Reduction Mammaplasty

Arno R. Schleich MD

General Considerations

Patient Selection

- Psychological motivation
- Desired breast appearance
- Desired size

Teenagers

- Giant virginal hypertrophy

1. 11-15y/o
2. Reduction despite anticipated growth
3. Needs to accept secondary operation
4. No hormonal treatment

- Late teens – avoid overreduction

After Childbearing

- Ptosis
- Loss of uper breast fullness
- overweight

Postmenopausal

- Sx of excessive breast weight
- Reduce enough to d/c sx

Sexual Identification Problems

- Psychiatric evaluation
- Operation may not relieve their problem

Strategic Concerns

- Breast size
- Scars
- Symetry
- Lactation potential
- Sensation
- Breast shape
- Oncologic

Strategic Concerns – Breast Size

- Small enough
- Photographs of varying degrees of reduction
- Preoperative weight loss ! (postoperative weight losses have unpredictable effects)
- Not > 15kg over IBW
- Never guarantee a postoperative brassiere size

Strategic Concerns – Scars

- Describe location and length
- More important in smaller breasts

Strategic Concerns – Symmetry

- Chest and breasts are alwas asymmetric
- Analyze preoperative asymetries
- Photo dcumentation
- Mirror
- No guarantee about symmetry is made
- Leave the larger breast slightly larger

Strategic Concerns – Lactation

- To be preserved even if no explicit desire
- Preservation of ducts & parenchyma below nipple (central preservation)
- Reduce peripherally and tangentially

Strategic Concerns – Sensation

- Touch, 2PD, erogenous
- Nipple < areola
- Postoperative diminution
- Small percentage remain dimished
- Normally returns over 6mo
- If normal sensation is essential to pt reconsider operation

Strategic Concerns – Shape

- Depends on the preservation of parenchyma in desired areas and resection in the hypertrophic areas
- Central pedicle – preserves central and lower projection (lower parenchyma preserved)
- Sperior pedicle – preserves upper and central tissue, wider breasts (boxy ?!), less lower parenchyma to droop later
- Vertical approach – discards lower central tissue, narrows breast shape

Strategic Concerns – Oncology

- Preoperative screening, PE, mammogramm if > 30y/o
- F/u mammogramm after 6-12mo

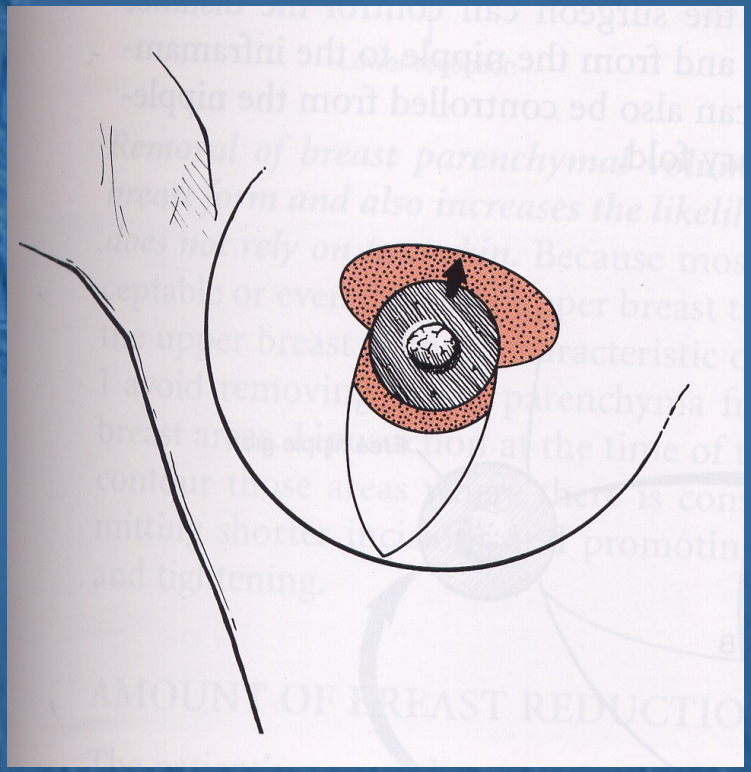
Planning

- Skin removal
- Amount of reduction
- Incision length and placement
- Lateral and abdominal fullness
- Preservation of sensation
- Size and osition of nipple-areola

