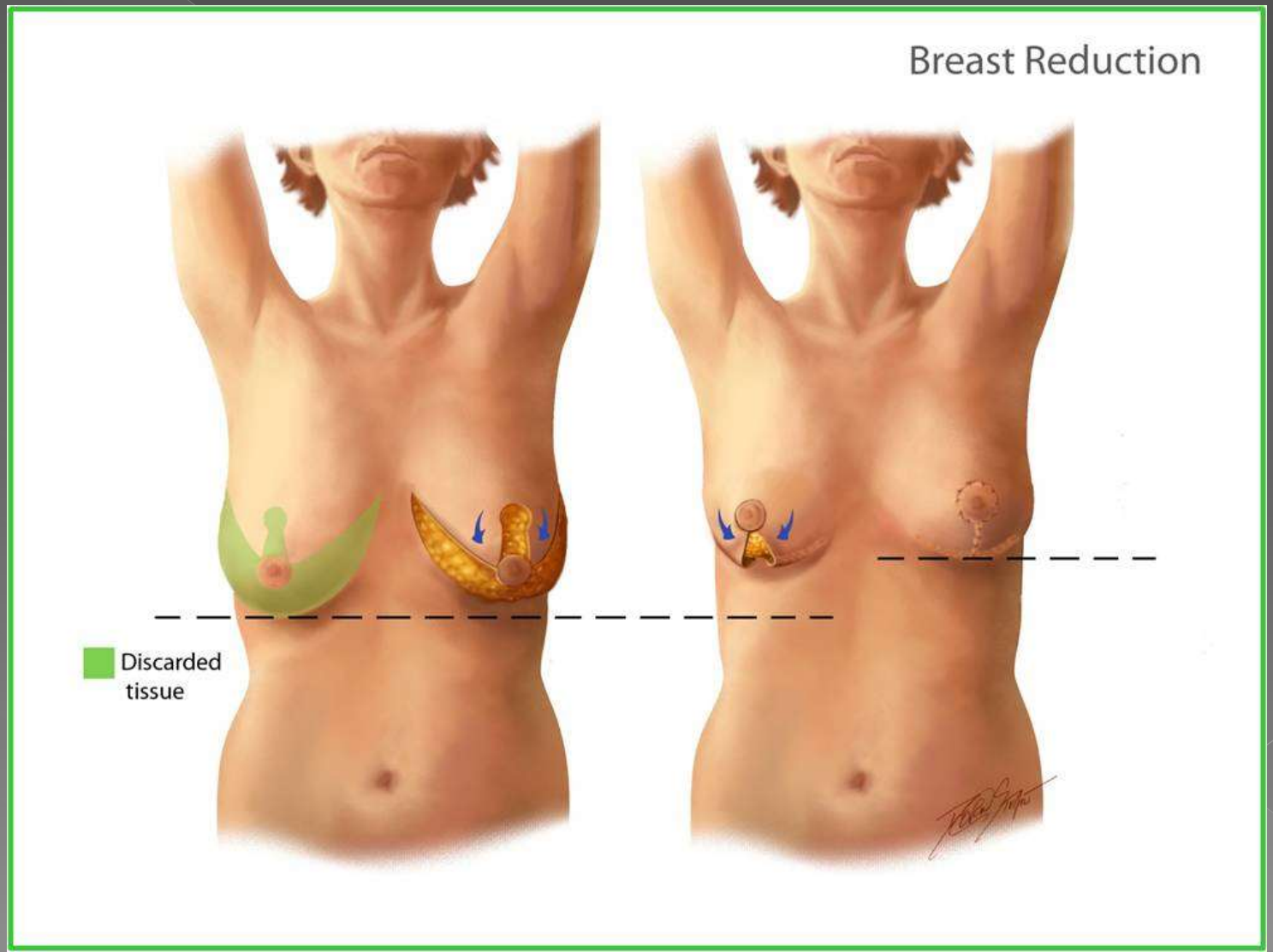
Relative Contraindications to Oncoplastic Surgery

- Small breasts with minimal ptosis
- Previous radiation
- Large skin resections beyond the mammoplasty area
- Smoking, Diabetes, Collagen Vascular Dz
- Unrealistic aesthetic expectations

