

A panoramic view of the Seattle skyline at sunset. The Space Needle is the central focus, illuminated with blue and white lights. The sky is a mix of orange, yellow, and purple. In the background, a large mountain is visible. The city lights are beginning to glow as the sun sets.

Breast Vascular Anatomy: Rationale for Mastopexy and Reduction Techniques

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DISCLOSURE OF CONFLICTS OF INTEREST

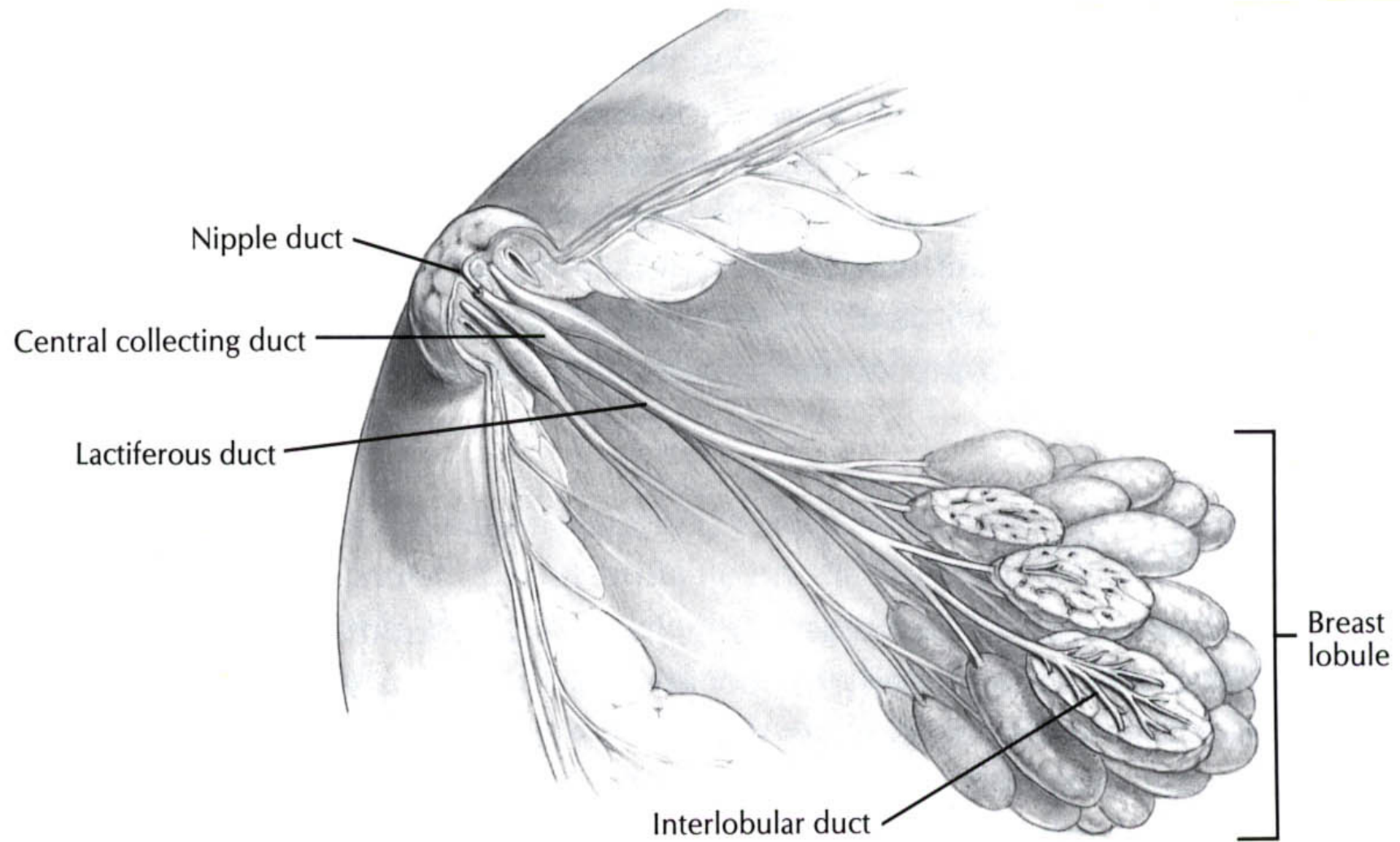
E. Antonio Mangubat, MD

- **None for this presentation**

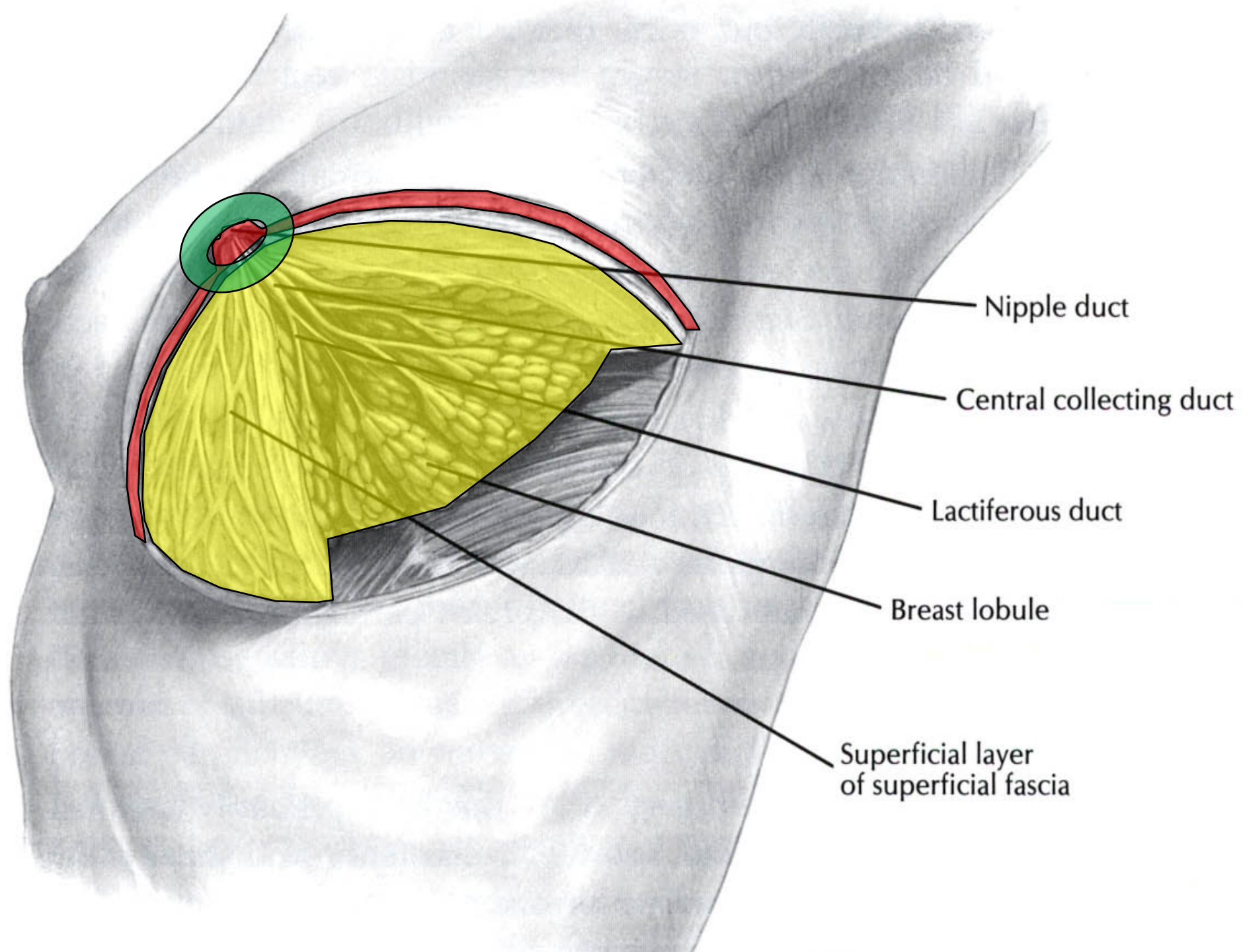
Breast Reduction Goals

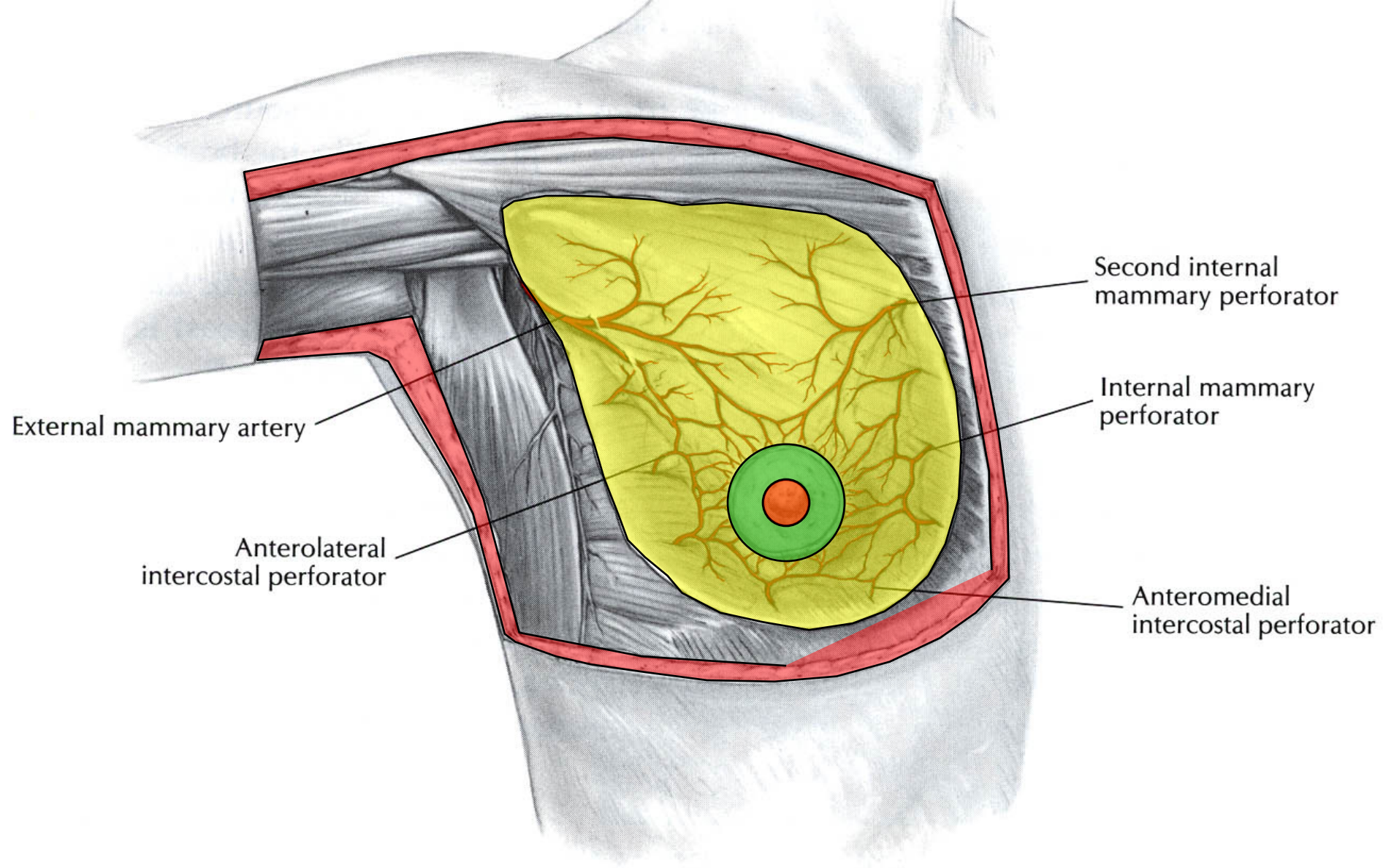
- **Reposition the nipple**
- **Reduce skin envelope**
- **Improve symmetry**
- **Improve breast shape**
- **Reduce breast mass**
- **Preserving vascular and nerve supply**