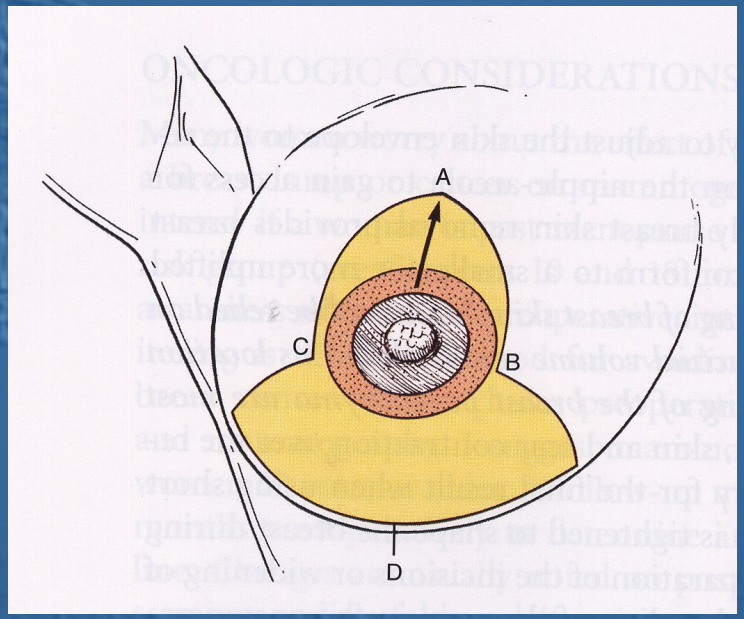
Planning – Skin Removal

- To adjust skin envelope
- Not to control size and shape
- No tight closure
- Rely on skin and scar contraction for final result
- Horizotal + vertical for larger reductions
- Remove in areas of excess – lateral, inferior
- Avoid resection in areas of deficiency – superior, lateral, medial