Advantages of Oncoplastic Surgery

- Potentially wider margins
- Improved aesthetic outcome
- Many patients will select breast conserving therapy if offered oncoplastic reconstruction
- Better outcomes with radiation in smaller/reduced breasts
- Relief of back and neck pain
- Potential risk reduction of breast cancer in women over 50 *
  - *(Boice, JD et al. Breast cancer following breast reduction surgery in Sweden. Plastic & Reconstructive Surgery. 2000; Followed women over 50 who underwent breast reduction for 7.5 years and found a 28 percent risk reduction)

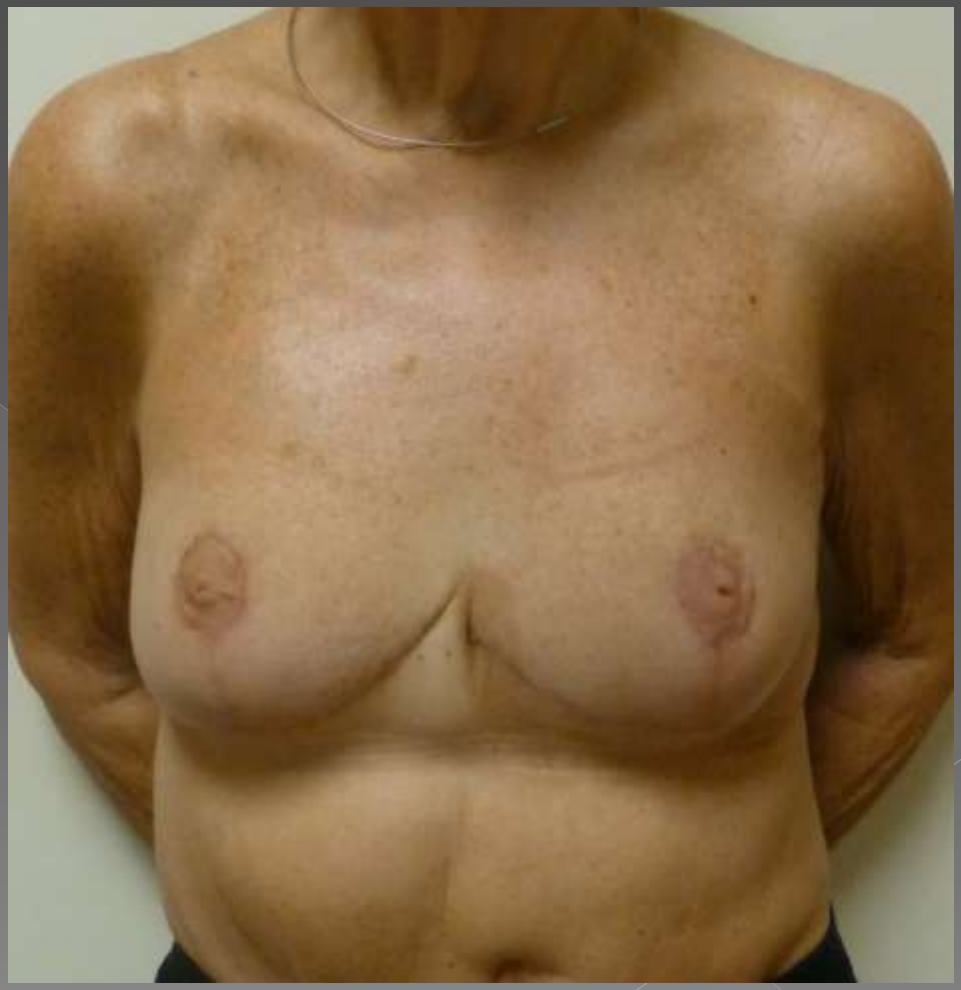
Breast Reduction with Lumpectomy



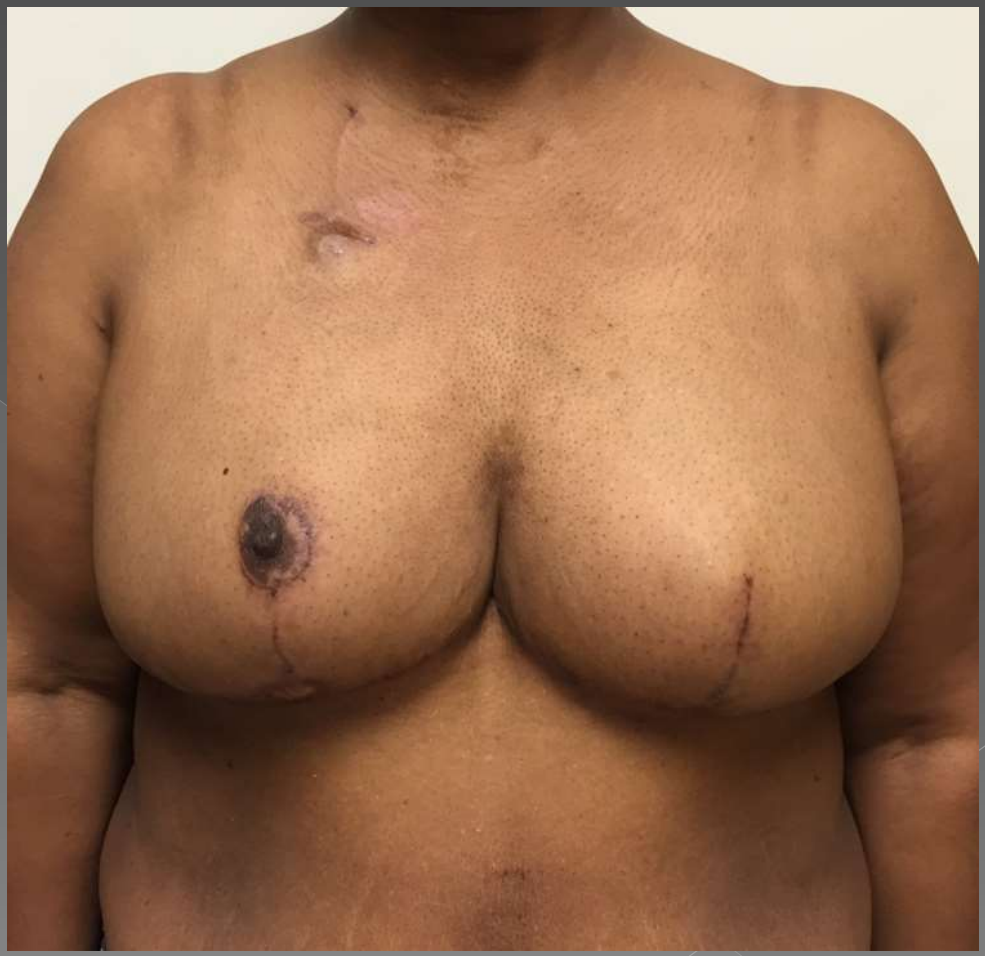