From Bostwick, Aesthetic Breast Surgery, 1983





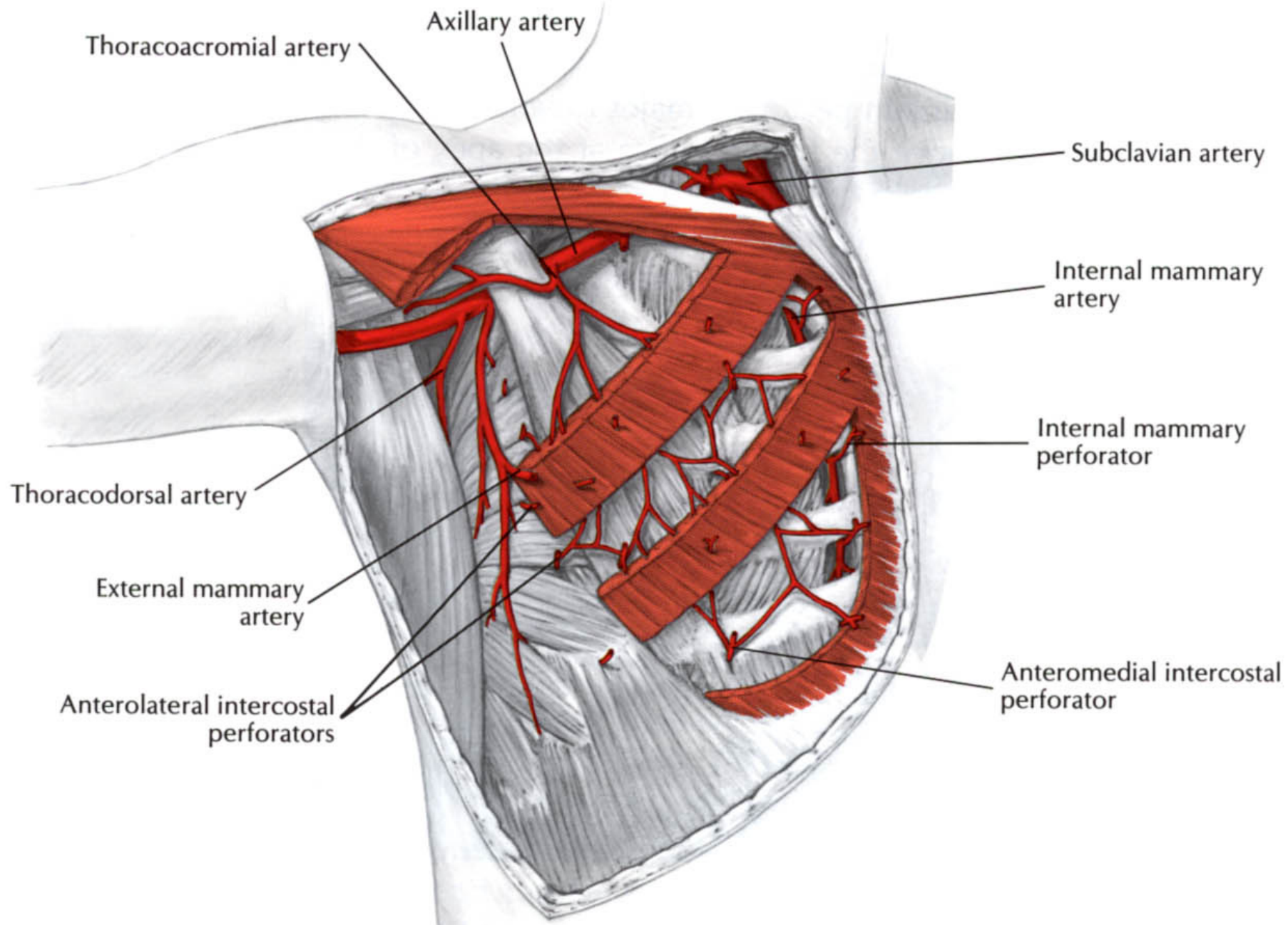
External mammary artery

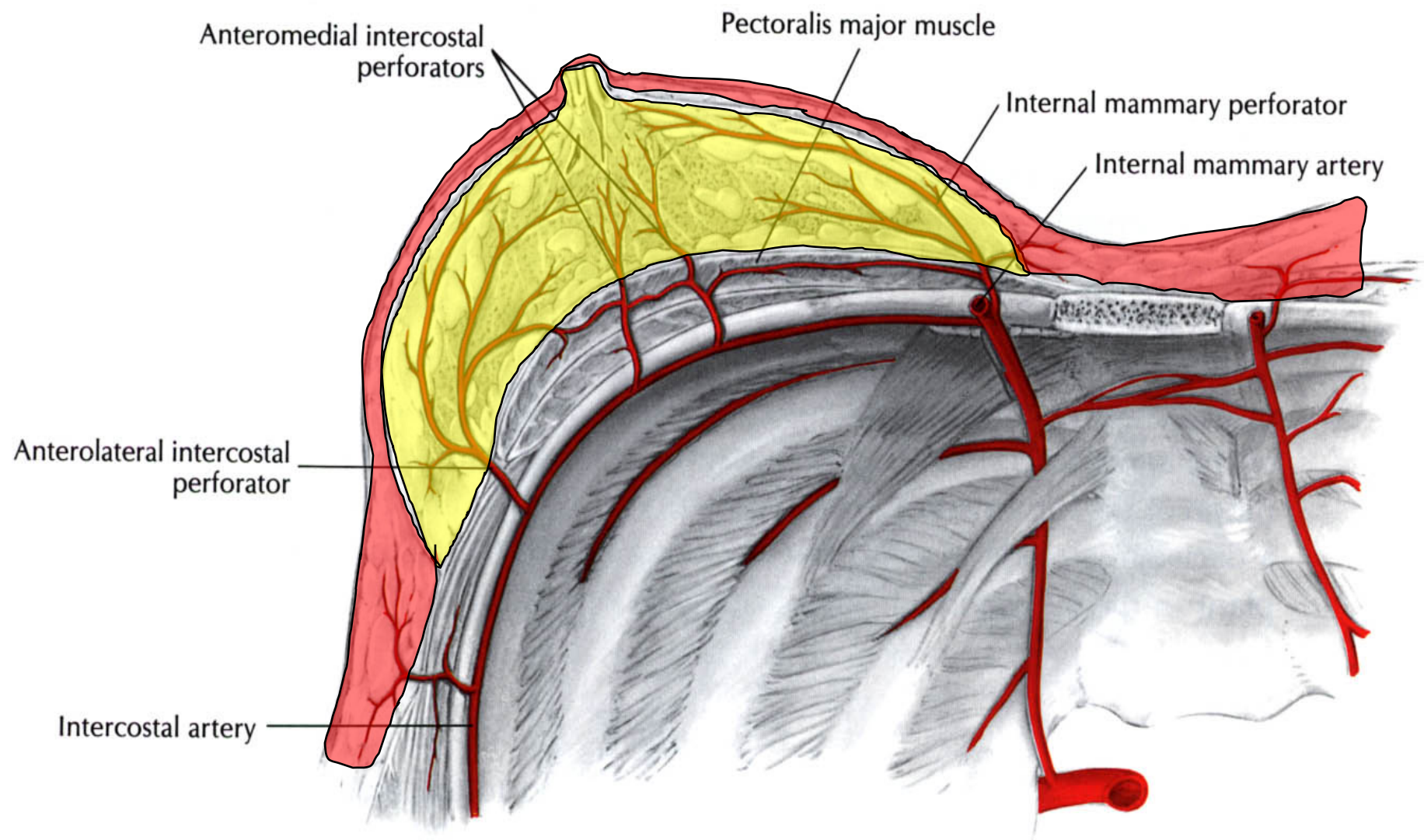
Anterolateral
intercostal perforator

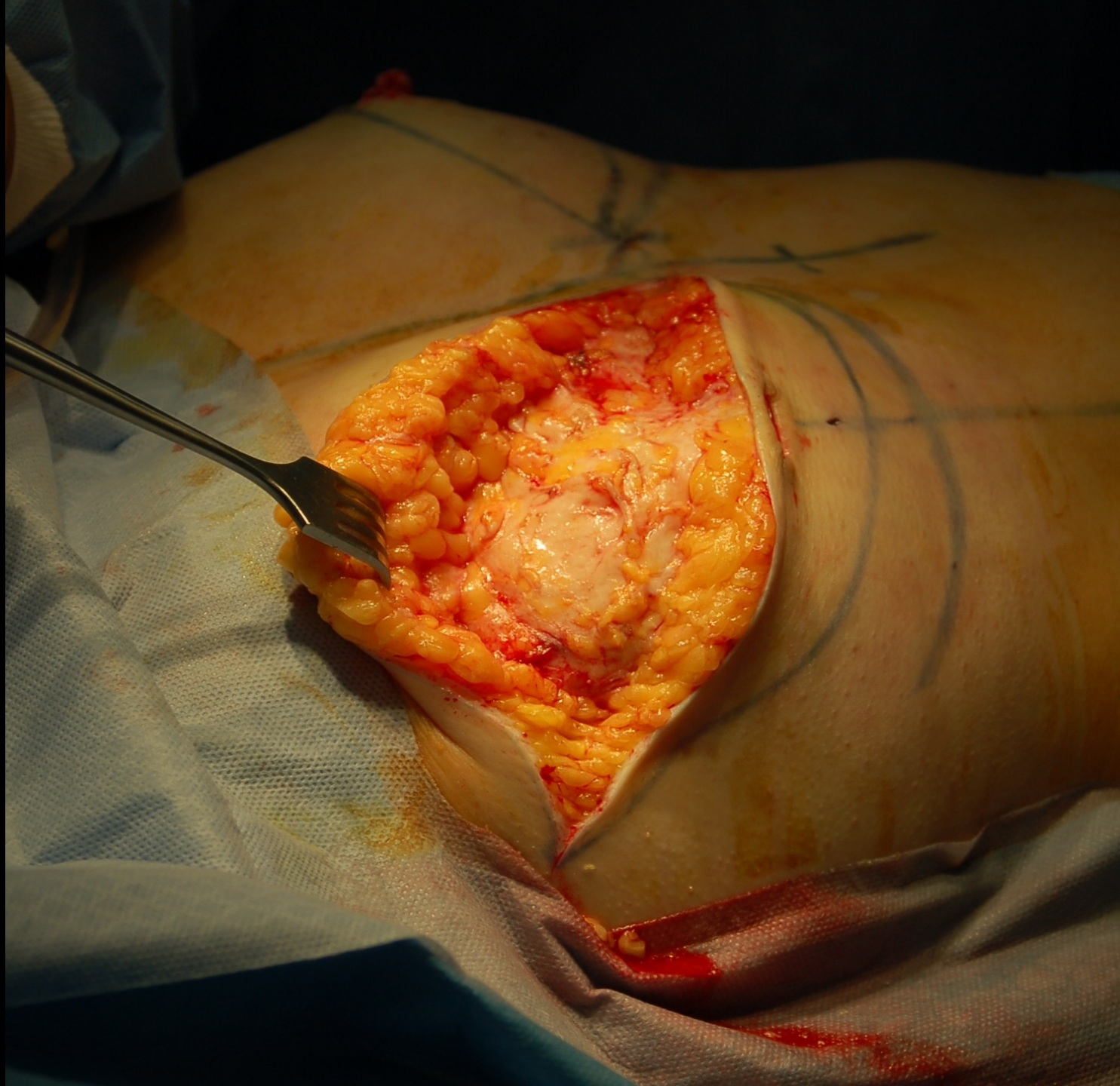
Second internal
mammary perforator

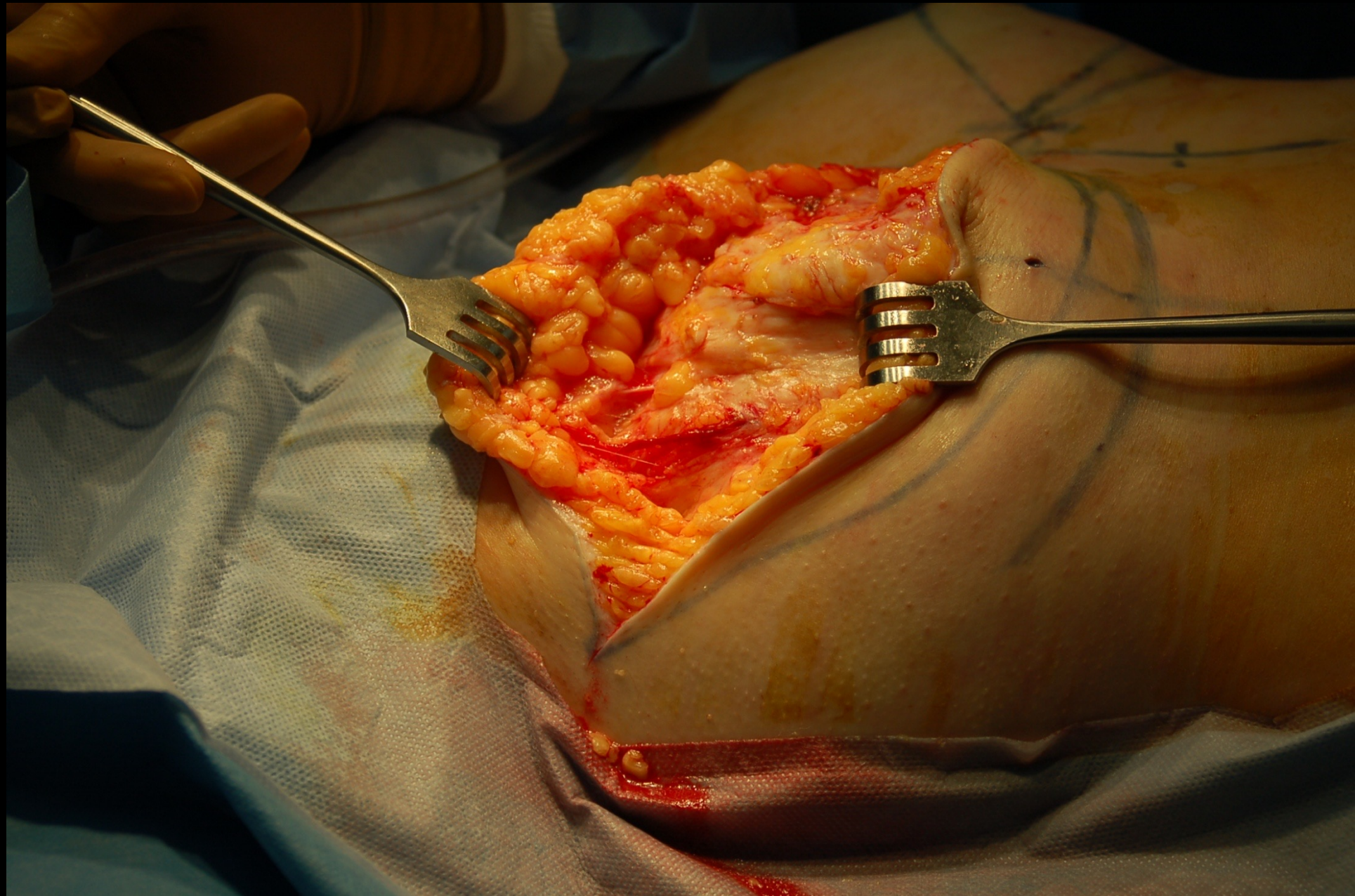
Internal mammary
perforator

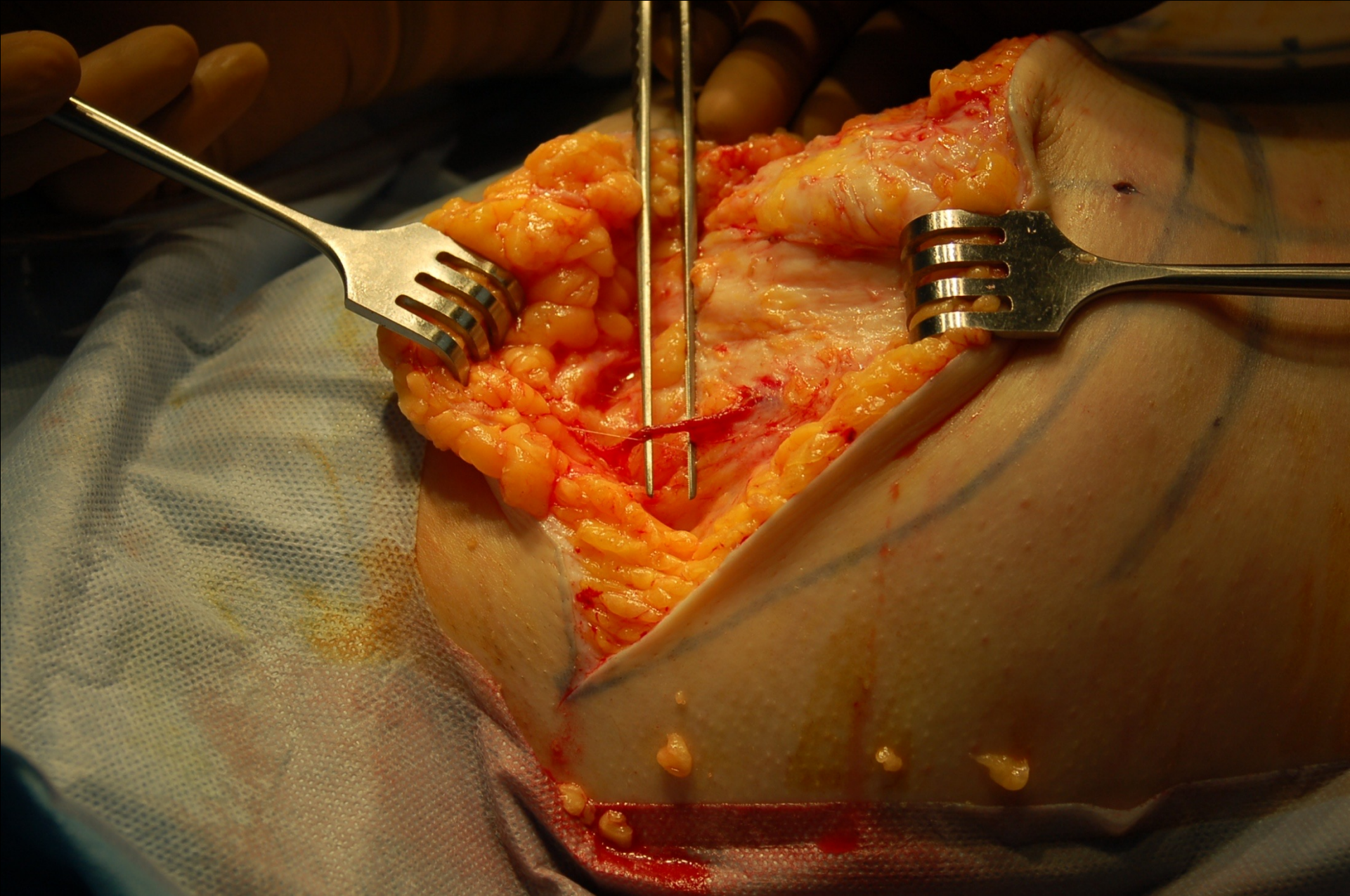
Anteromedial
intercostal perforator

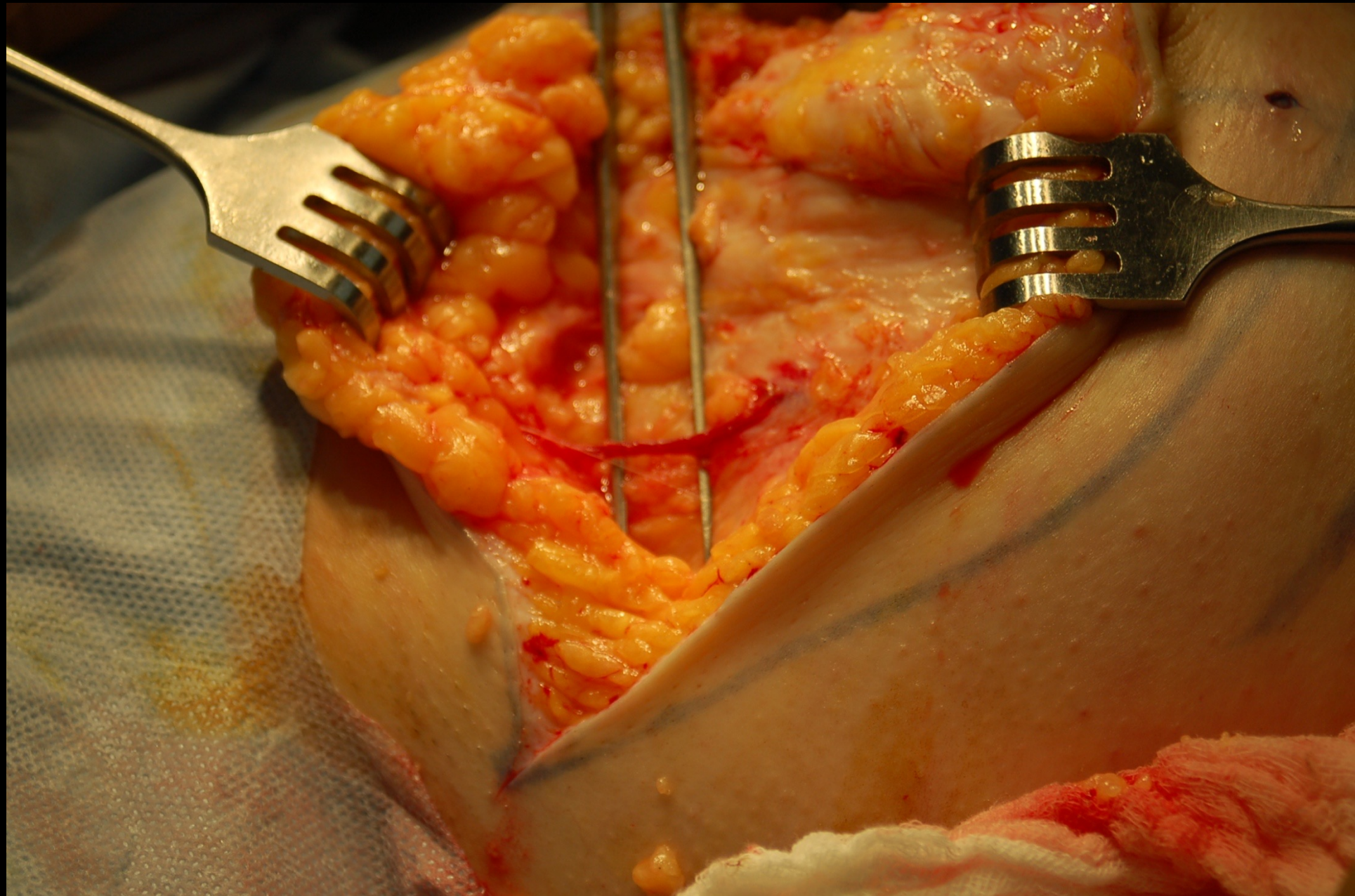


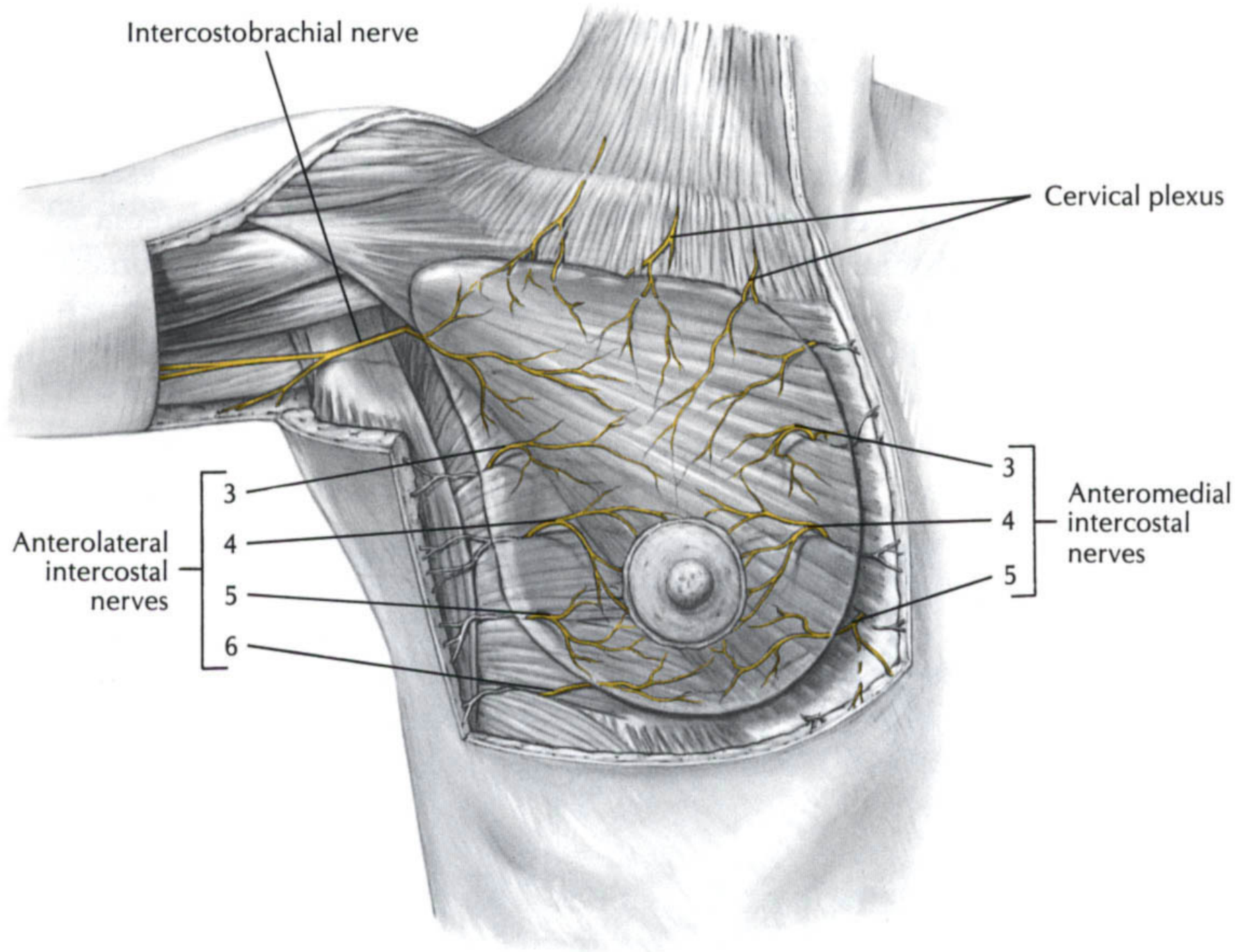












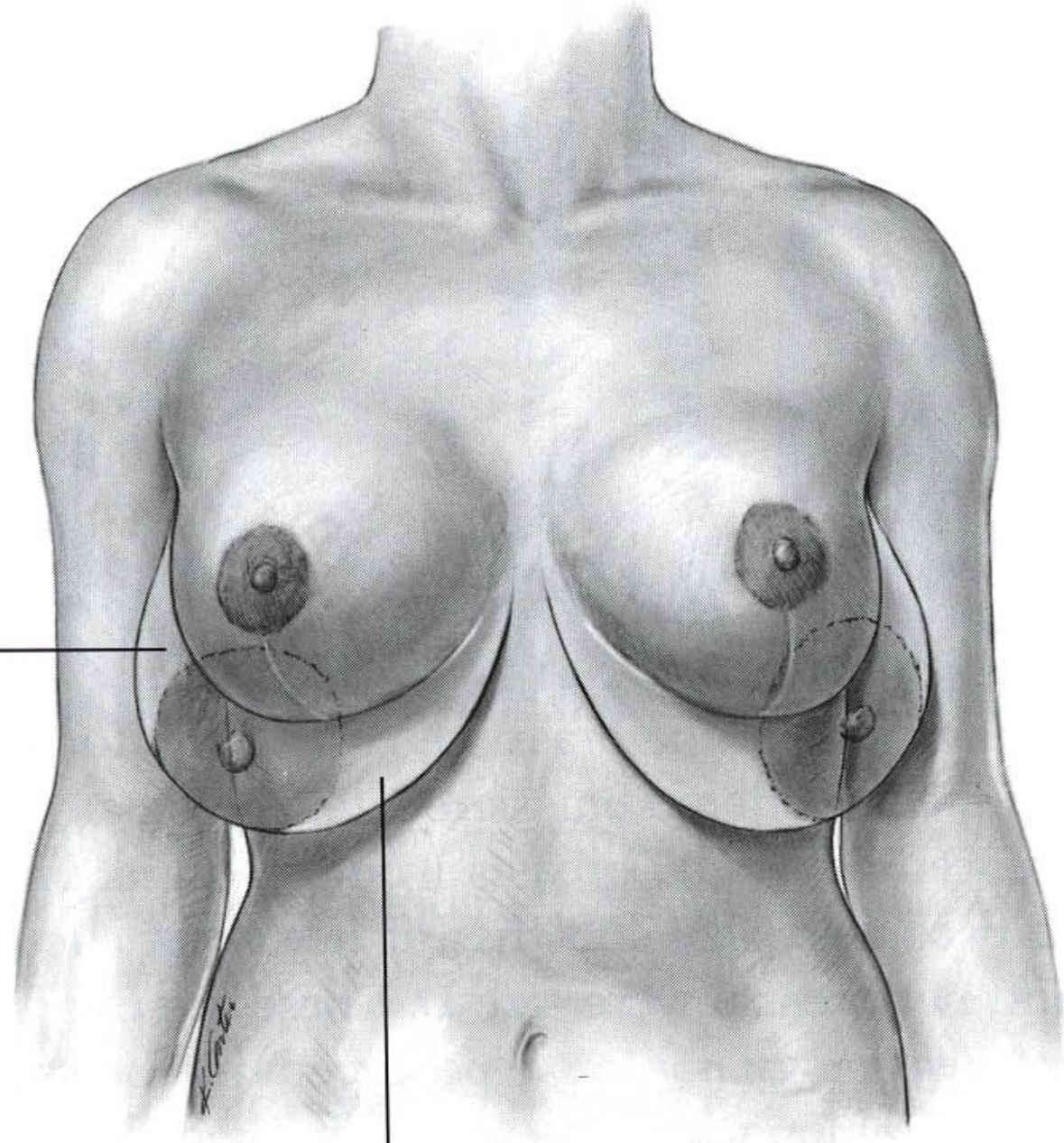
Breast Reduction Practical Anatomy

- **Superiorly based pedicle**
- **Inferiorly based pedicle**
- **Vertical bipedicle (McKissock)**
- **Free nipple graft**

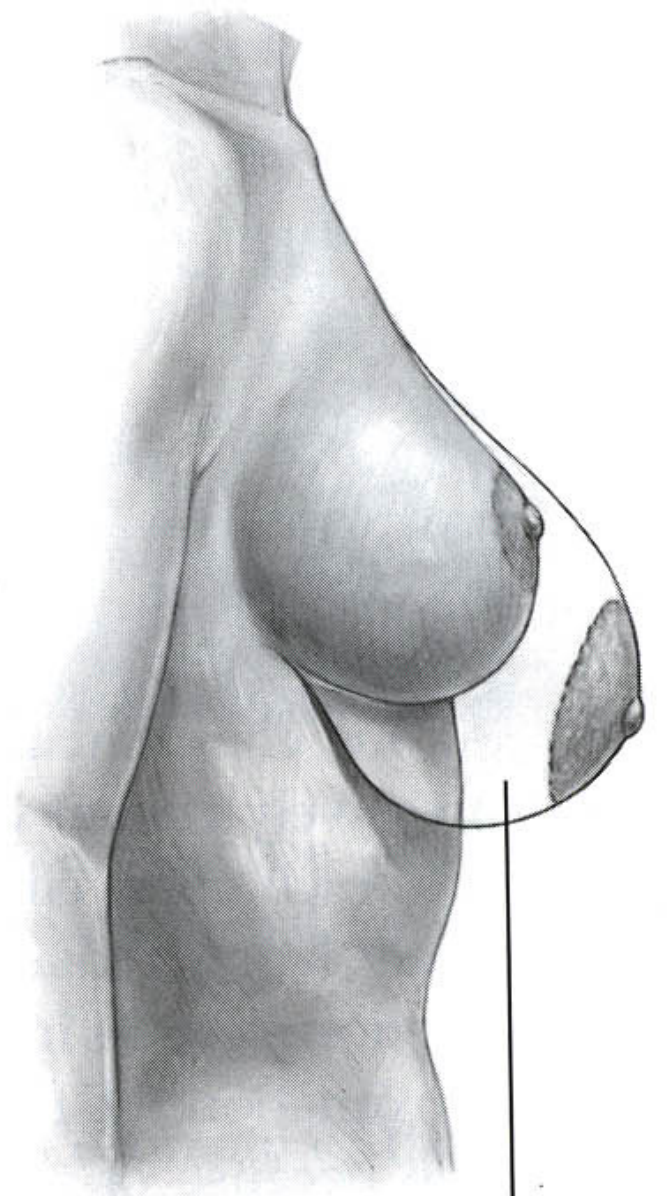
Breast Reduction Goals

- **Reposition the nipple**
- **Reduce skin envelope**
- **Improve symmetry**
- **Improve breast shape**
- **Reduce breast mass**

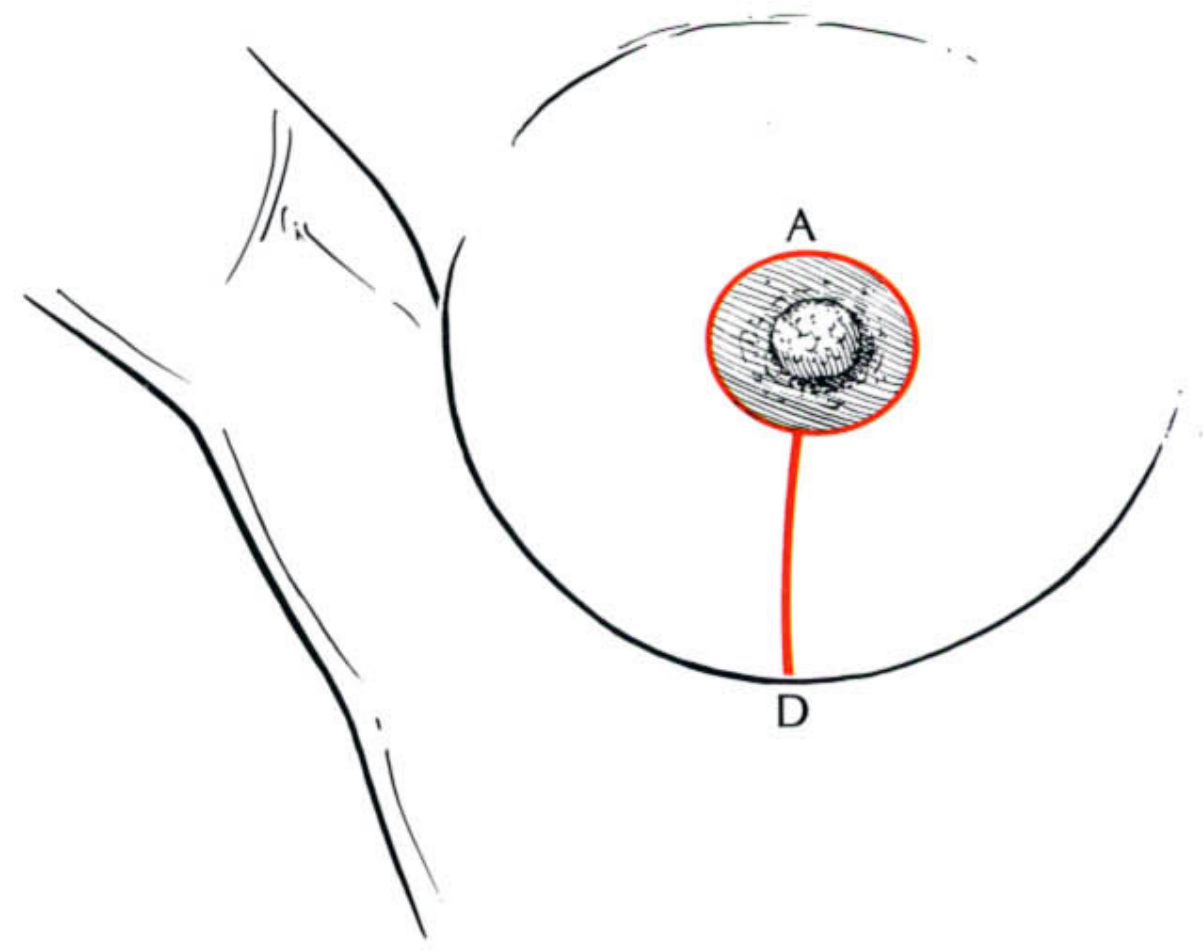
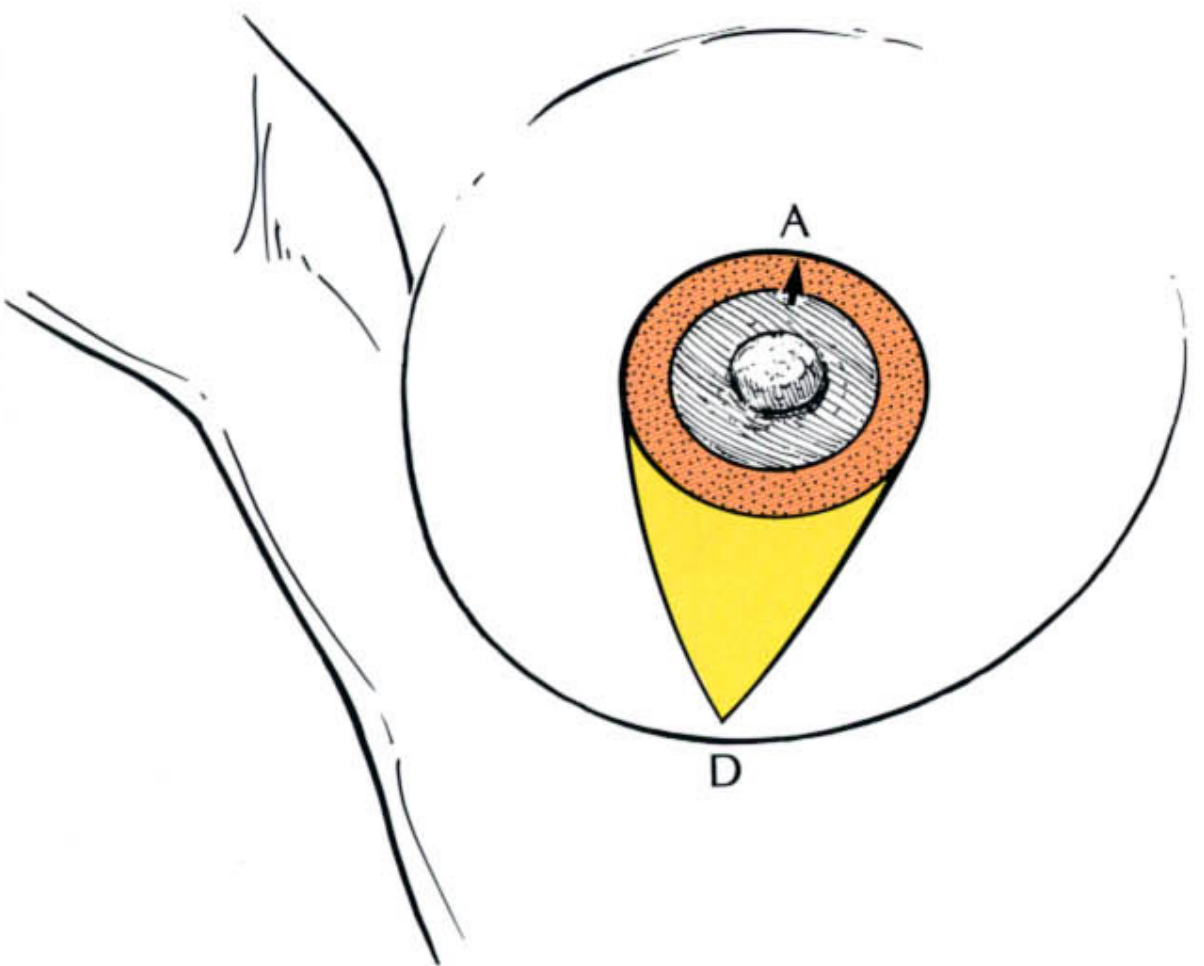
Lateral
resection

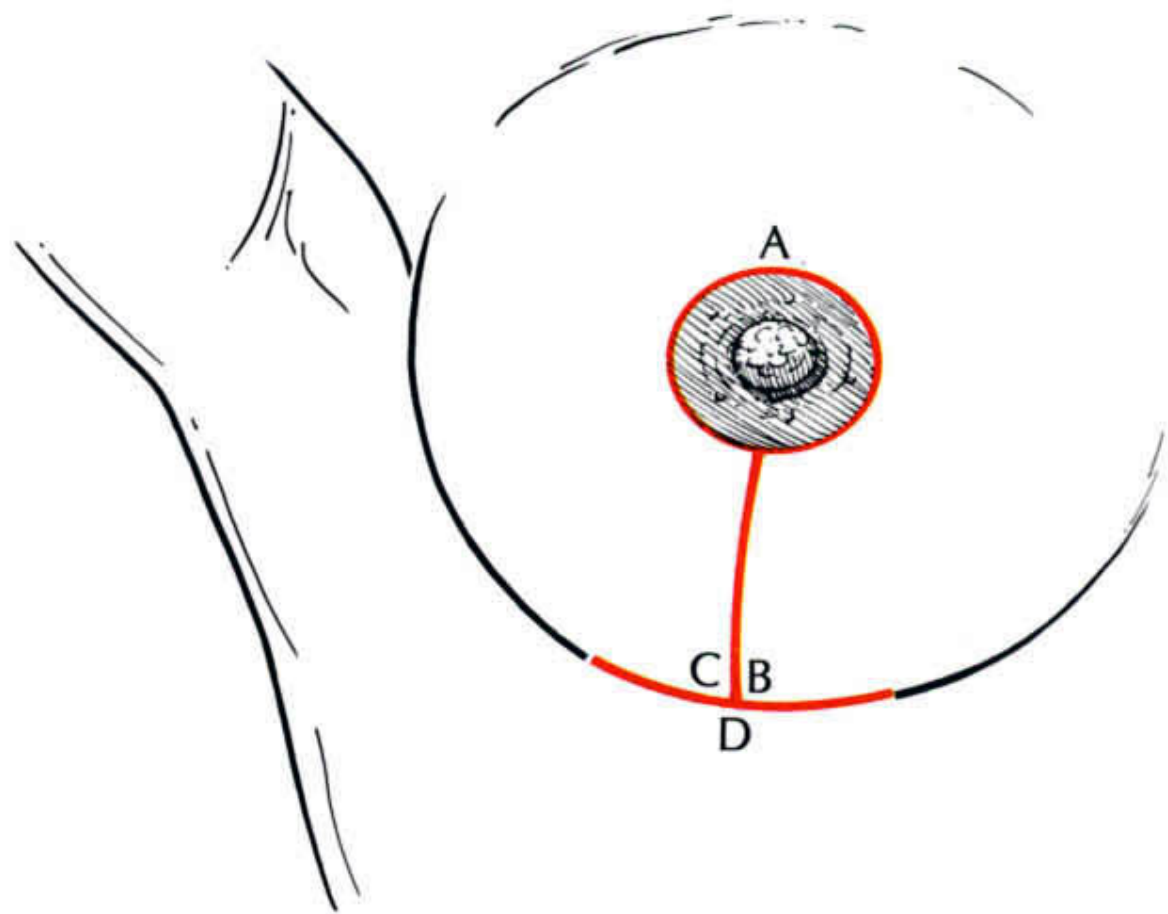
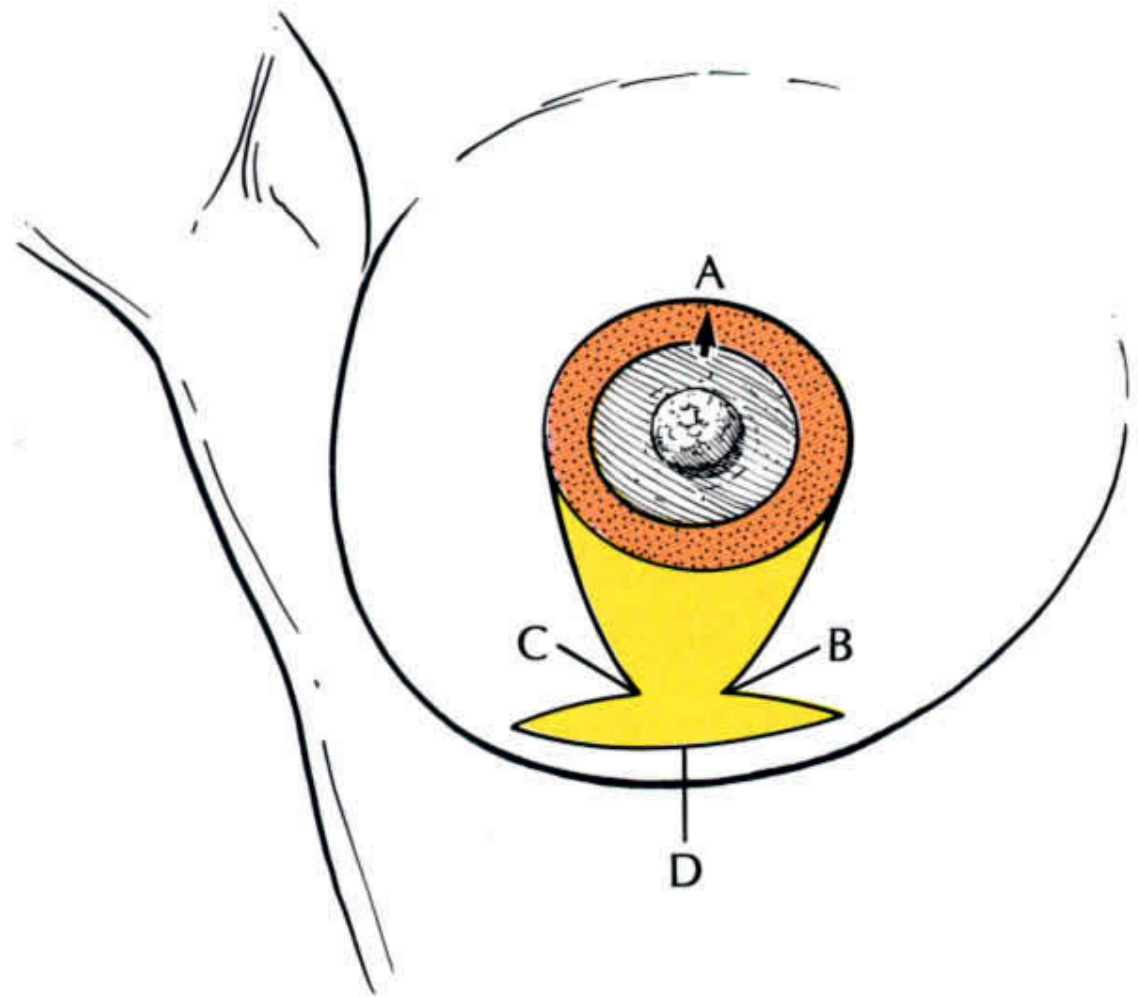


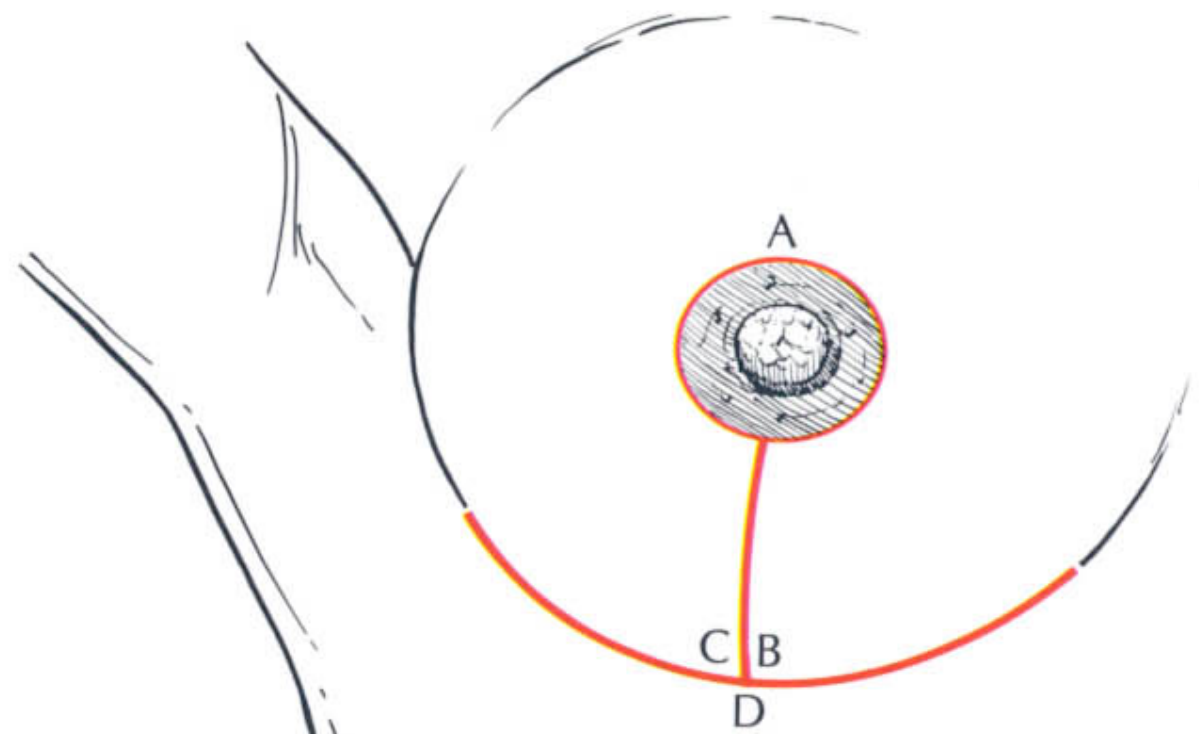
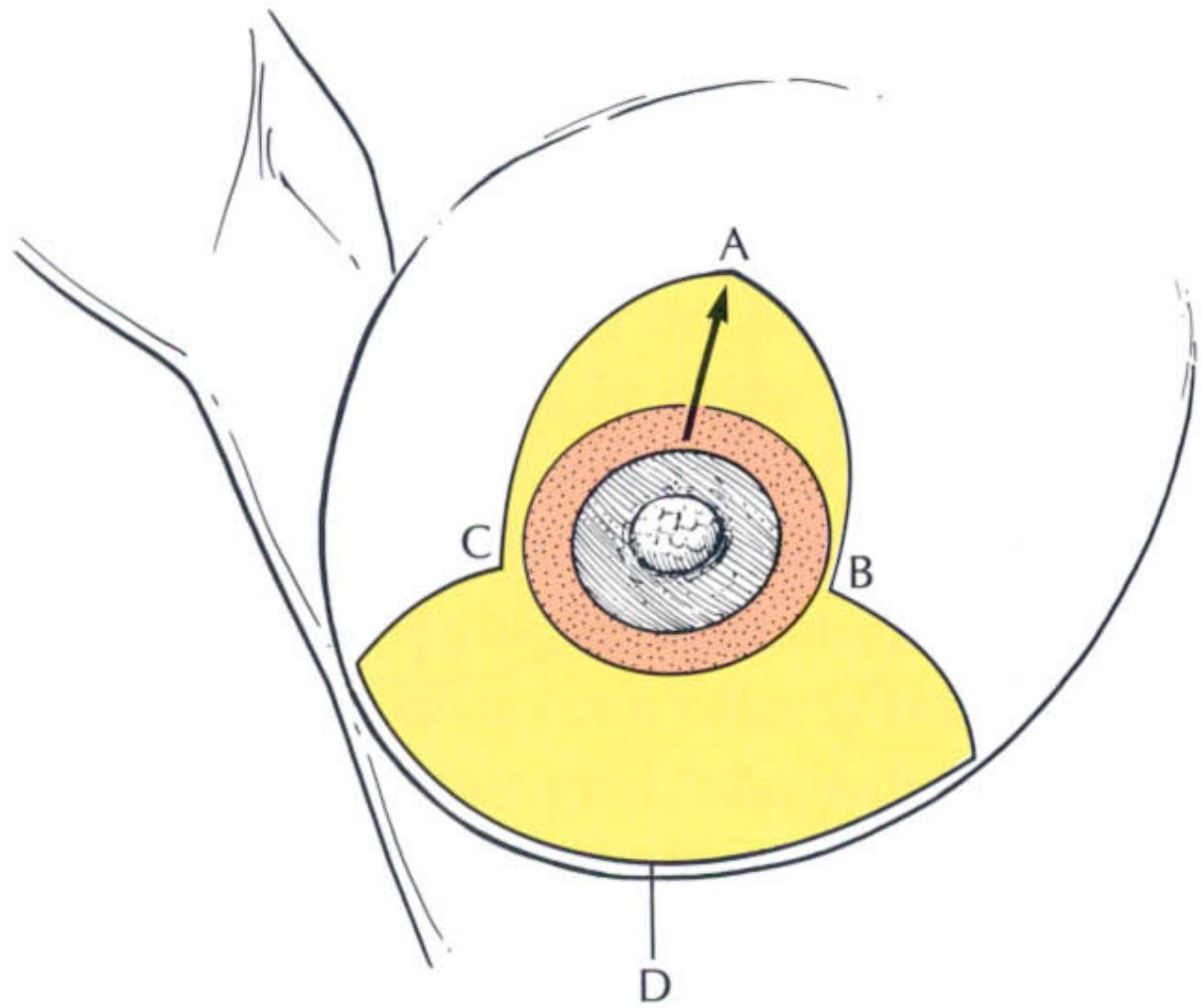
Lower resection



Lower resection





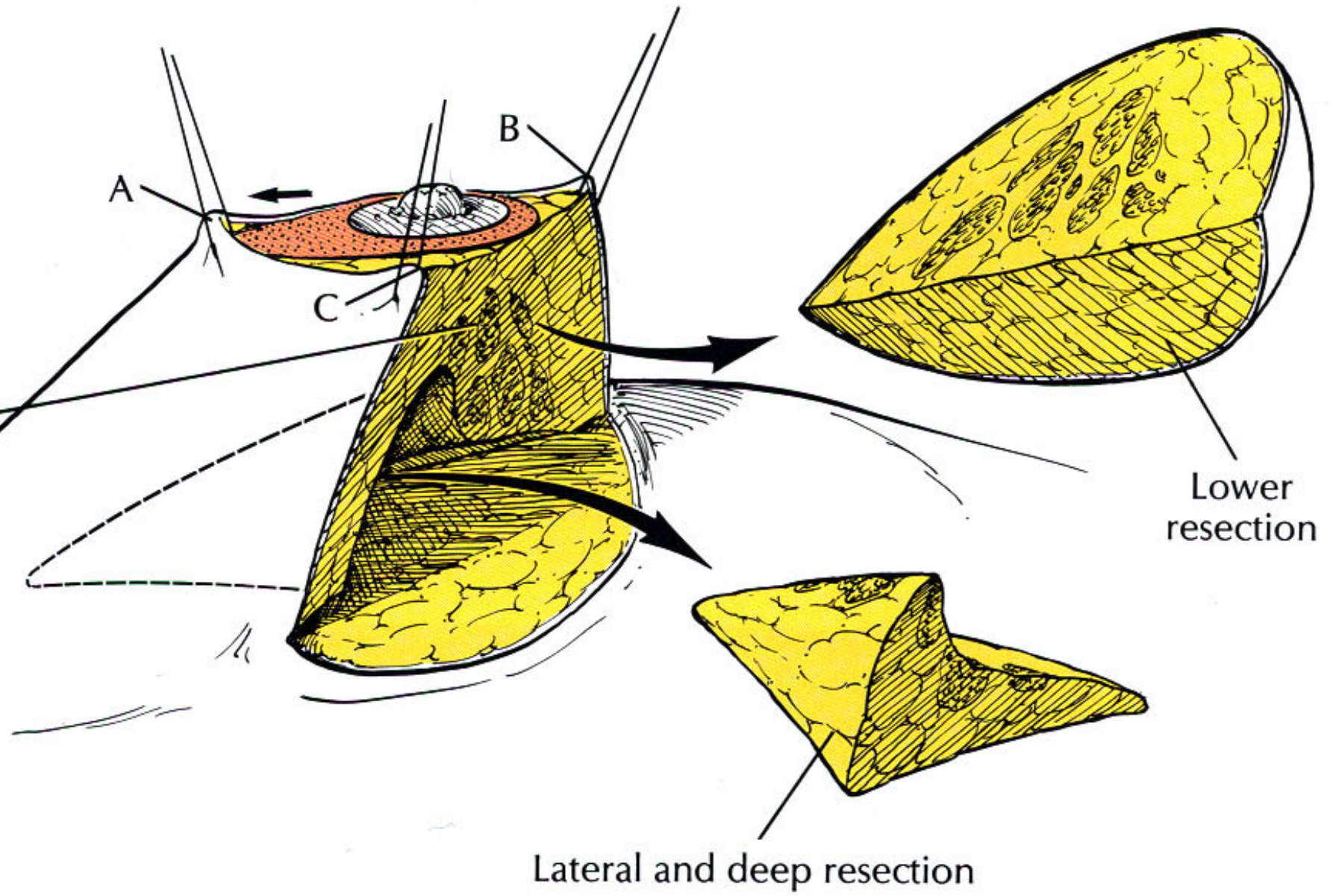


Breast Reduction

Superior Pedicle

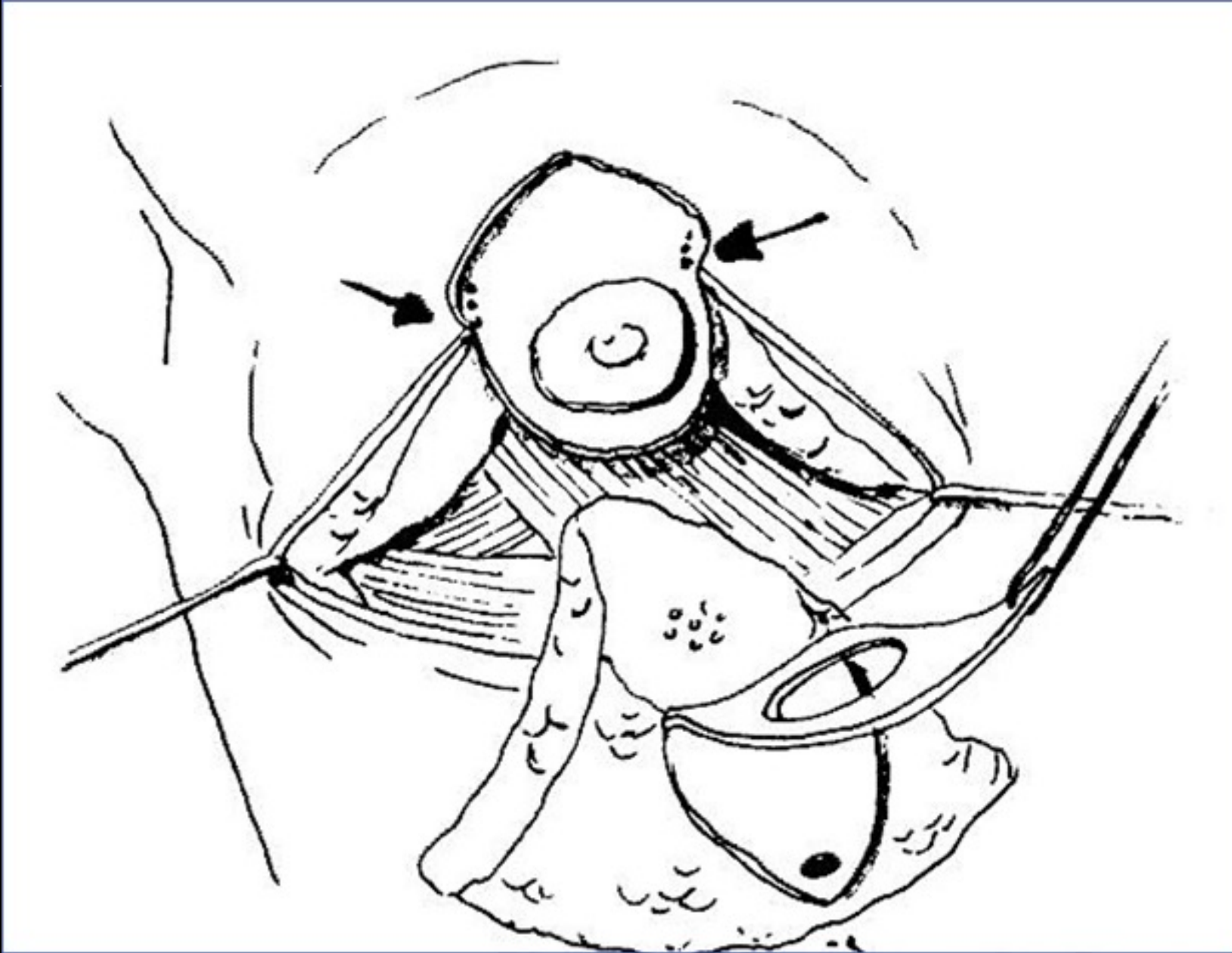
- **Suited for smaller reductions**
- **Inferior breast resected**
- **Nipple movement restricted < 7 cm**