Lumpectomy and Reduction

Lumpectomy and Reduction

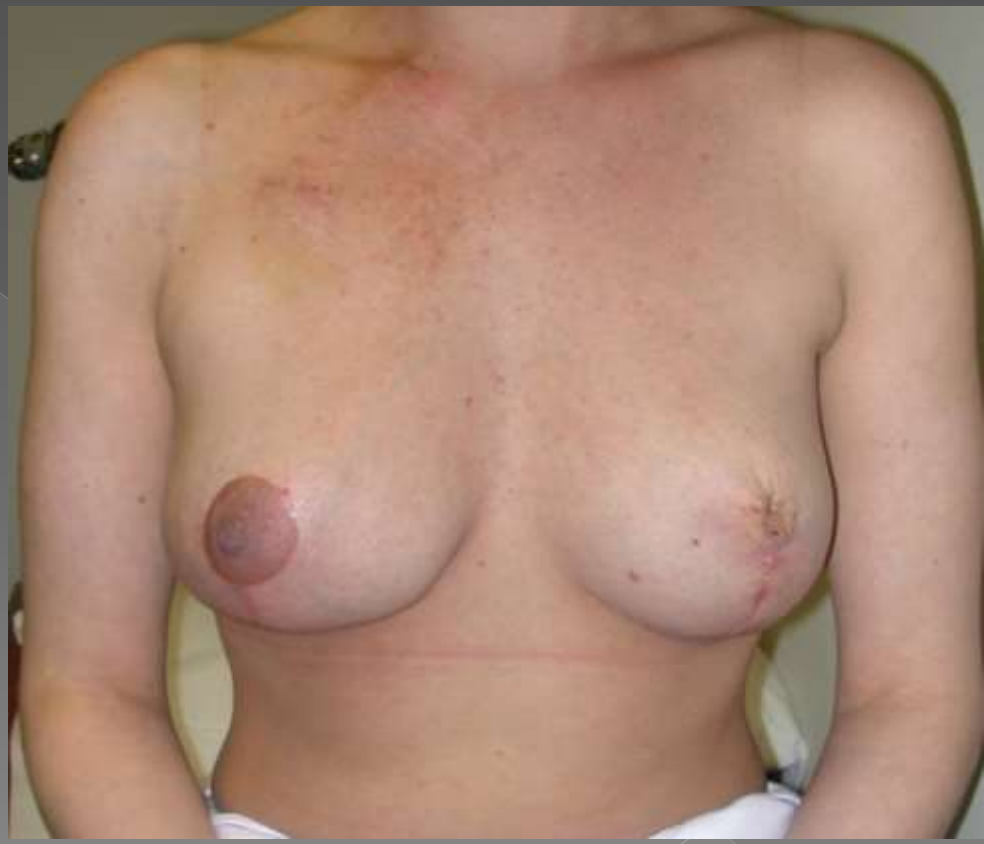
Lumpectomy and Reduction



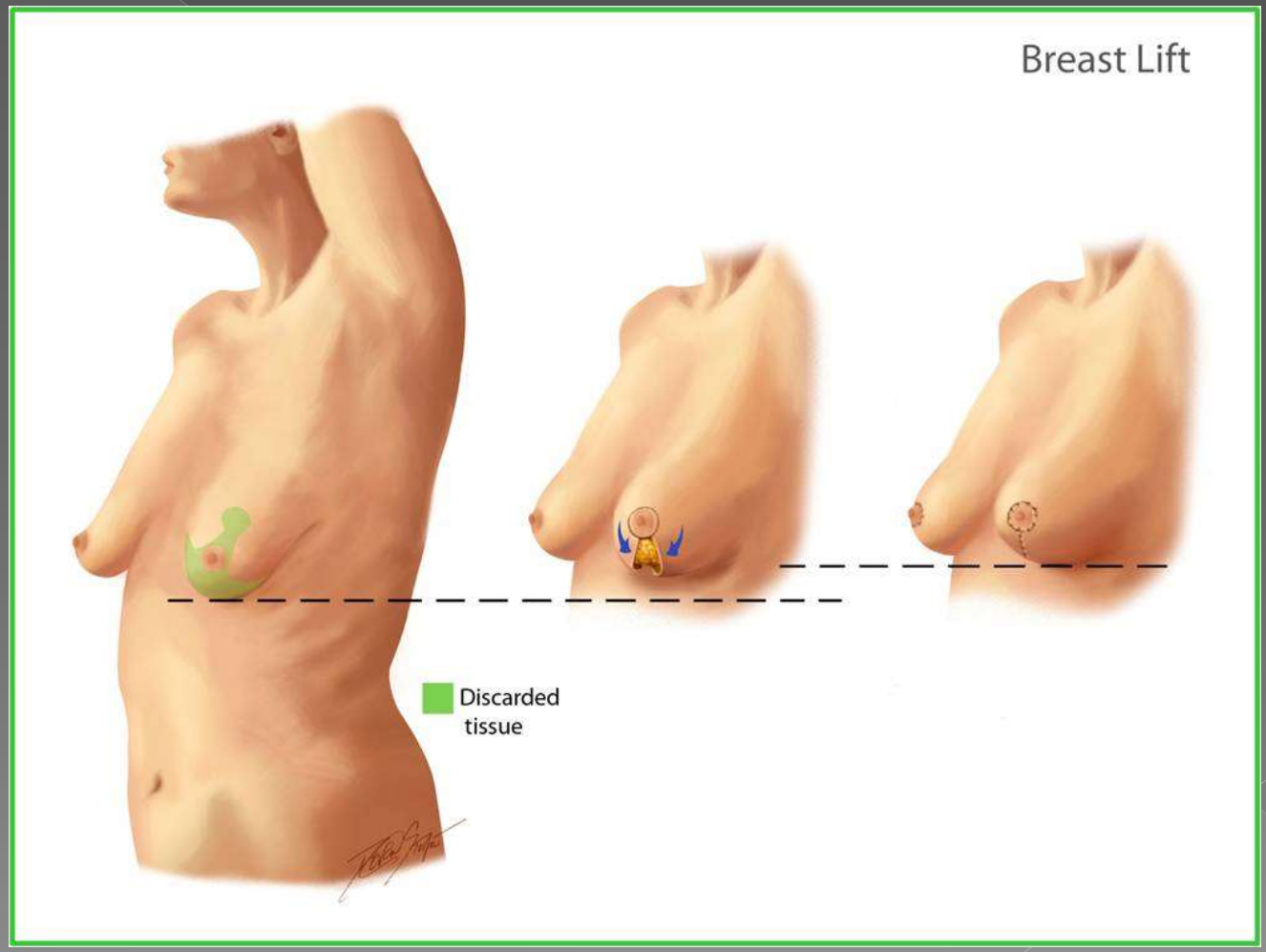
Lumpectomy and Reduction



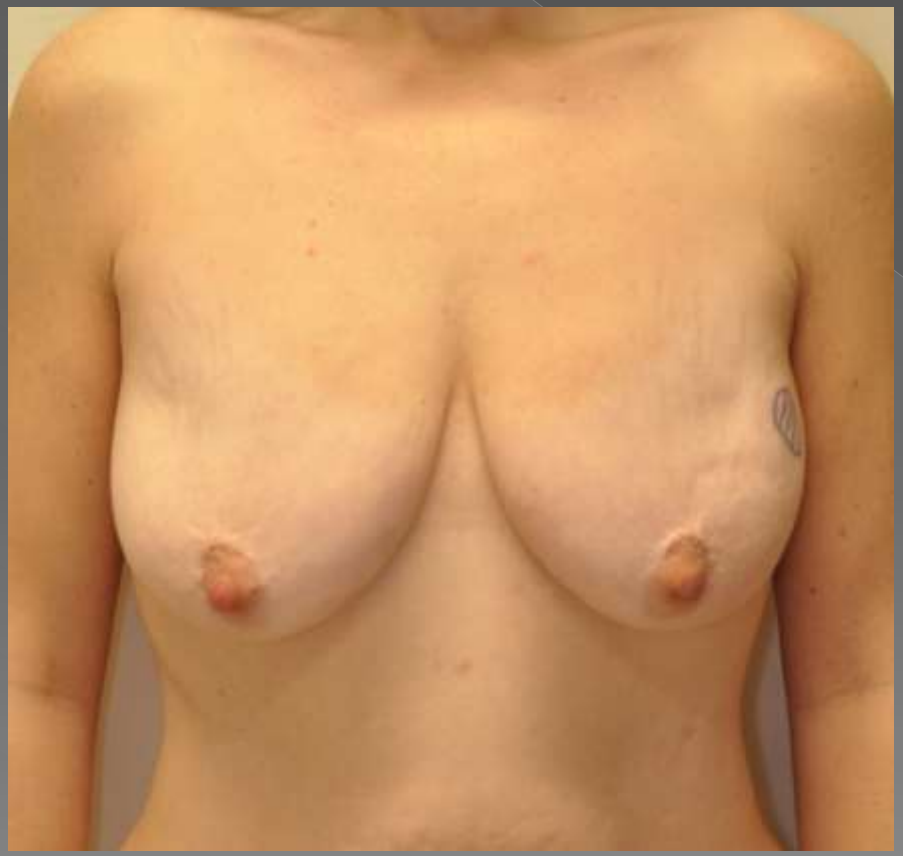
Lumpectomy and Reduction



Mastopexy (Lift) and Lumpectomy



Post bariatric patient with 100 pound weight loss



Applications of Fat Grafting

- Correct contour deformities
  - Disguise implant rippling
  - Fill hollowing of upper pole
  - Release tethered scar
  - Fill lumpectomy defect
- Augmentation/ Volume
- Reconstruction of entire breast

Fat Grafting Technique

Fat Grafting Technique

- Multiple small deposits, multiple layers, multiple directions to optimize nutrition to transferred adipocytes
- Limit the amount injected at each session– some use compartment pressure monitor
- Multiple rounds required- 3 in the non-radiated bed and up to 6 in radiated bed.

Advantages of Fat grafting

- Minimal down time
- Women like the contouring from liposuction
- Fills small defects
- Can improve radiated tissue

Disadvantages of Fat Grafting

- 40-50% of the injected fat can resorb
  - Survival rate reported between 40-80%
- Fat necrosis
- Calcifications
- Oil cysts
- Changes on mammogram
- ?? Stem cells in the setting of cancer
  - (local estrogen produced by adipocyte derived aromatase may stimulate hormone sensitive cancer cells. At the same time proteins produced by adipocytes may potentiate the invasiveness of breast cancer)

Is fat grafting safe?

- no randomized, controlled trials that examine the oncologic risks associated with lipoaspirate grafting
- Difficult to identify suitable alternative procedure for the control group

Conclusion

- There are many options for reconstruction for women diagnosed with breast cancer
- Discussion with the patient, the breast surgeon and the plastic surgeon about goals, expectations and techniques
- Consultation with a plastic surgeon for both breast conserving therapy and mastectomy may result in increased patient satisfaction without compromising oncologic safety