Parenchymal
base for nipple



Lower
resection

Lateral and deep resection

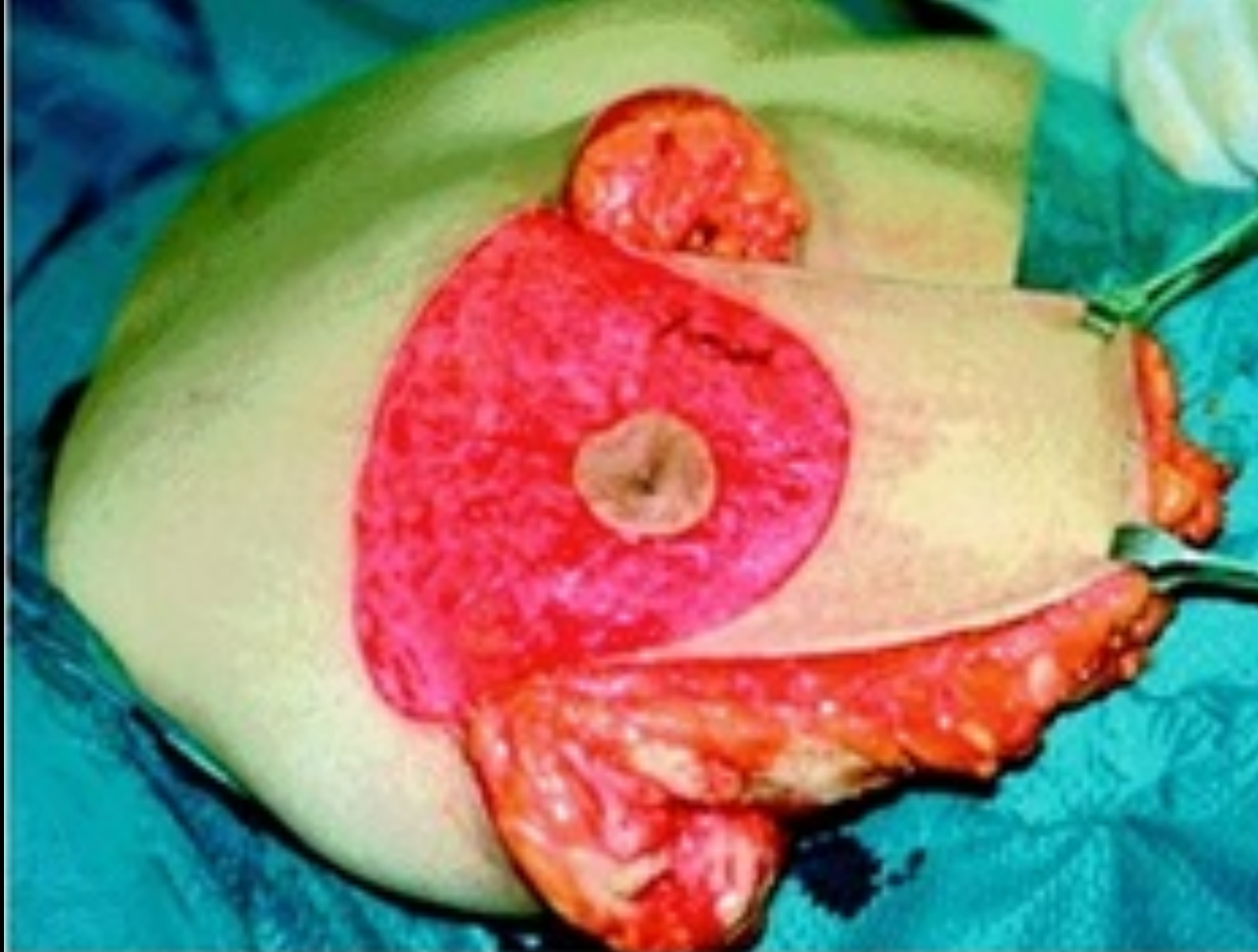


Lejour, Madeleine

Plastic and Reconstructive Surgery. 101(4):1149,1150, April 1998.







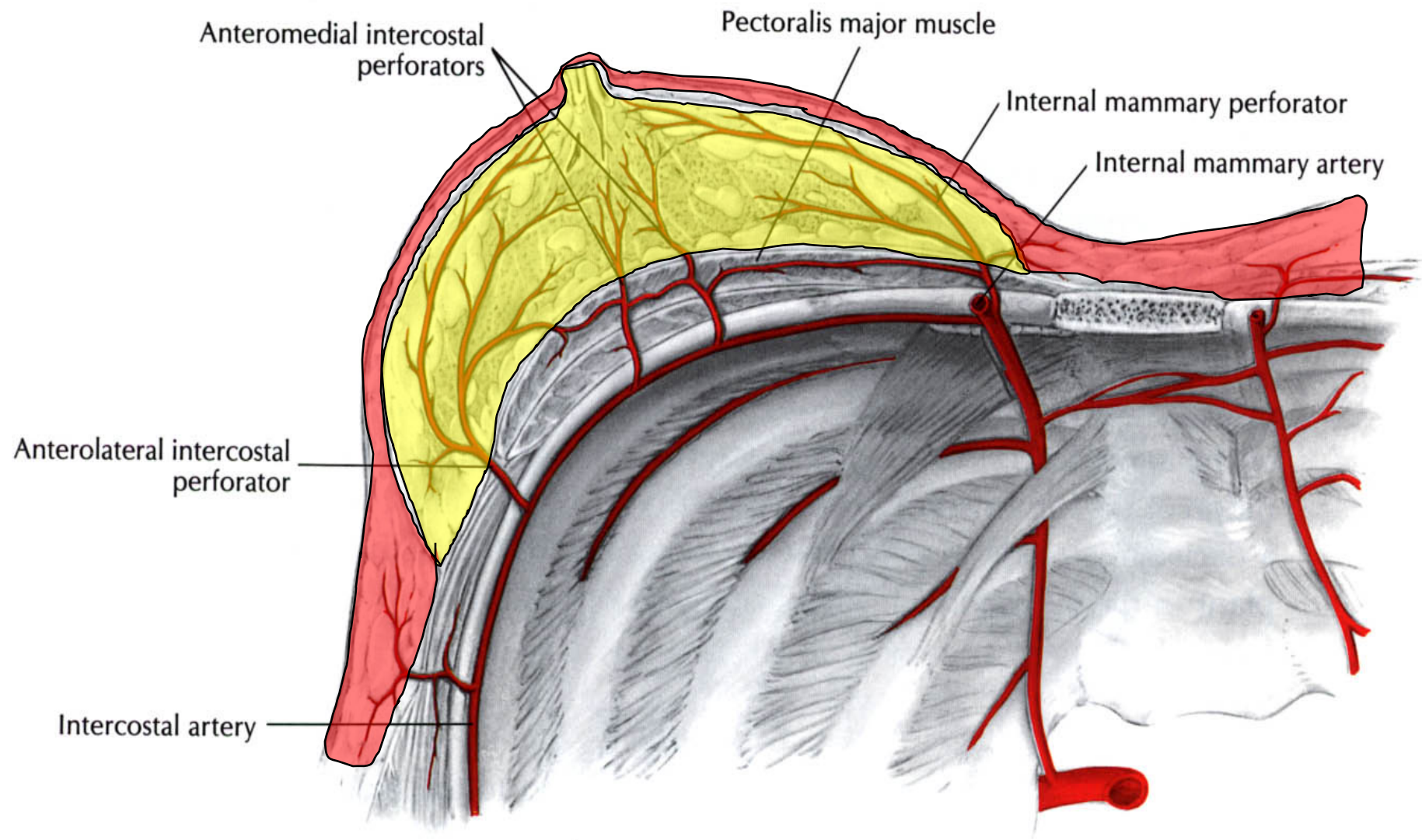


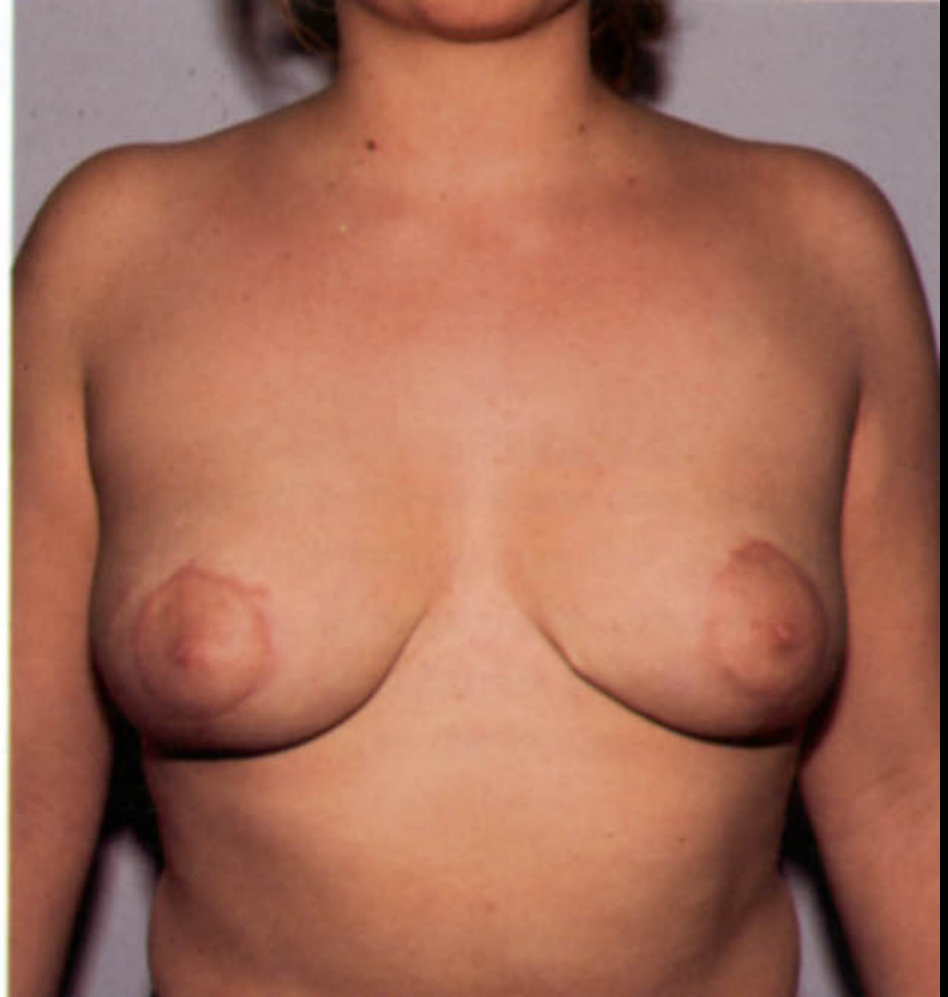






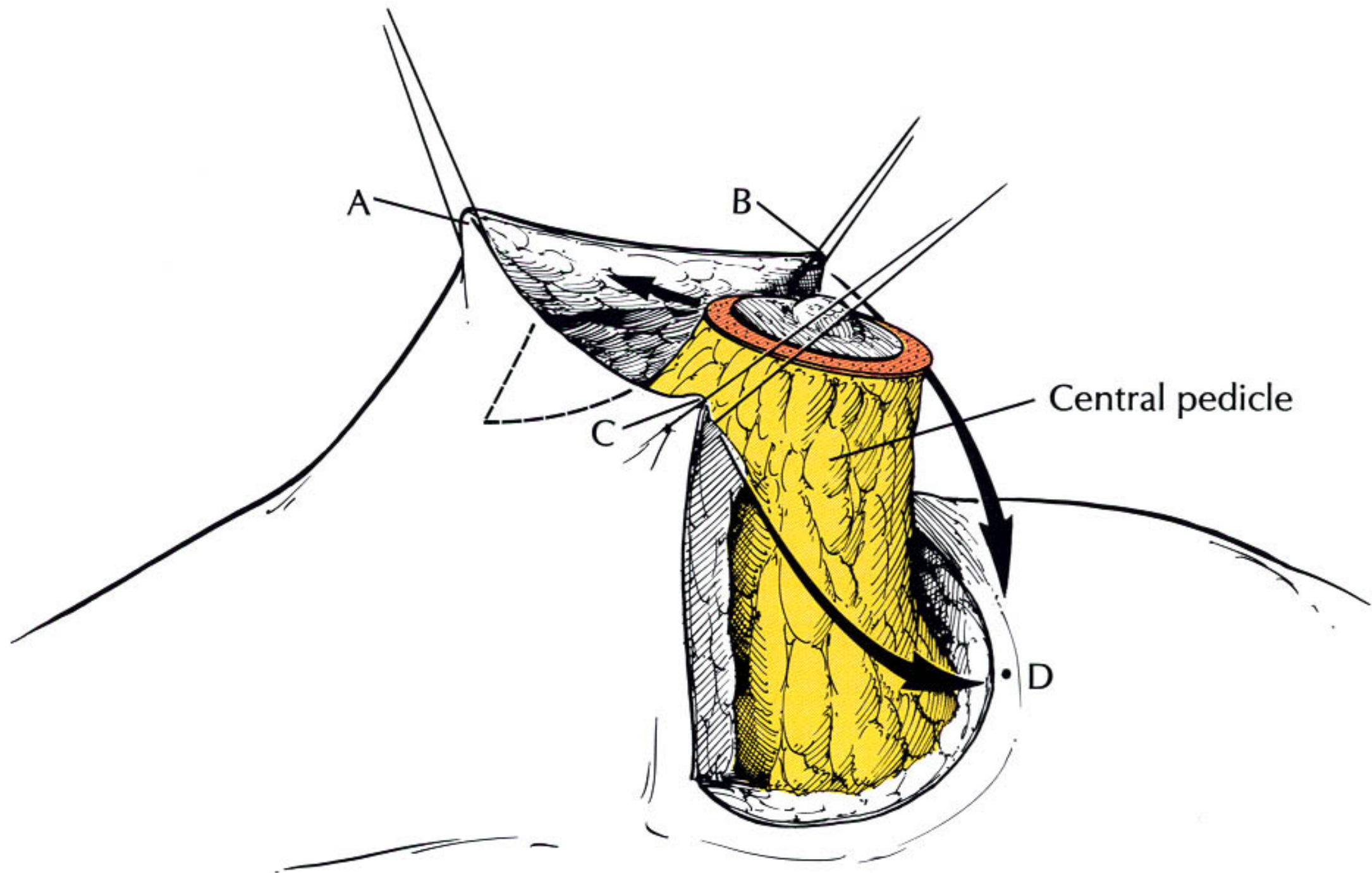


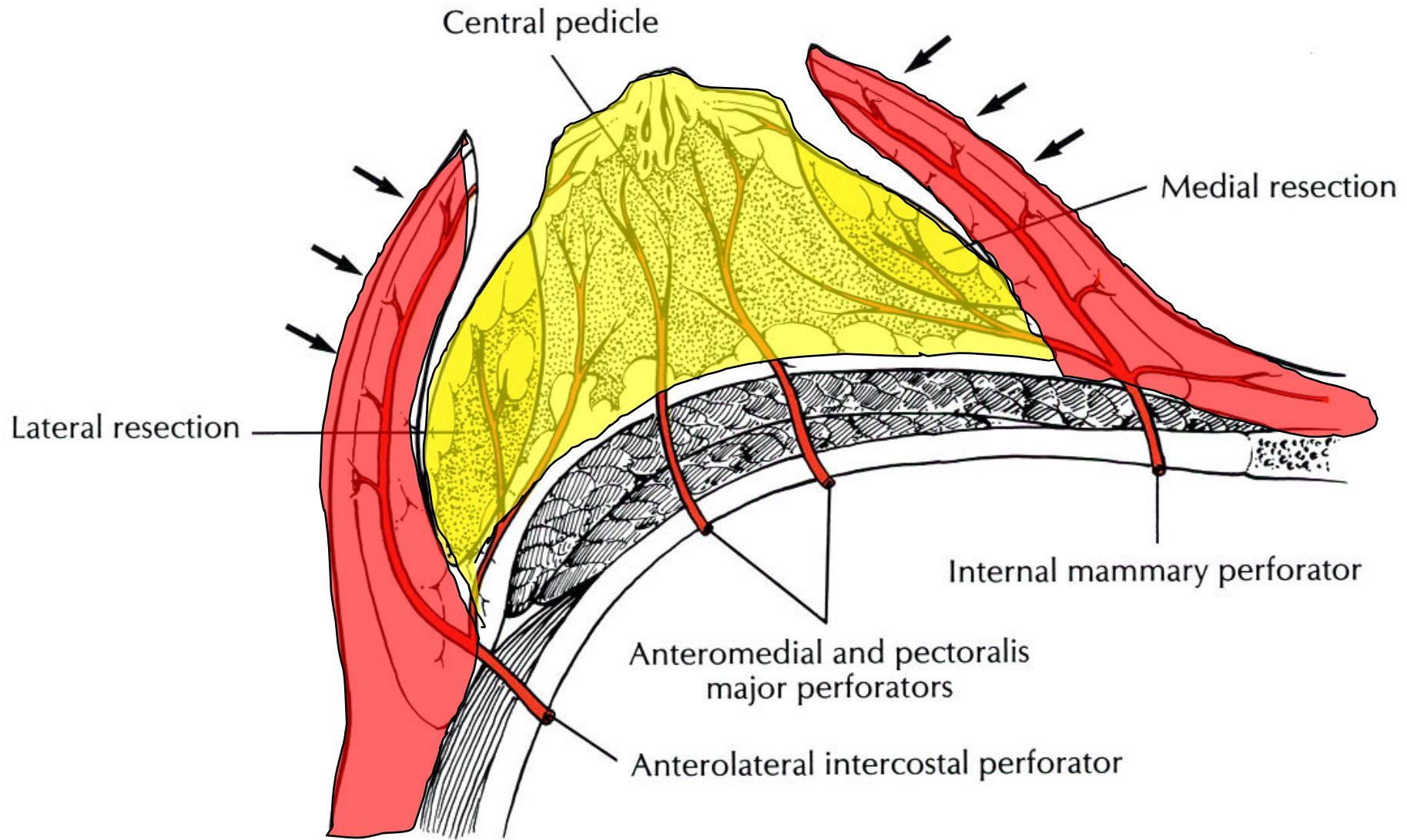


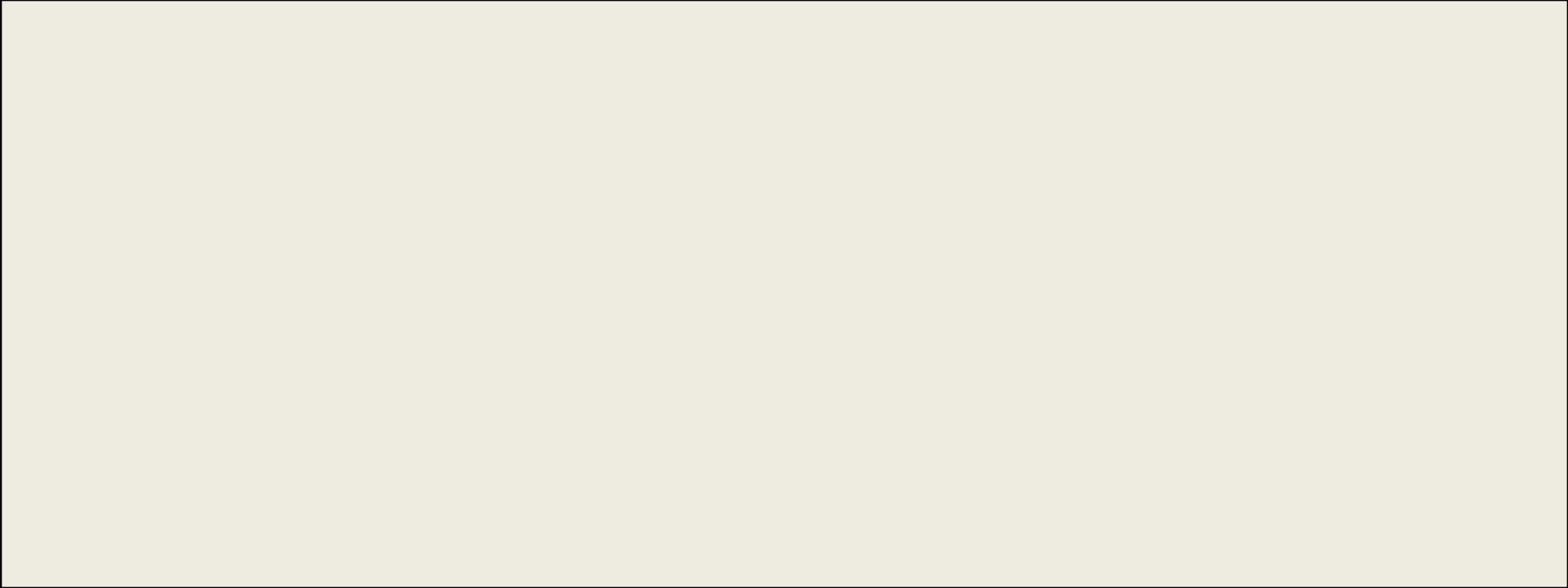


Breast Reduction Inferior/Central Pedicle

- Suited for larger reductions
- Superior breast resected
- Nipple movement > 7 cm
- Lactation preserved







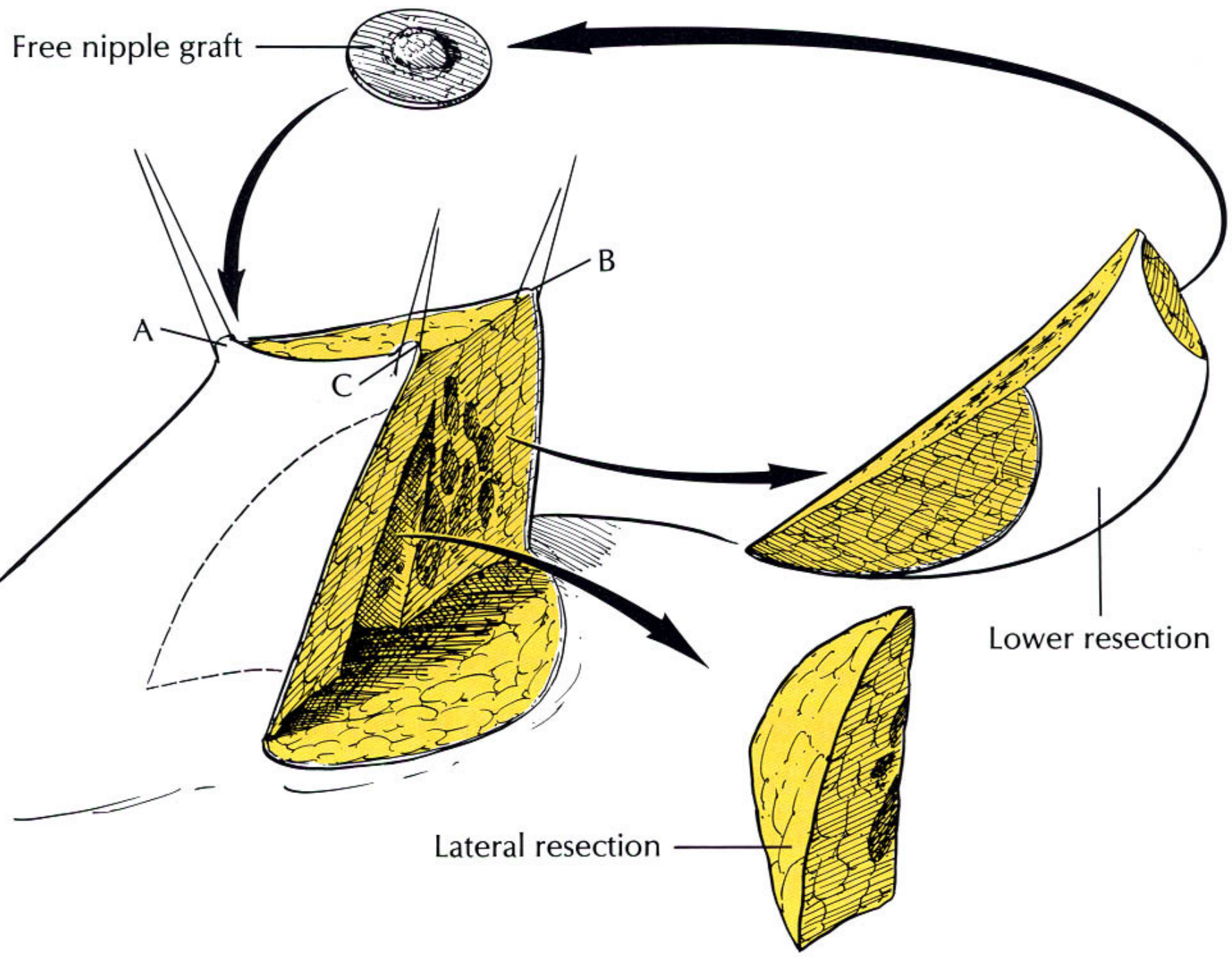




Breast Reduction

Free Nipple Graft

- **Suited for gigantic reductions**
- **Suited when nipple viability is in question**
- **Detach NAC and skin graft to new position**
- **Lactation NOT preserved**



Free nipple graft

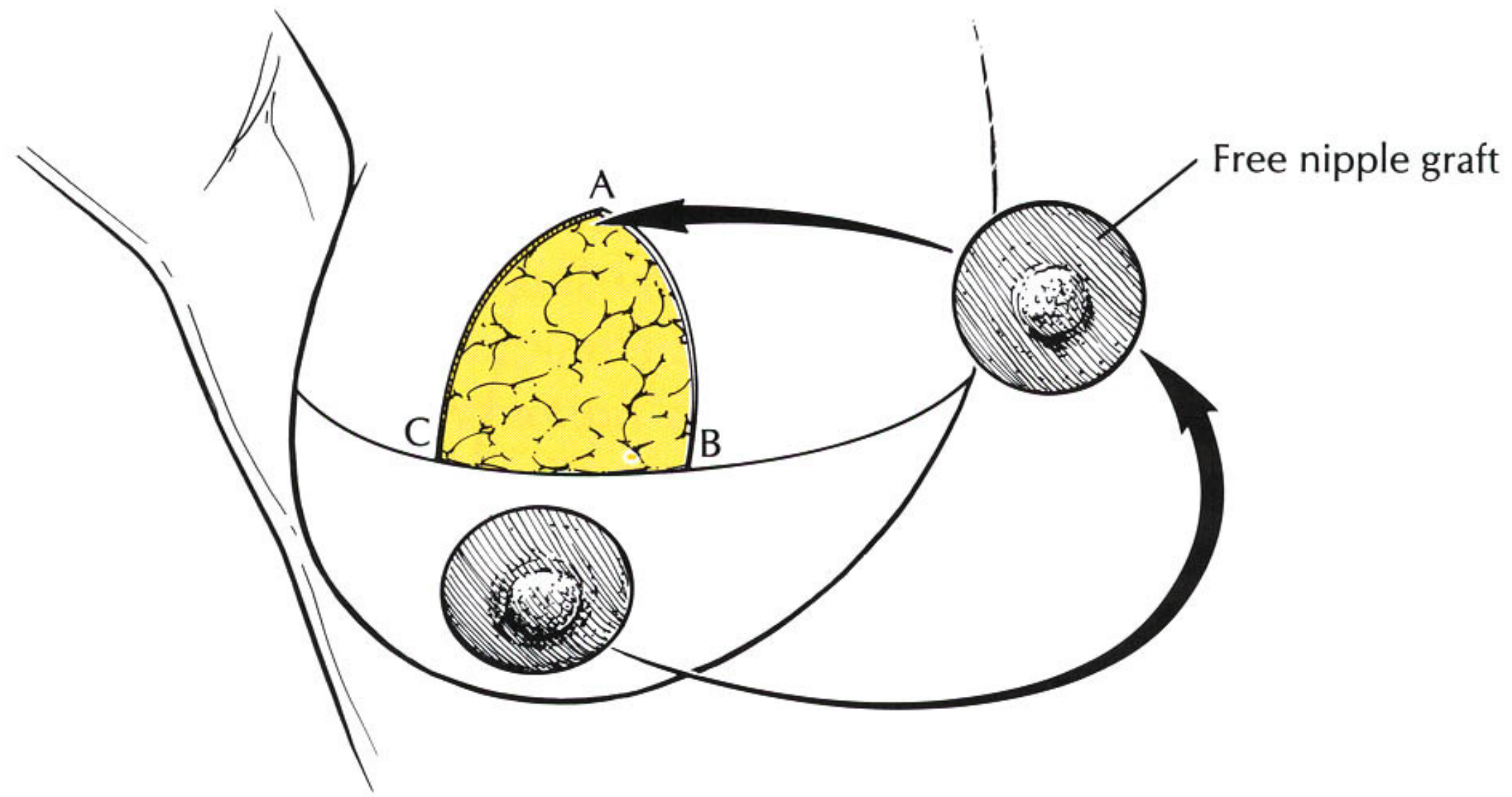
A

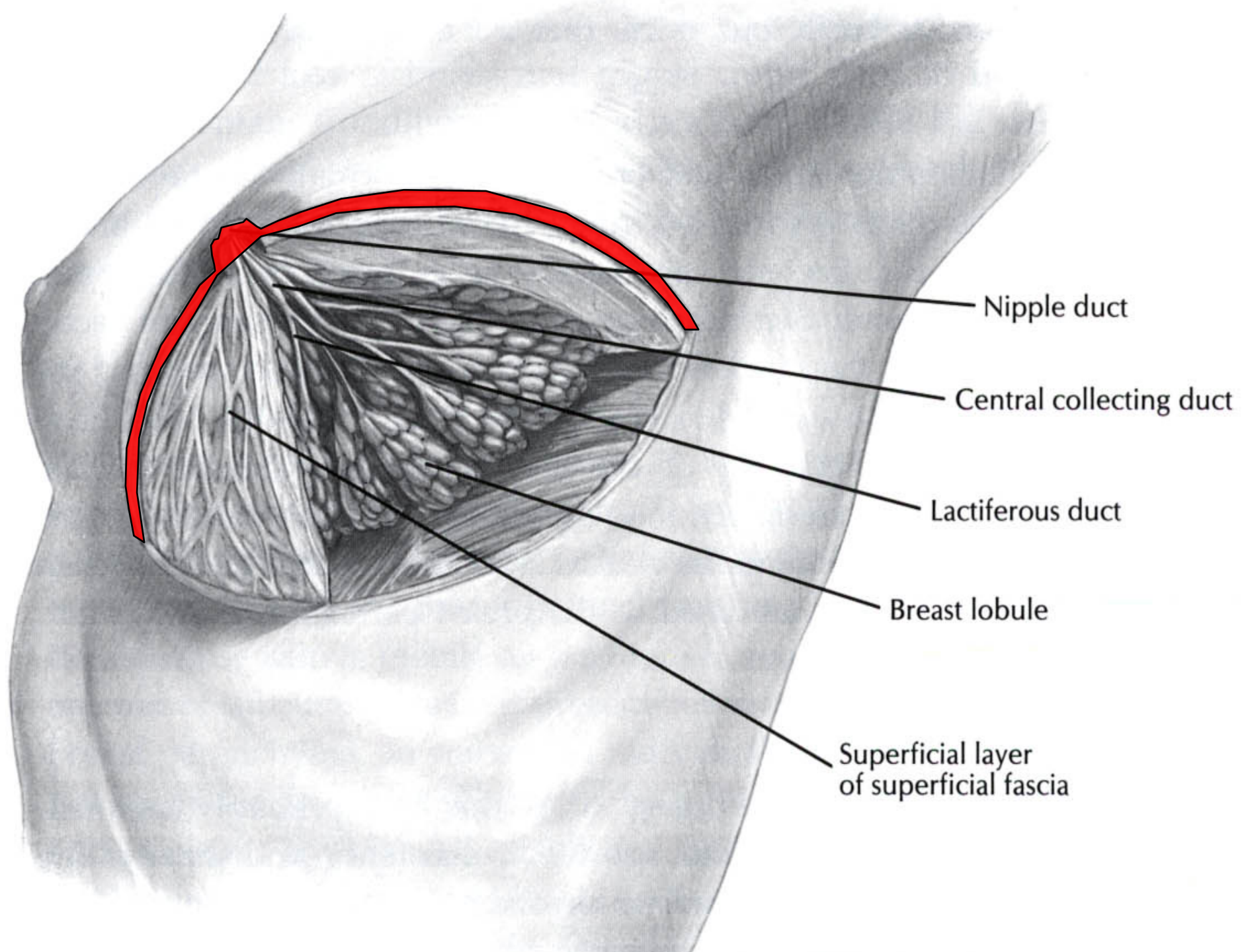
B

C

Lower resection

Lateral resection





Augmentation/Mastopexy

Conflicting Goals

- **Breast augmentation**
 - Enlarge & fill skin envelope
- **Mastopexy**
 - Reposition the nipple
 - Reduce skin envelope
 - Reshape parenchyma
 - Correct asymmetry
 - Improve breast shape
 - Is a temporary result
- **Mastopexy + augmentation**
 - Ideally, implant fills out most of the available skin
 - Enough excess skin to reshape breast and reposition the nipple.

Unpredictable Variables

Late Changes

- **Augmentation**
 - Implant settles inferiorly
 - Contracture displaces implant superiorly
- **Mastopexy**
 - Continued nipple ptosis
 - Glandular bottoming out
 - Massive weight loss
- **Staged vs. Combined?**

Evaluation

- **Nipple position**
 - Regnault classification
 - Implants do not lift a breast
 - A low nipple before augmentation, will be low afterwards
 - Trying to fix ptosis with an implant is a mistake
- **Glandular position**
 - How much gland sags below IMF
 - Greater gland sag
 - greater challenge
 - less likely implant will fill skin envelope
 - Double bubble deformity

Breast Ptosis Classification (Regnault)

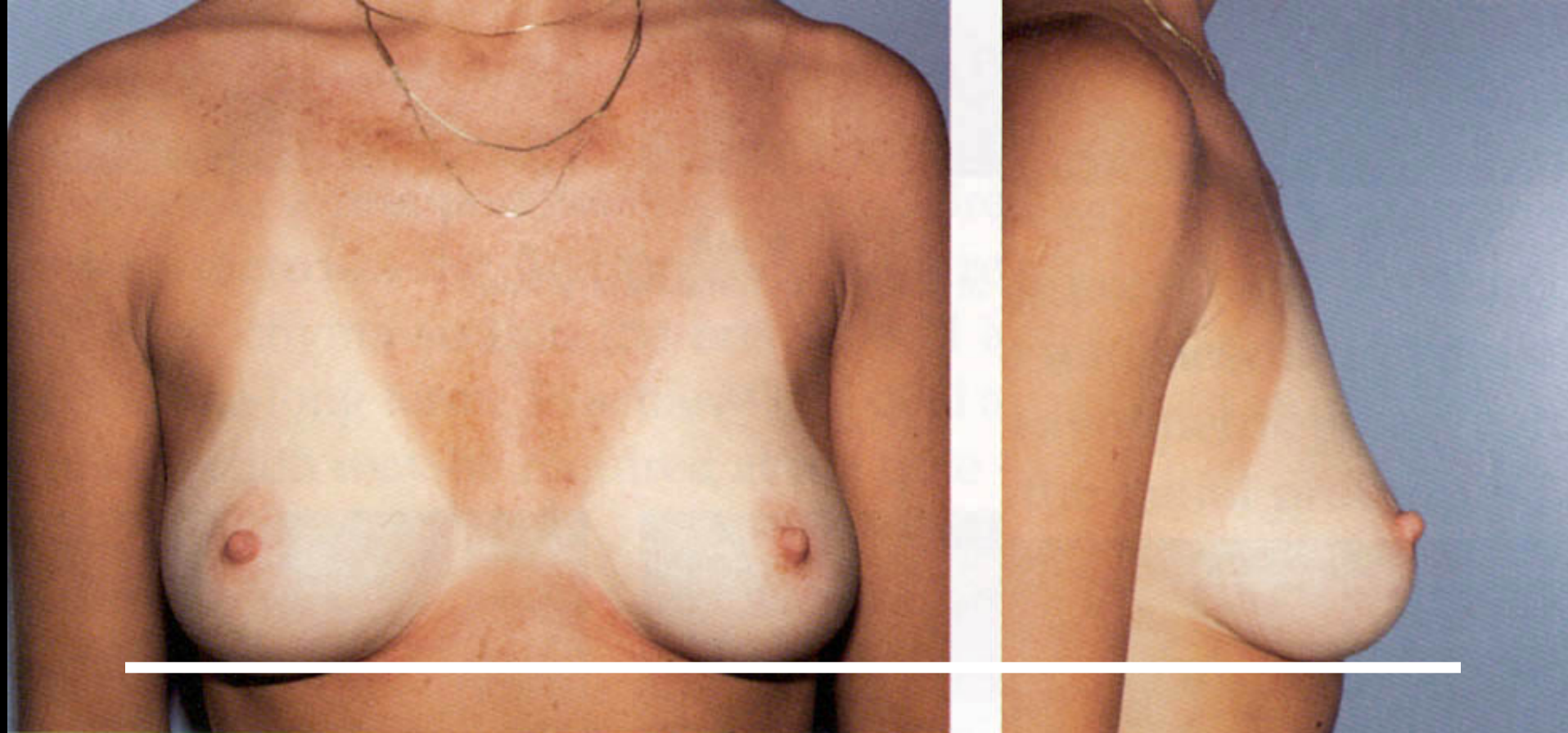
Normal = Nipple above IMF + lower pole at IMF

Pseudoptosis = Nipple above IMF + lower pole below IMF

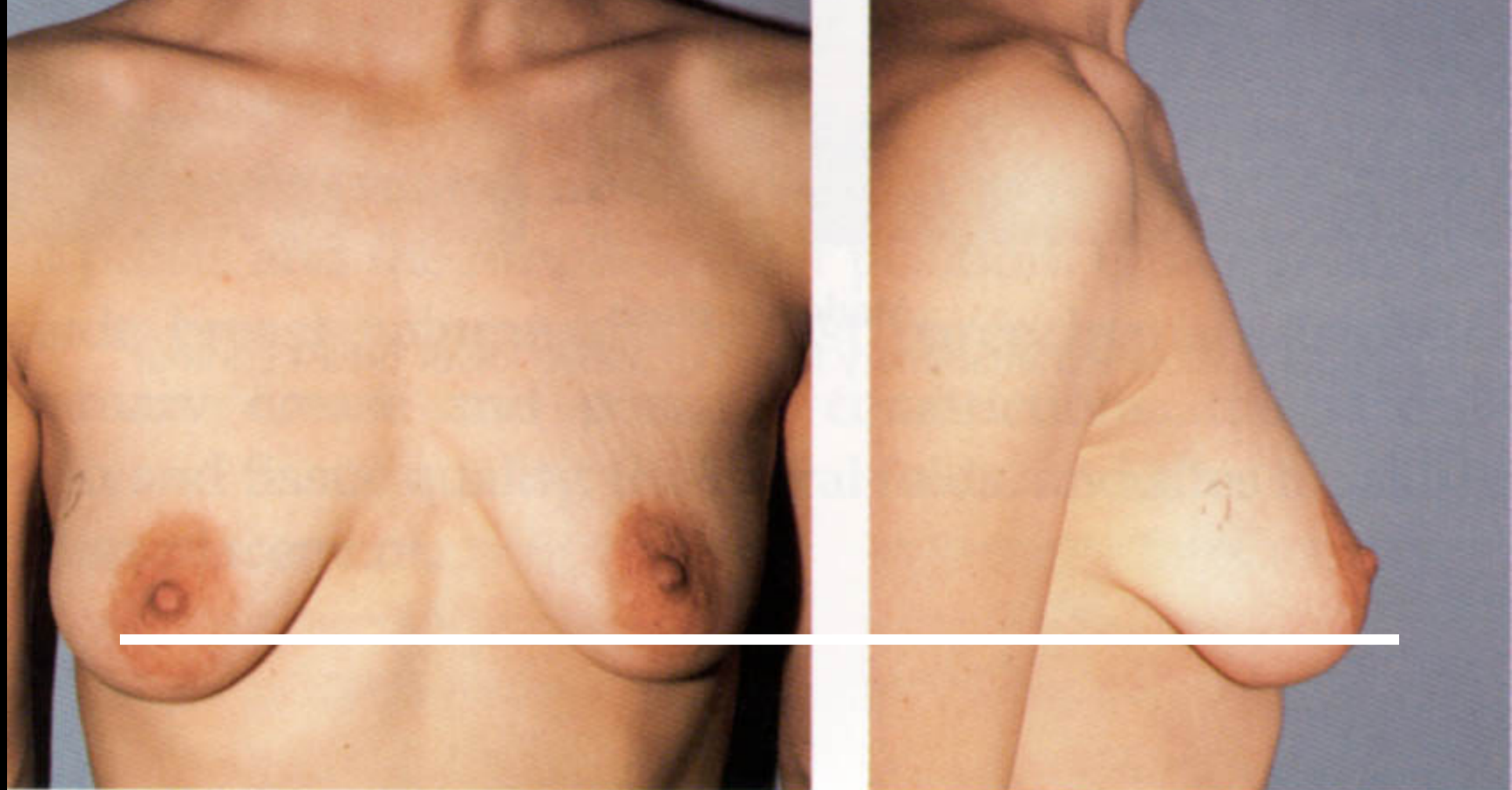
Grade I = Nipple at IMF

Grade II = Nipple below IMF but above lower pole

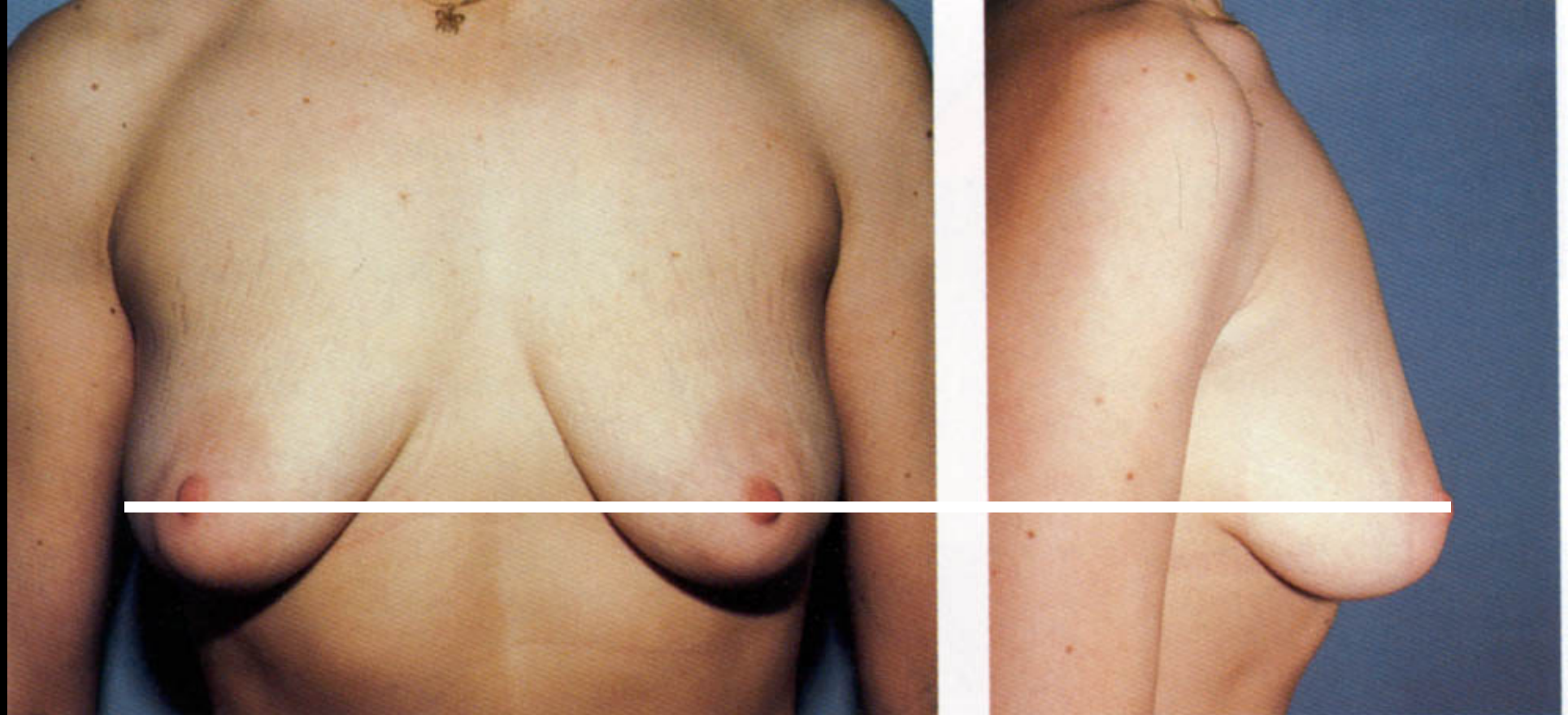
Grade III = Nipple below IMF but below lower pole



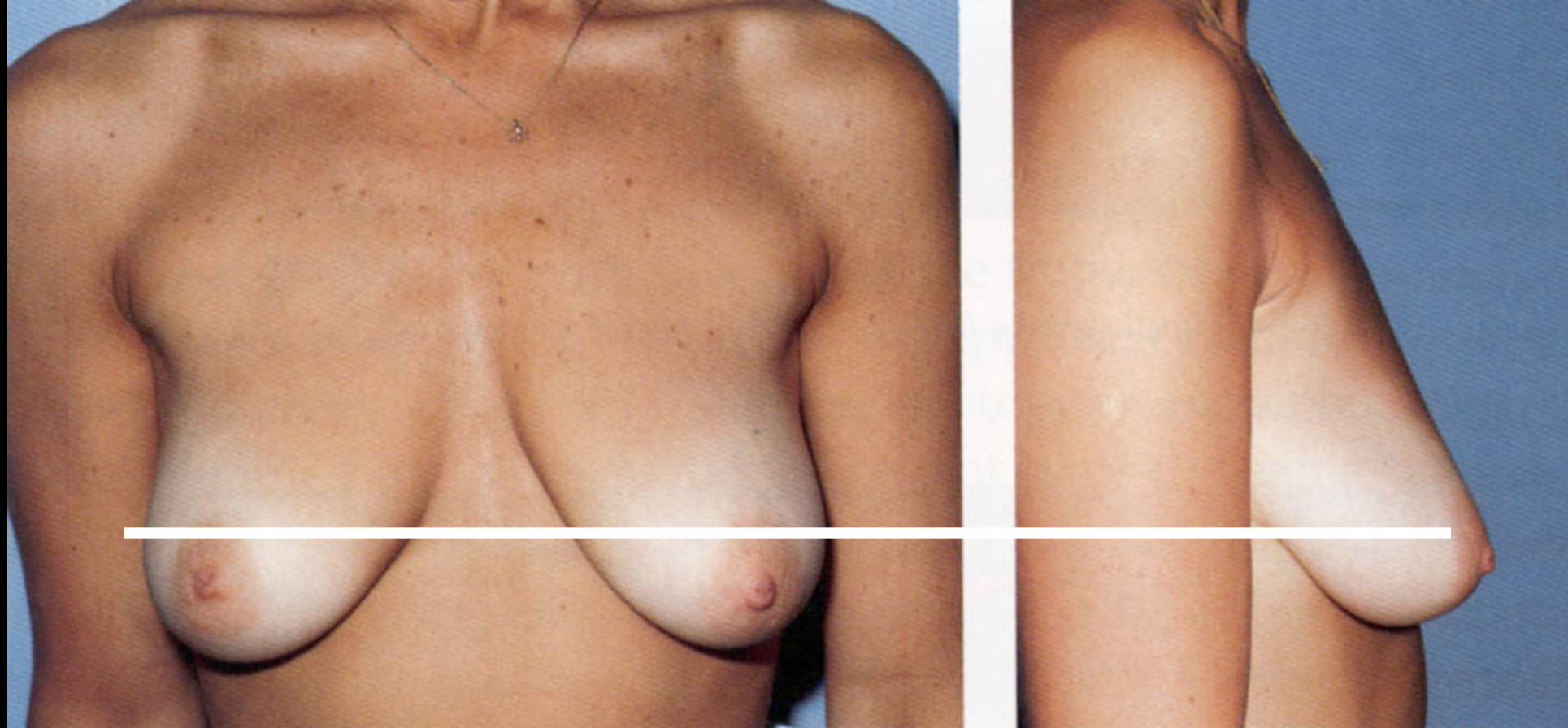
No Ptosis



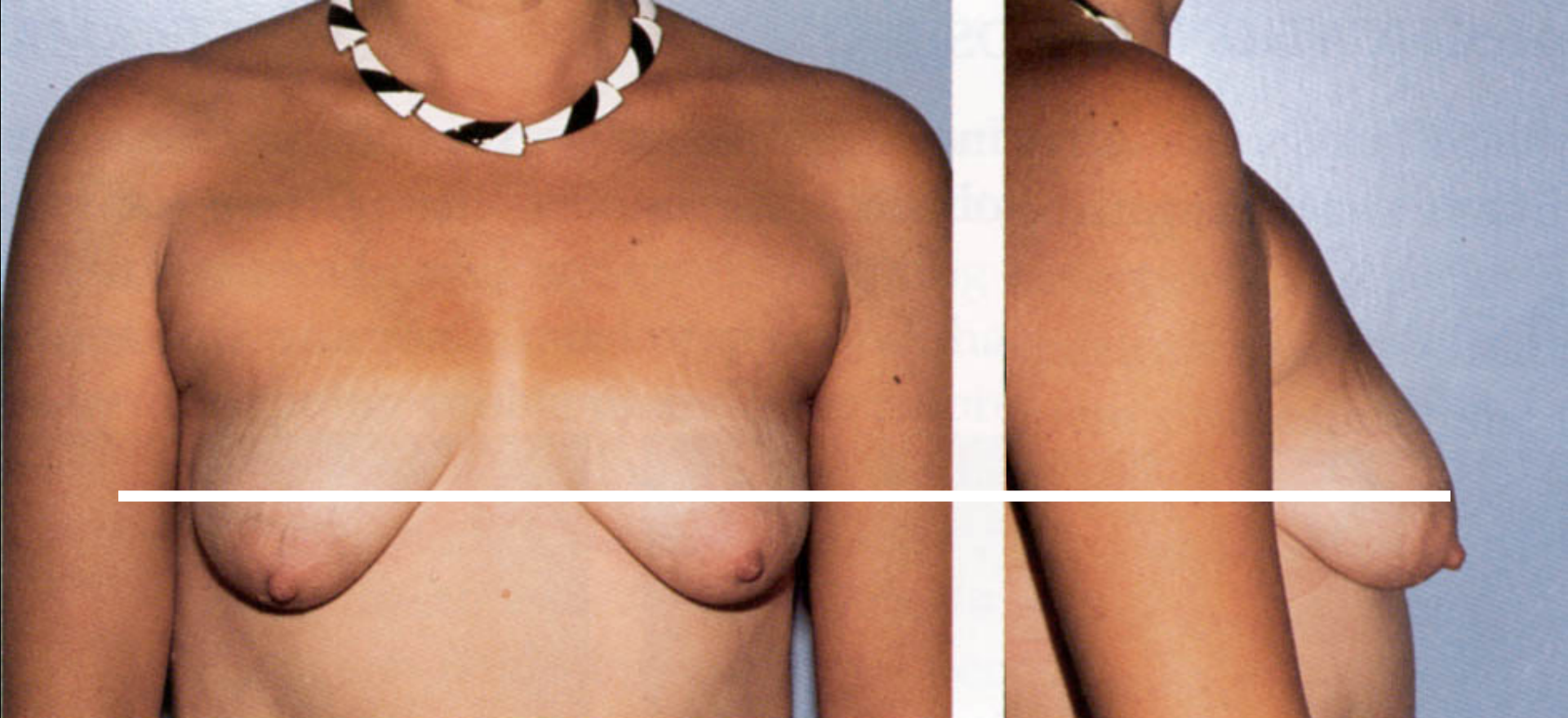
Pseudoptosis



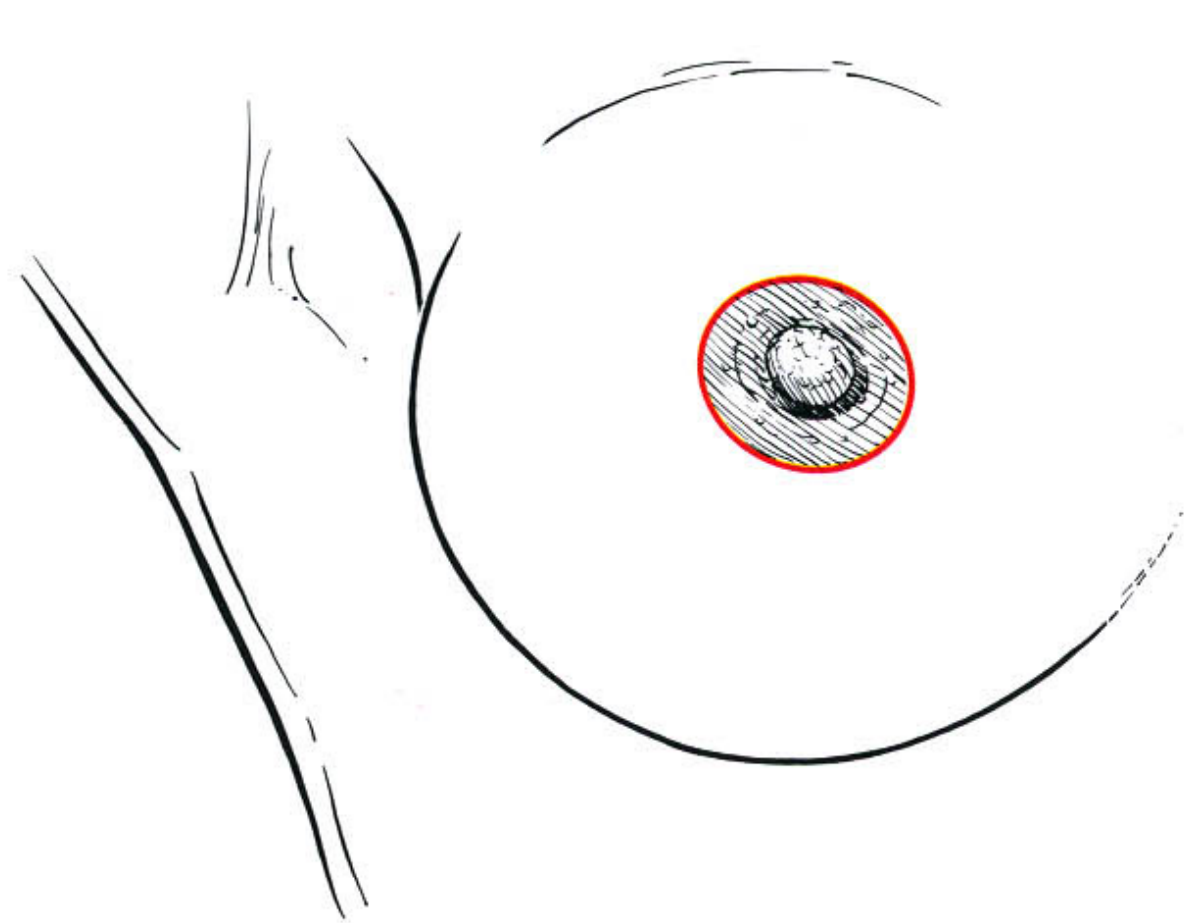
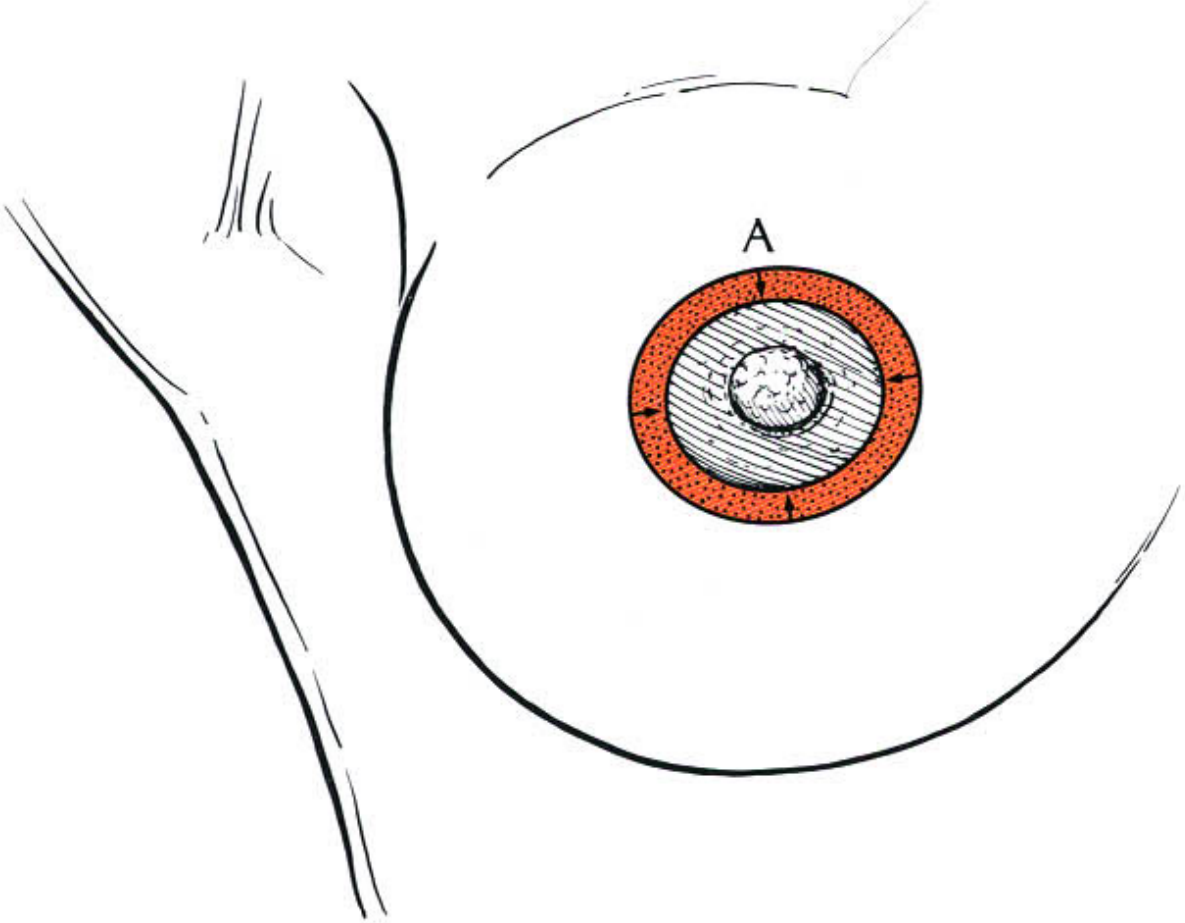
Grade I Ptosis

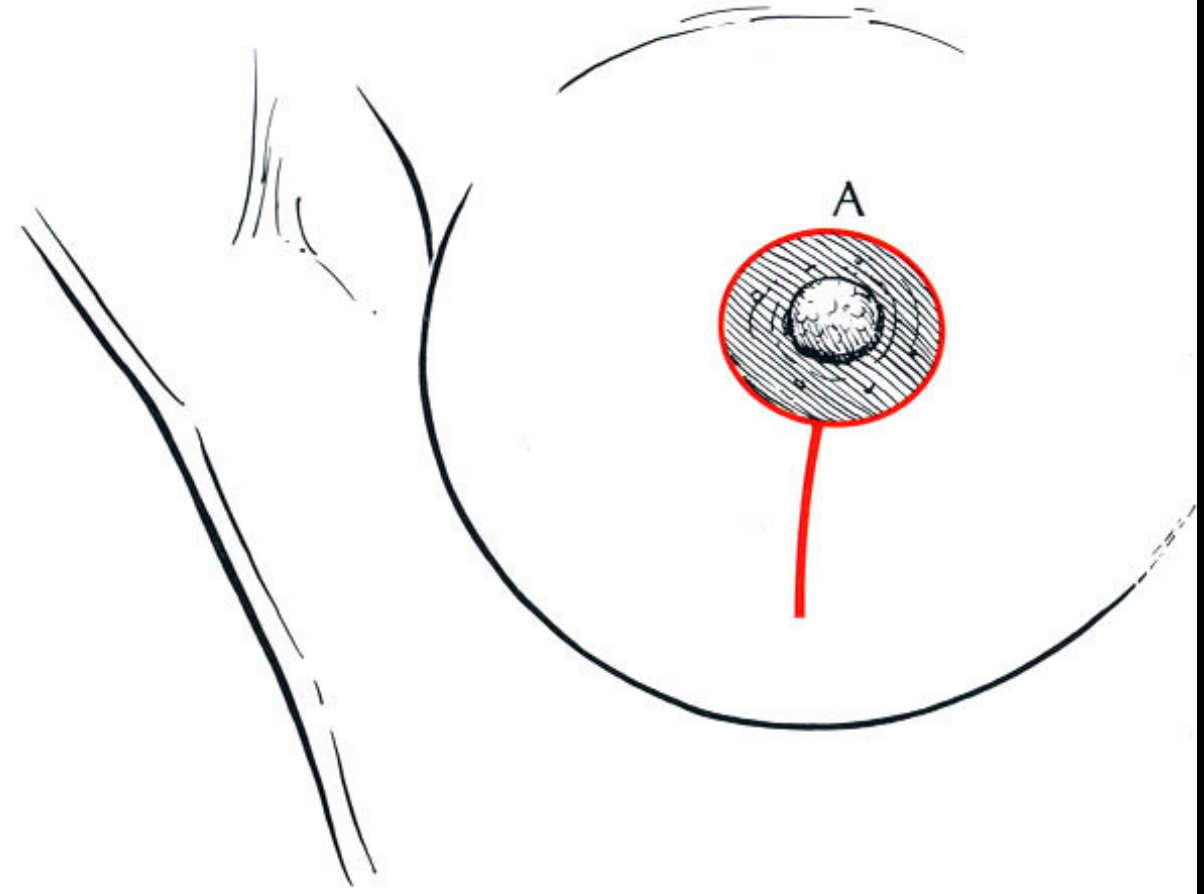
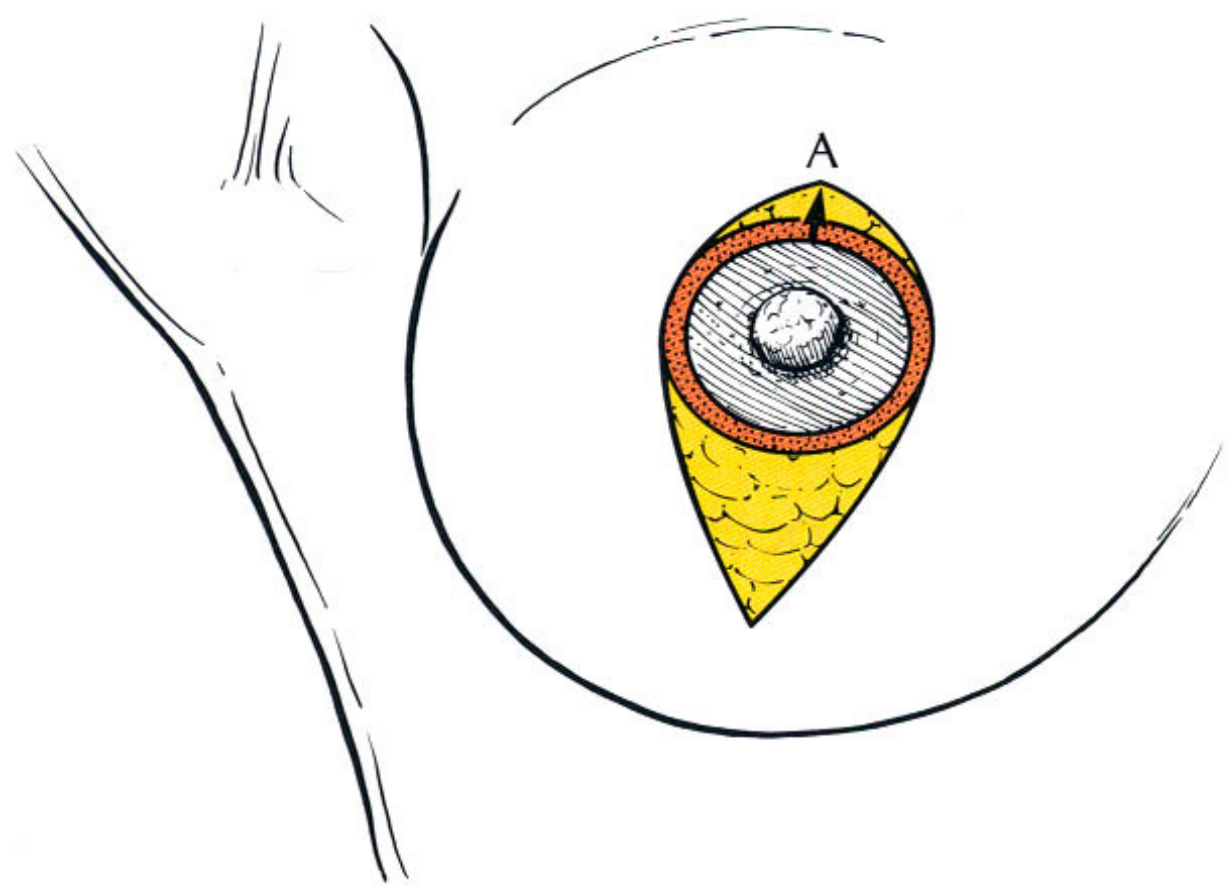


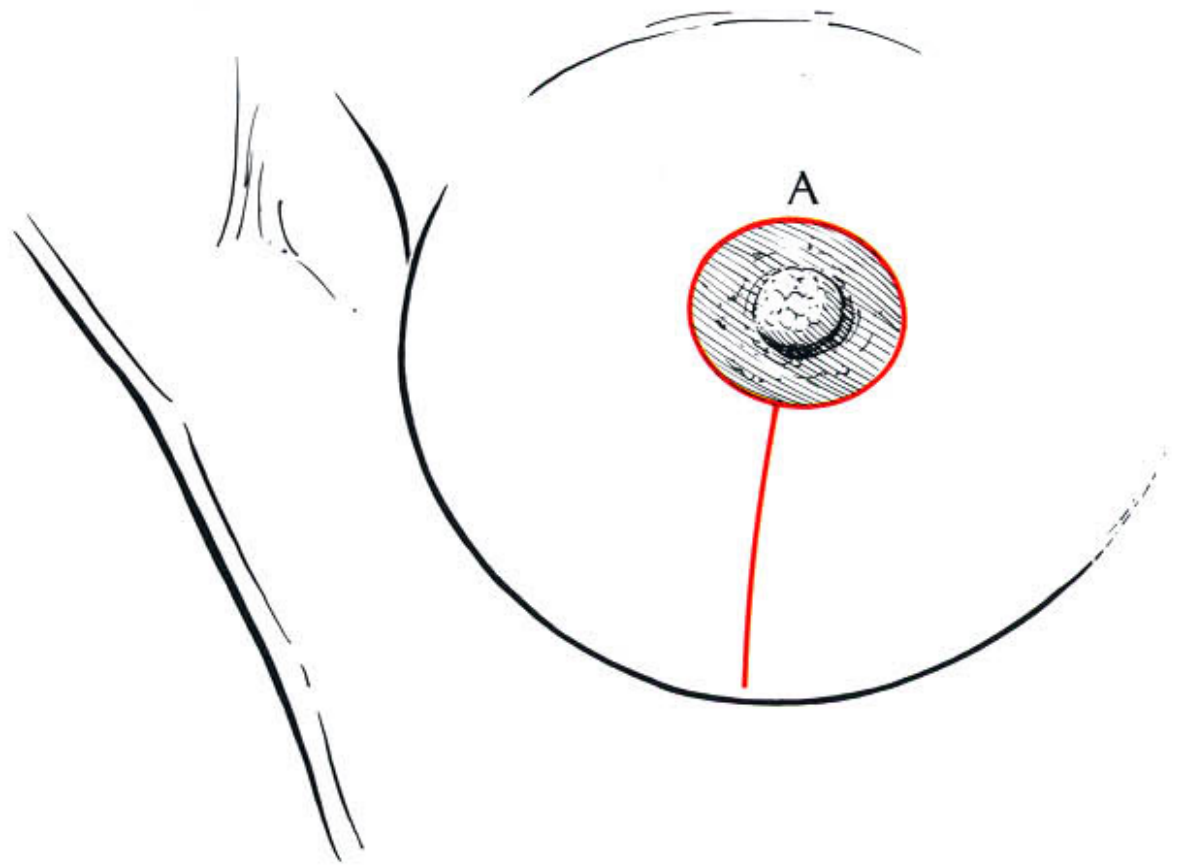
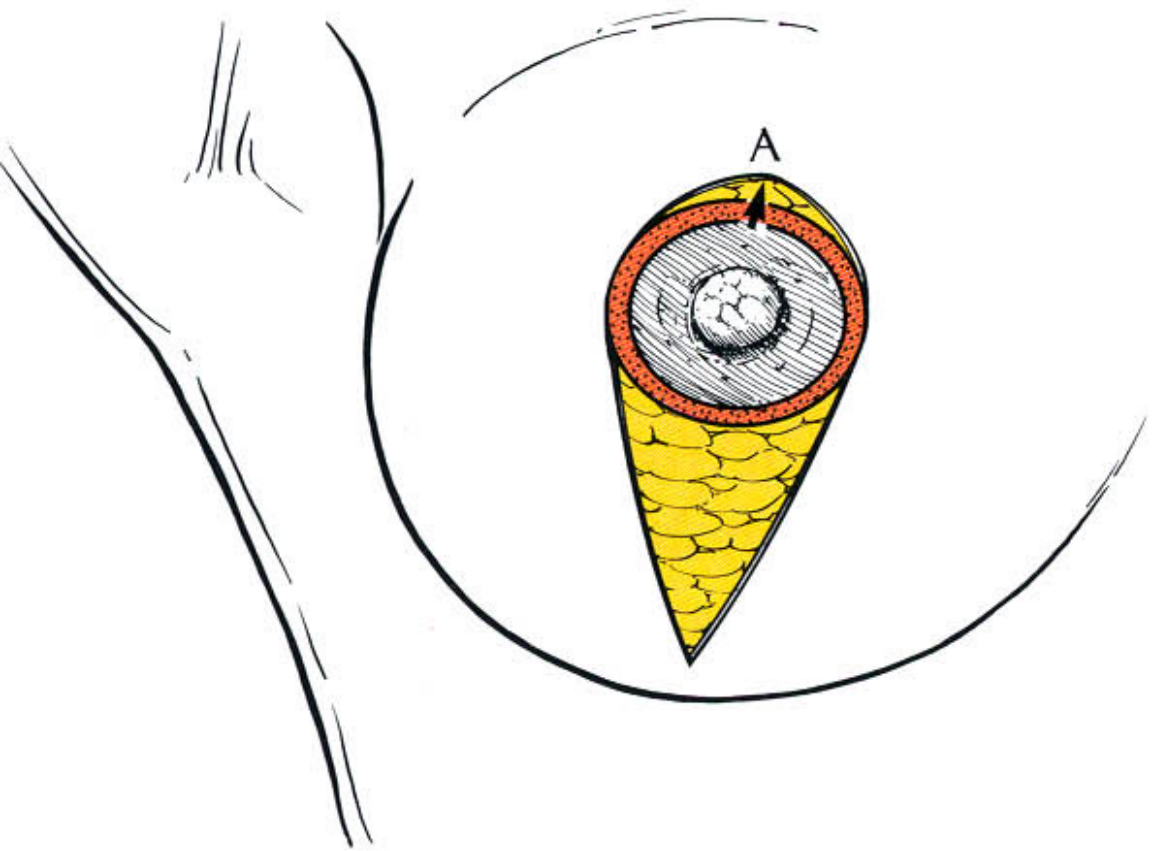
Grade II Ptosis

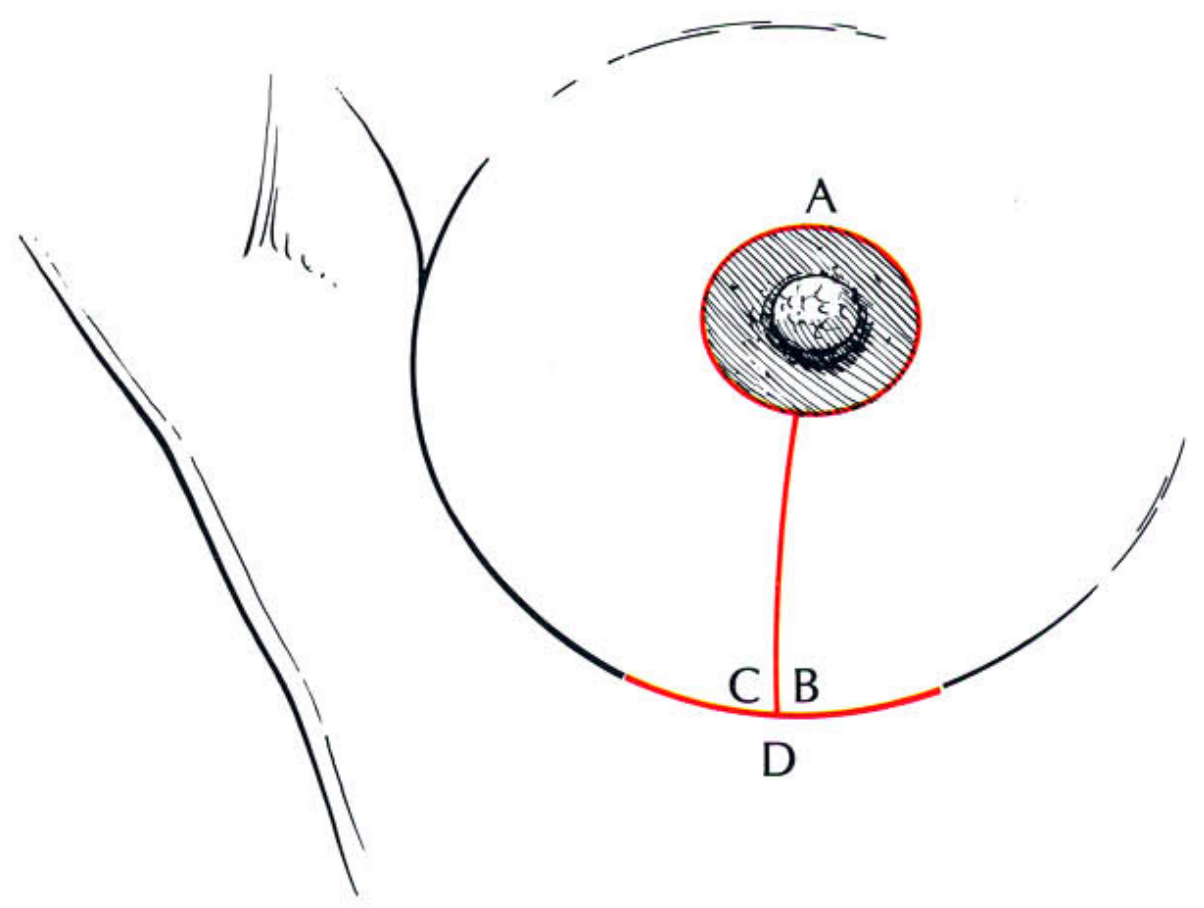
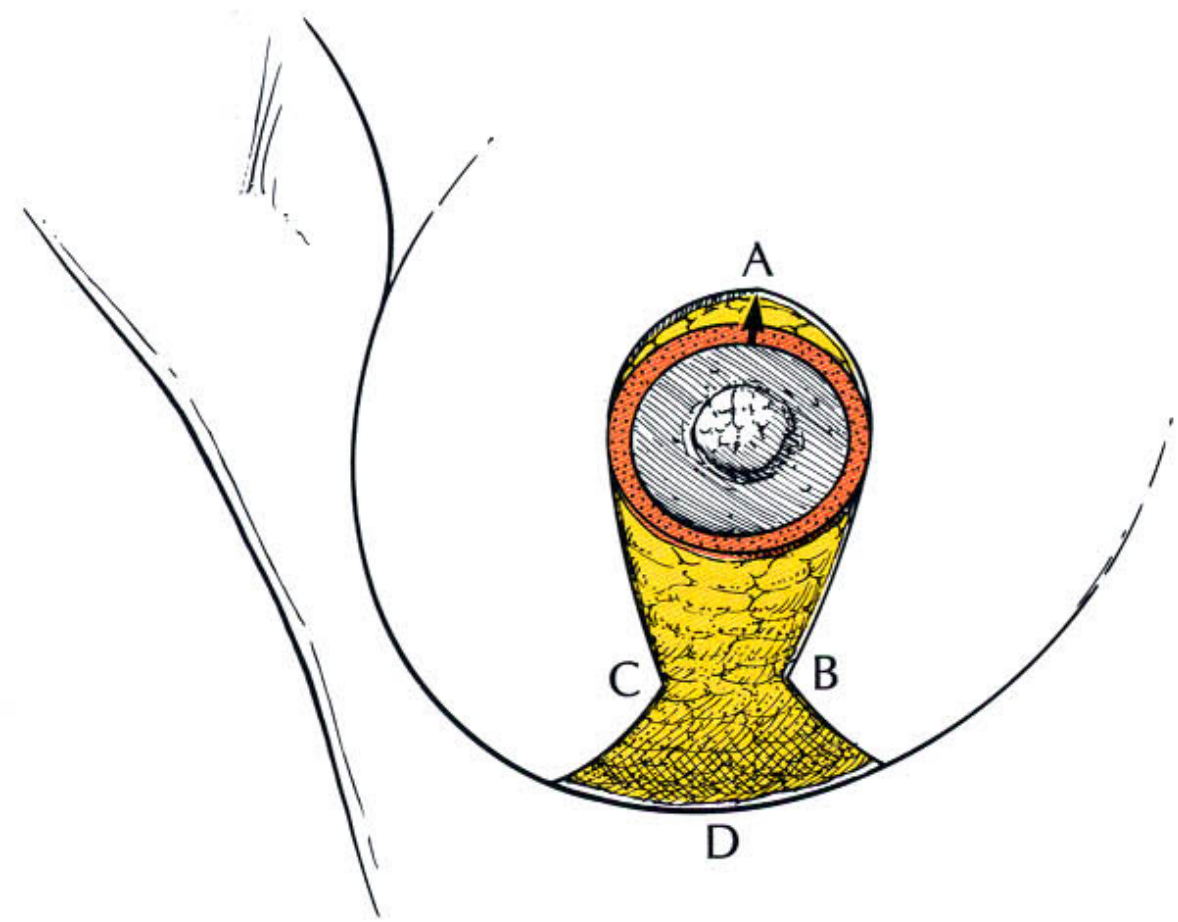


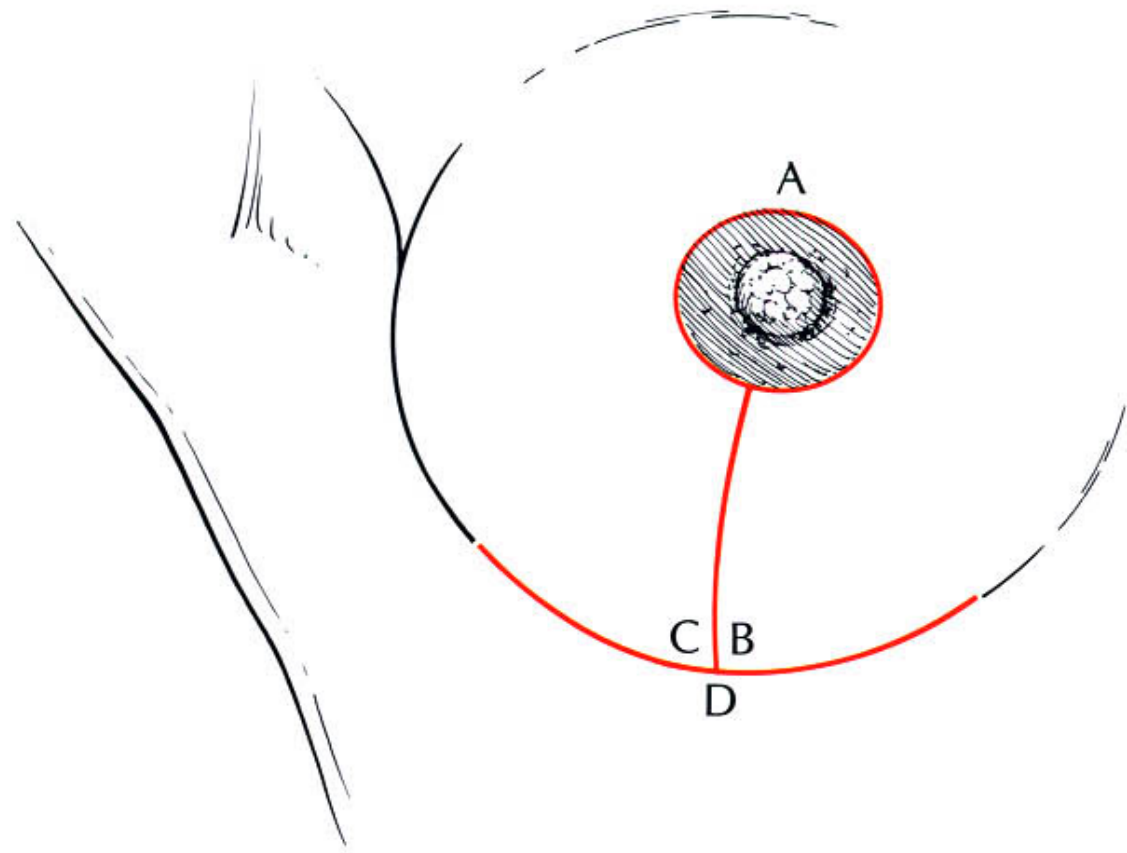
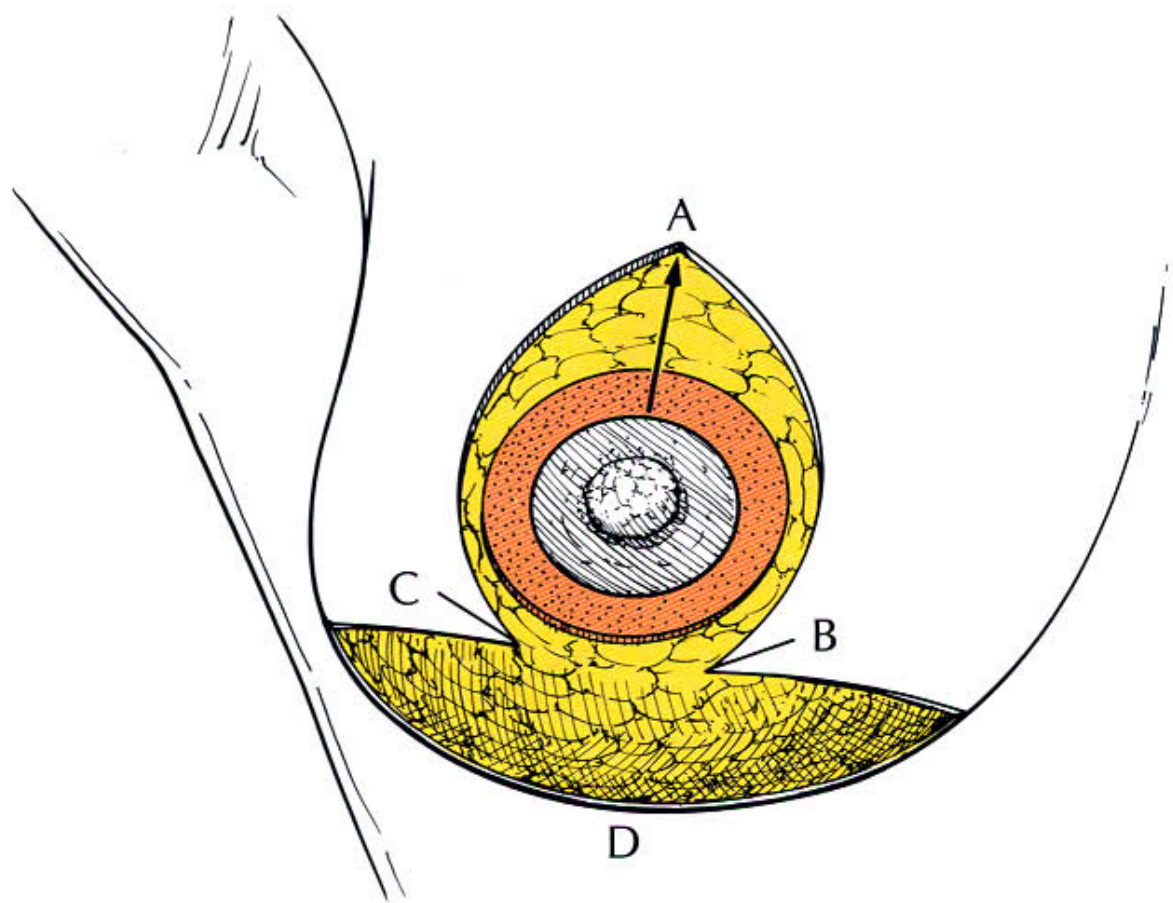
Grade III Ptosis











Augmentation Mastopexy

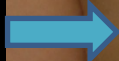
Essentials-Careful planning

- **Good history**
- **Preop markings**
 - **Patient standing**
 - **Permanent marker**
 - **Proper proportions**
- **Plan level of IMF release**

Axillary crease



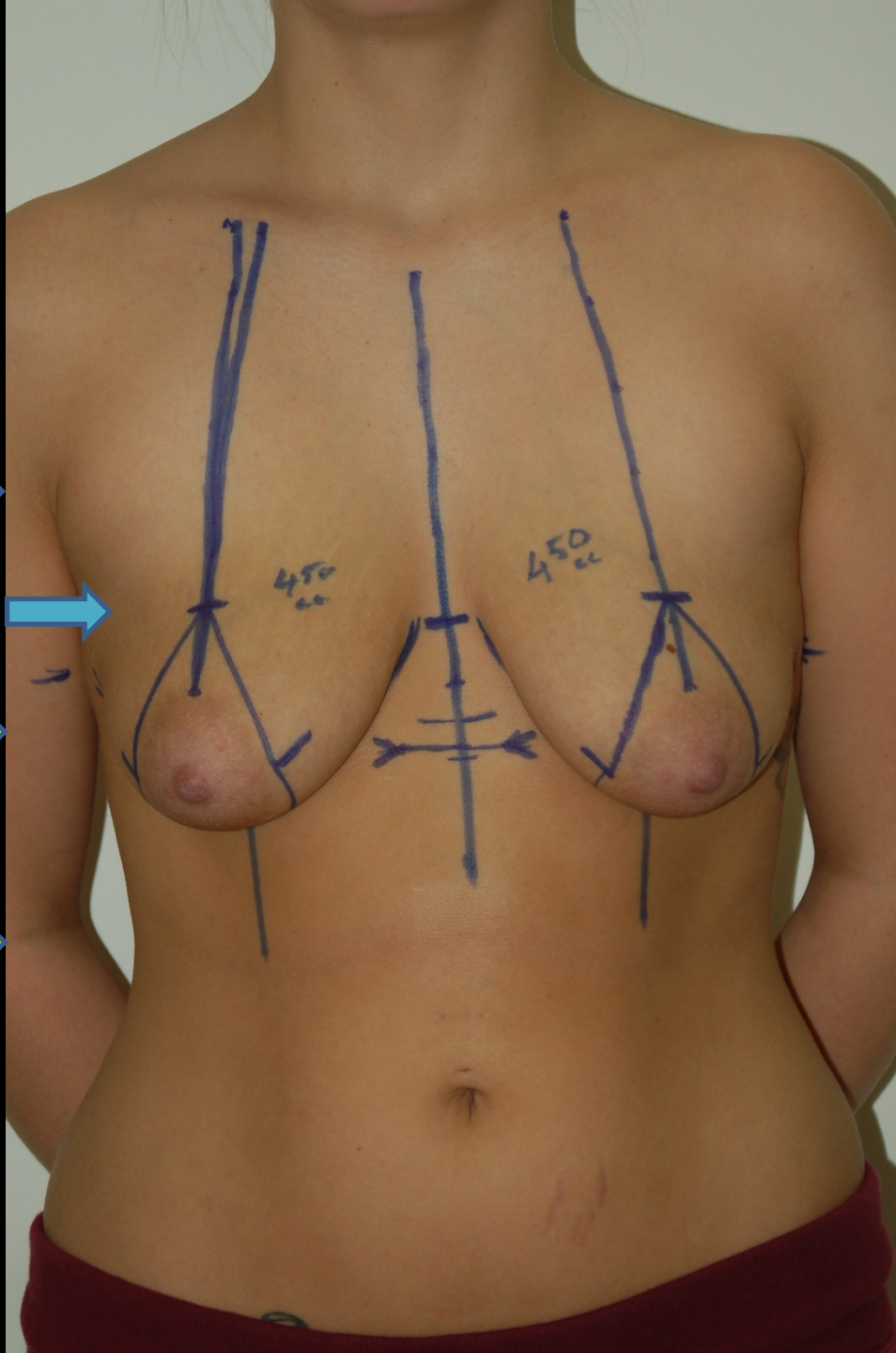
New NAC position



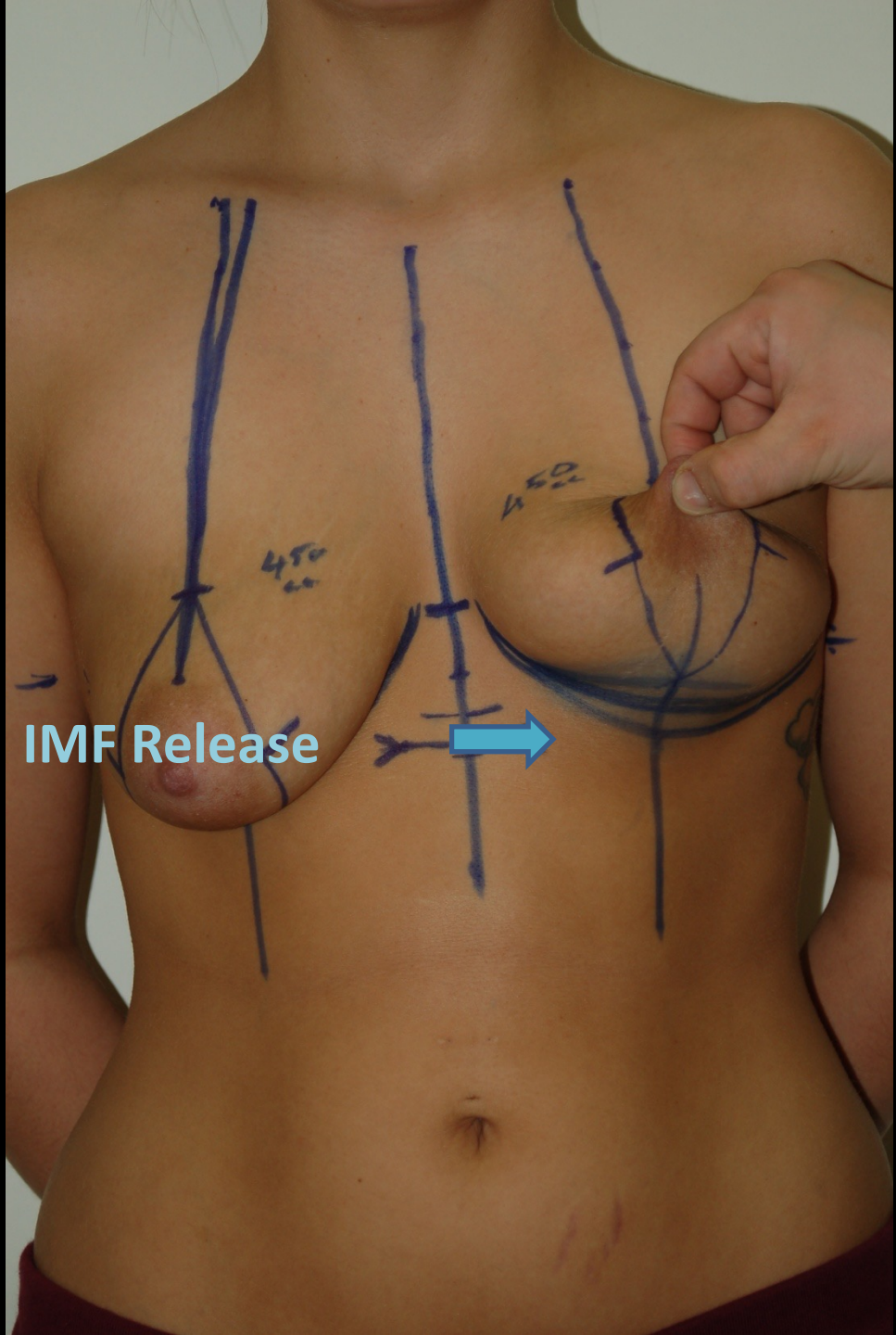
Mid point



Elbow crease



IMF Release





Augmentation Mastopexy Essentials-Skin resection

- **Be conservative**
- **Insert implant first**
- **Measure before cutting**
 - Whidden “Tailor tacking” (PRS 1978)
 - Webster
- **Avoid risk of skin shortage**
- **Avoid excessive wound tension**

THE TAILOR-TACK MASTOPEXY

PETER G. WHIDDEN, M.D.

Calgary, Canada

A very simple technique of dermal mastopexy is presented, one which does not require patterns or complex preoperative measurements^{1,2,6,9} and yet allows the surgeon to visualize the end result before raising the scalpel. We limit its use to true mammary ptosis as defined by Regnault,⁷ "when the gland, skin and nipple descend together and when the nipple is at the level of or lower than the

submammary fold," and where the existing breast volume is adequate. Under these conditions the "tailor-tack" mastopexy has given consistently satisfactory results in my hands for the past 5 years.

METHOD

A preoperative "shaping" of the breast is done with the patient in the semi-sitting position, after induction of anes-

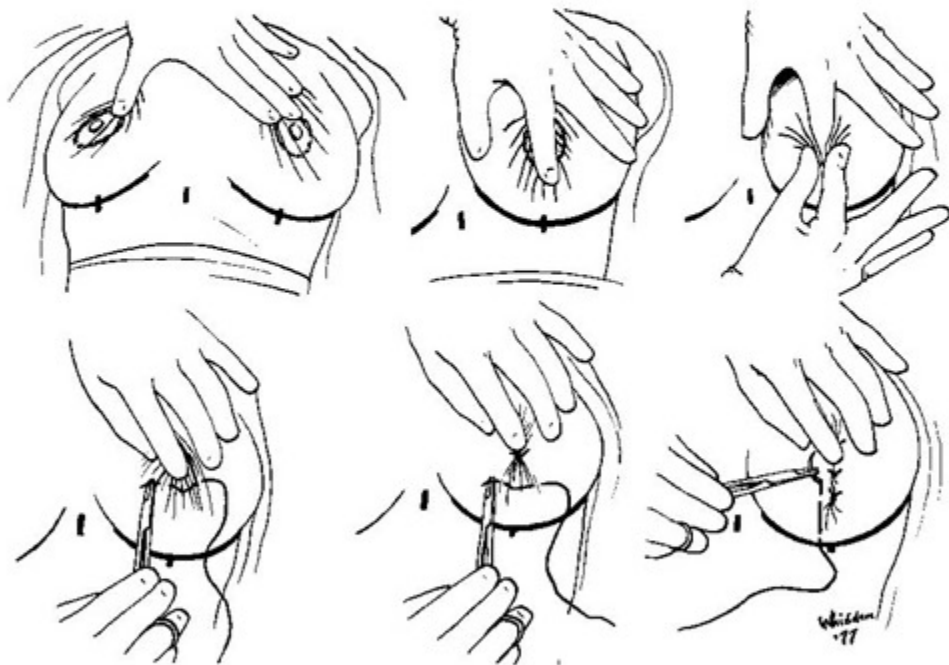


FIG. 1. (above) Marking the inframammary fold incisions, and their midpoints, then invaginating the extra skin vertically from above the nipple down to the inframammary fold. (below left, center) Putting in the tacking stitches to hold the vertical invagination. (below right) Horizontal invagination of excess skin is started at the midpoint of the inframammary fold, and continued medially and laterally to create a pleasing shape.

From the Division of Plastic and Reconstructive Surgery of the Calgary General Hospital and the University of Calgary.

Presented at the Annual Meeting of the American Society for Aesthetic Plastic Surgery on March 23, 1977 in Los Angeles, Calif. Received award for best scientific presentation.

Augmentation Mastopexy

Proper Implant Size

- **Smaller implant reduces wound tension**
- **Larger implant fills out a skin envelope but if too large:**
 - **Thins breast parenchyma**
 - **Compress the vascular supply to NAC**
 - **Saline - reduce volume**
 - **Gel – choose smaller implant**
 - **Remove completely and replace later**
 - **Hyperbaric O2**

Mastopexy

Surgical Complications

- **Nipple necrosis**
 - Heavy smokers
 - Diabetes
 - Collagen vascular Dz
- **Hematoma uncommon**
 - Tumescant
 - Careful hemostasis
- **Infection**
 - Associated with skin loss at T
 - Heavy smokers, diabetics, CV Dz

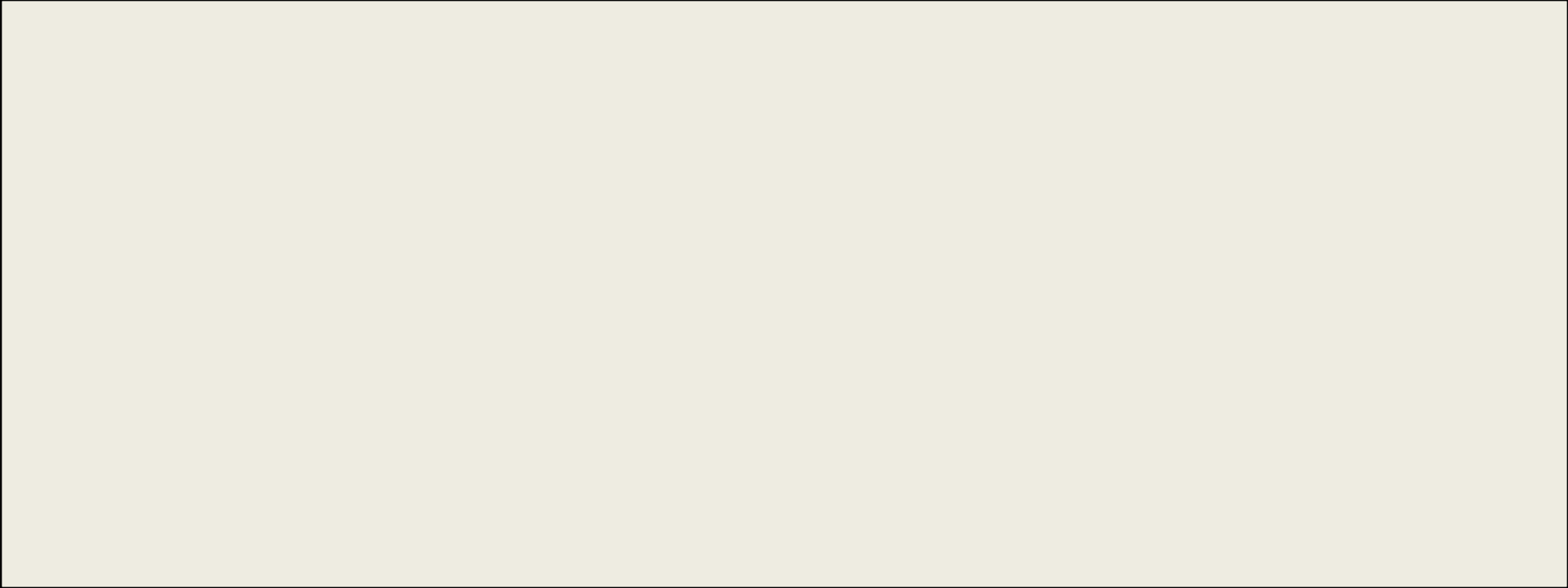
Current Literature Review

- Stevens, W G
 - One-stage Mastopexy w/ Breast Augmentation: A Review of 321 Patients 120(6):1674-1679 (2007)
 - 14.7% revision rate
- Spear, S
 - Augmentation/Mastopexy: A 3-Year Review of a Single Surgeon's Practice 118(7S):136S-147S, (2006)
 - 8.9% revision after primary procedure
 - 16.6% revision after secondary procedure

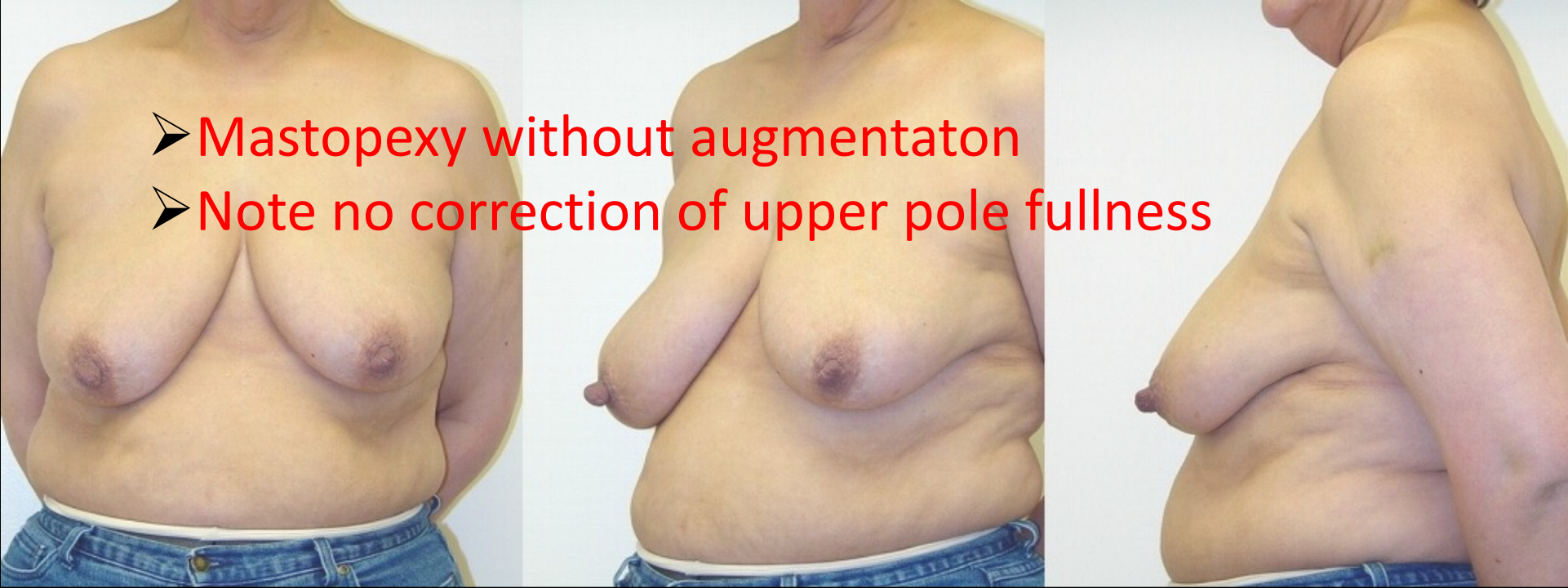
Secondary Mastopexy in the Augmented Patient

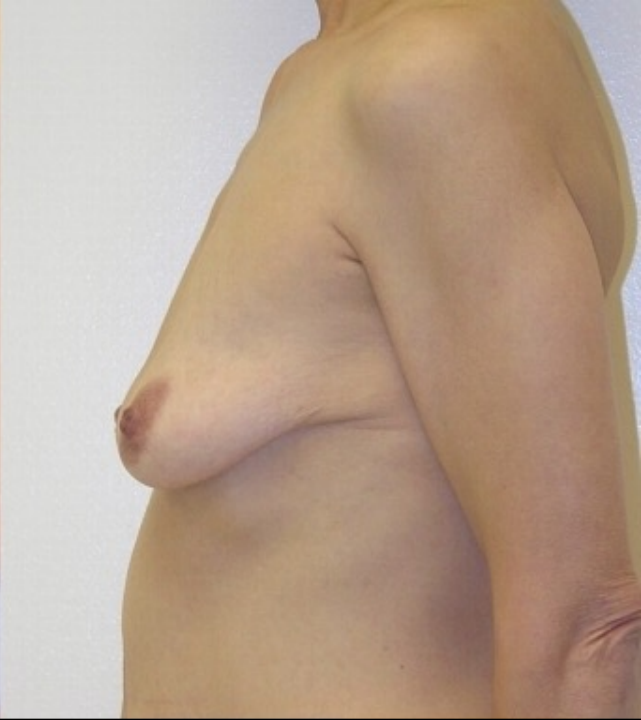
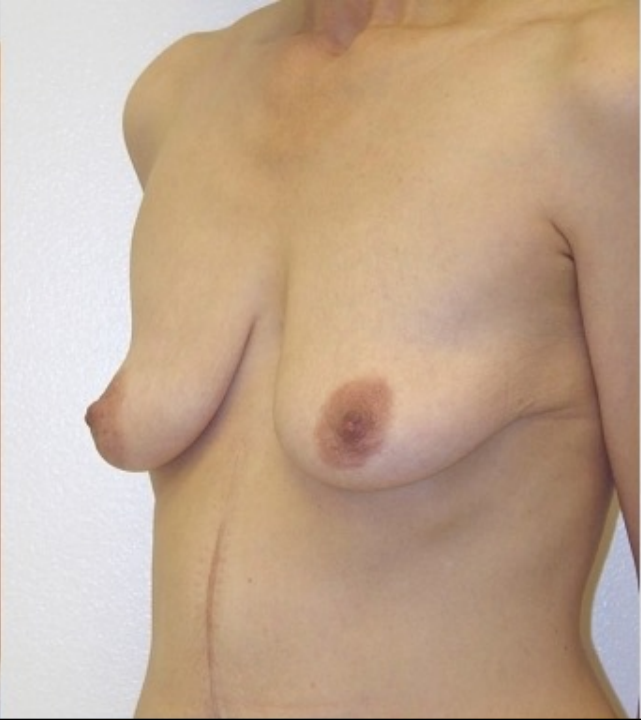
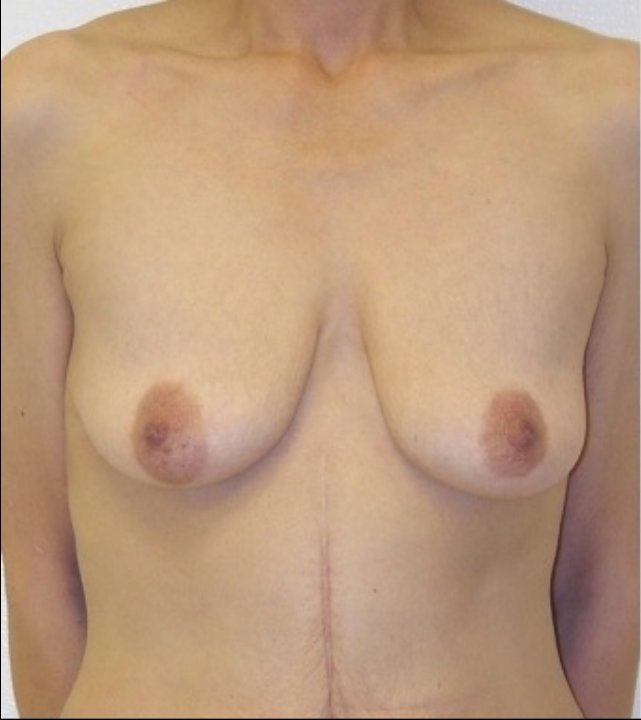
- Population of augmented women aging
- Greater demand for
 - Mastopexy
 - Capsular contracture release
 - Implant exchange
- Altered breast anatomy and physiology increases risk
 - Tissue atrophy, thinning and stretching
 - Reduction of vascular supply
 - **Caution** in corrective surgery in these women

Before



- Mastopexy without augmentation
- Note no correction of upper pole fullness





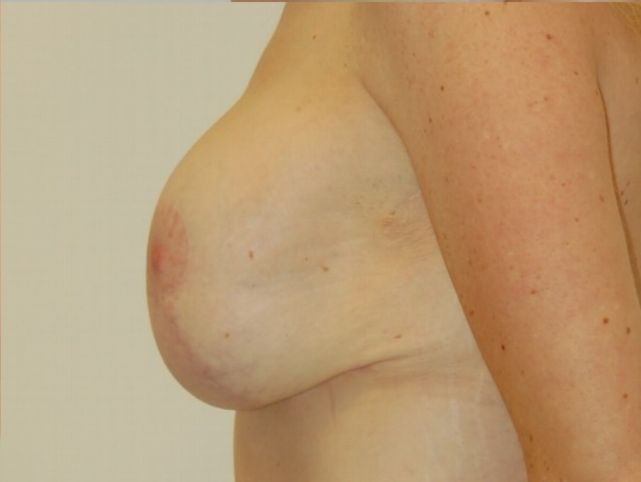
Mastopexy

Cosmetic Complications

- **Bottoming out = glandular ptosis**
- **Inappropriate use of implants**
 - Double bubble
 - “High riding” submuscular implant
 - Snoopy Dog deformity
- **Scarring can be significant**





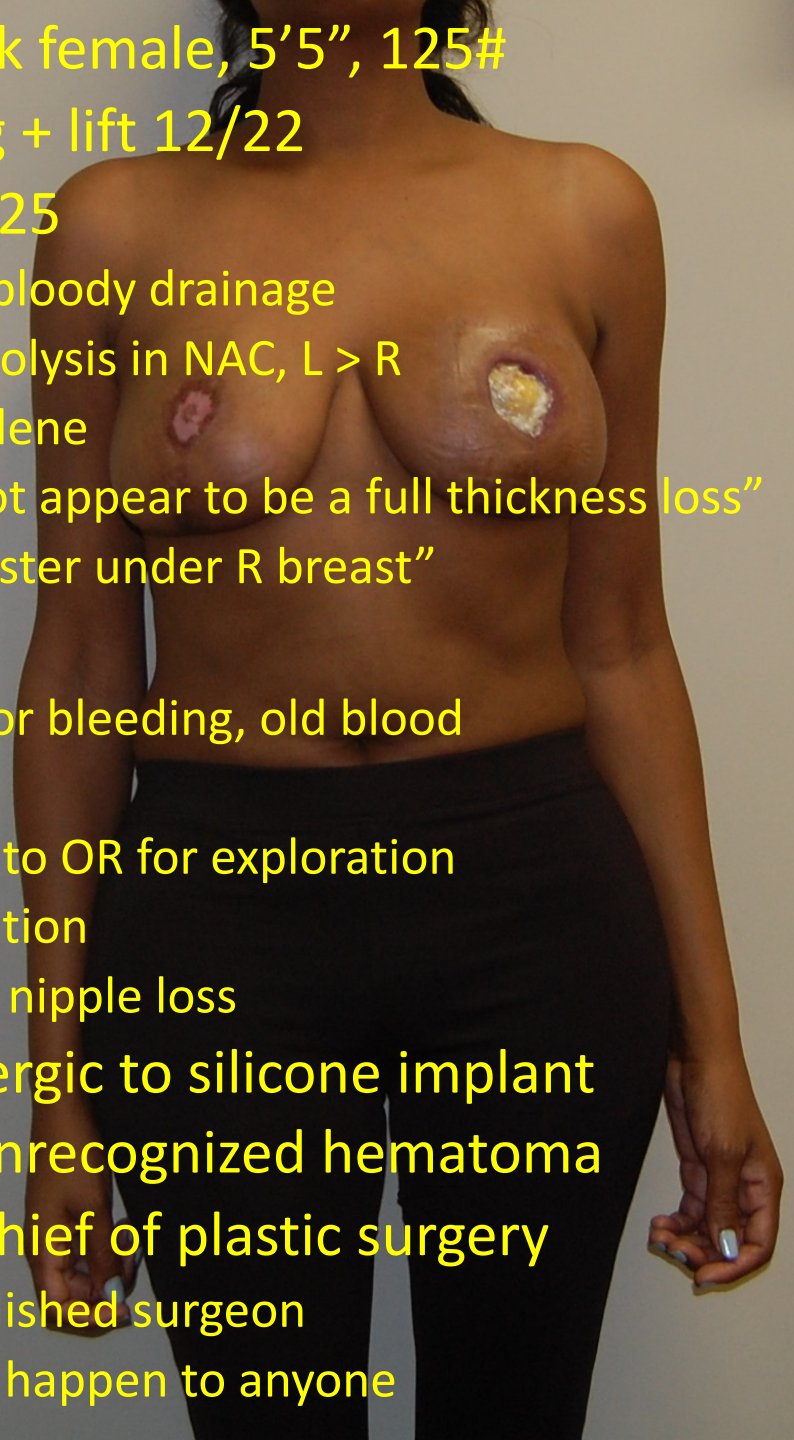


Breast Reduction and Mastopexy

Complications

- Infection
- Hematoma
- Nipple necrosis
- Fat necrosis
- Dog eared incisions
- Wide hypertrophied scars
- Inadequate reduction
- Overzealous reduction

- 41 yo black female, 5'5", 125#
- Breast aug + lift 12/22
- Called 12/25
 - co dark bloody drainage
 - Epidermolysis in NAC, L > R
 - Rx Silvadene
 - “does not appear to be a full thickness loss”
 - “dark blister under R breast”
- 1/1
 - ED call for bleeding, old blood
 - HgB 7.8
 - Brought to OR for exploration
 - Explantation
 - Bilateral nipple loss
- Pt told allergic to silicone implant
- Possible unrecognized hematoma
- Hospital Chief of plastic surgery
 - Accomplished surgeon
 - This can happen to anyone











Breast Vascular Anatomy

Summary

- **NAC vascular supply has two functional (not discreet) sources**
 - Deep perforators
 - Dermal plexus in skin
- **Breast parenchymal vascular supply is predominantly deep**
- **Loss of vascular supply**
 - Kinking vasculature
 - Excess tension or pressure
 - Prior surgery
 - Devascularization

A panoramic view of the Seattle skyline at sunset. The Space Needle is prominent on the left, and various skyscrapers are illuminated. The sky is a mix of orange, yellow, and purple. In the background, a mountain range is visible under the twilight sky.

**Breast Vascular Anatomy: Rationale for Mastopexy and
Reduction Techniques**

Thank You!

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