Skin Removal Vertical



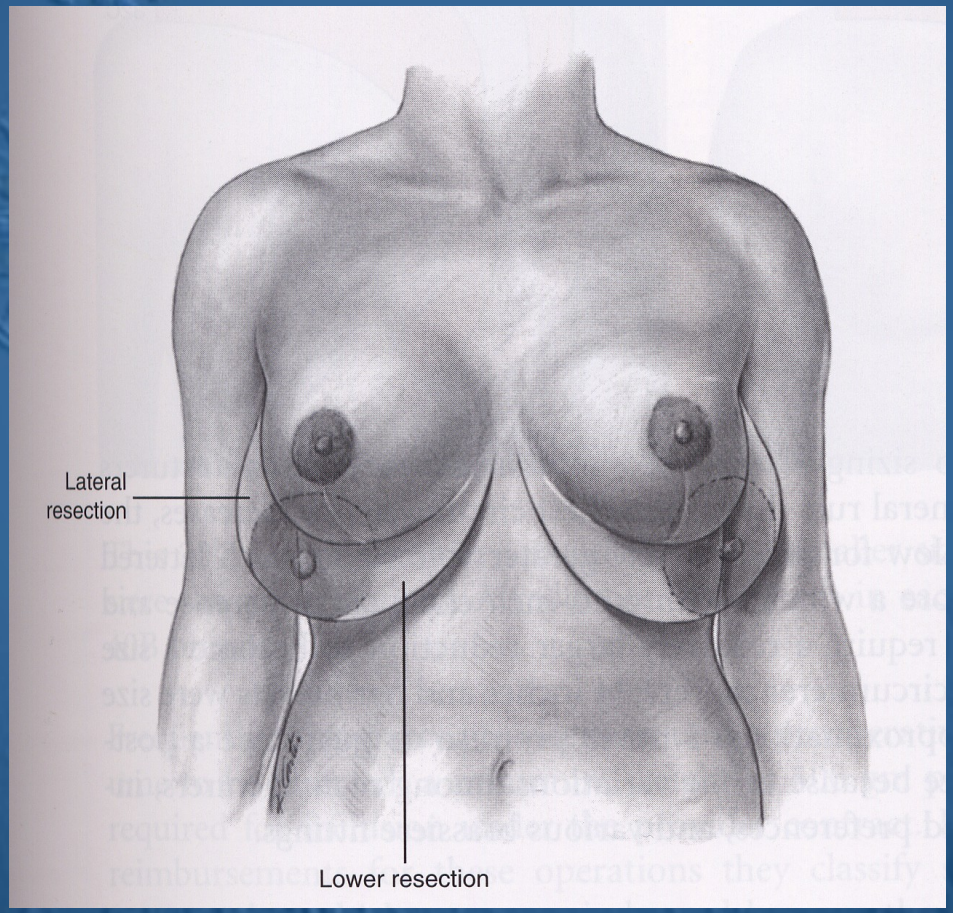
Skin Removal Other



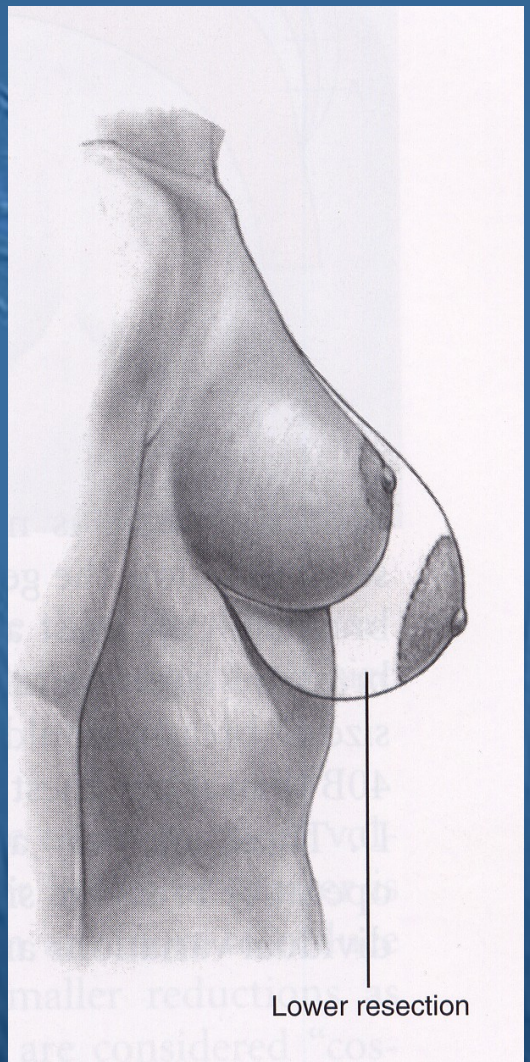
Planning – Amount of Reduction

- What is preserved determines the outcome
- Estimate amount resected
- Preoperative asymmetries

Hypertrophy Frontal



Hypertrophy Lateral



Planning – Skin Incisions

- Vertical – remove lower parenchyma and skin, 500-1000gm reductions, younger, good skin elasticity
- Periareolar – uplifts areola
- Horizontal – 1-3cm above IMC, convert lower breast skin to upper chest skin, >500-1000gm resections (or less in older women), poor skin elasticity
- Should be out of patient's vision when standing

Planning – Lateral/Abdominal Fullness

- Liposuction
- Protruberant abdomens are accentuated after reduction
- Preoperative weight loss !!
- abdominoplasty

Planning – Preservation of Sensation

- Cutaneous blood supply, external mammary, intercostal perforators
- 4th lateral and medial intercostal nerve important for nipple-areola
- Overlap
- Preserve breast on deep, posterior, or medial attachment to have predictable nipple-areoal sensation
- Reinnervation of nipple graft is possible
- Upper areas innervated from cervical plexus and supraclavicular nerves

Planning – Size/Position of Niple-Areola

- 4-4.5cm on reduced breast
- Needs to move to new site without tension
- Cut slightly larger than final planned diameter
- Cut recipient area slightly smaller
- Distance to IMC varies from 7-10 cm depending on final breast size

Technical Parameters

- Age
- Amount of reduction
- Skin quality
- Amount of nipple elevation
- Mobility of nipple areola
- Density of parenchyma

Technical Options

- Vertical with liposuction
- Superior pedicle
- Superior medial pedicle
- Inferior central pedicle
- Free nipple graft

Vertical Mammaplasty

- Young
- Elastic skin
- Mobile parenchyma
- < 5cm nipple elevation
- < 800gm breast size

Superior Pedicle

- Any age
- Elastic skin
- Dense parenchyma
- < 7cm nipple elevation
- < 800gm breast size

Superior Medial Pedicle

- Any age
- Any skin quality
- Dense parenchyma
- > 5cm nipple elevation
- < 2000gm breast size

Inferior Central Pedicle

- Any age
- Any skin quality
- Any parenchyma quality
- Any amount of nipple elevation
- Any breast size
- Needs good microcirculation
- Tendency to bottom out longterm

Free Nipple Graft

- Combined with inferior and lateral resection
- postmenopausal
- Any skin quality
- Any parenchyma quality
- Any amount of nipple elevation
- > 800 gm breast size
- Even if problems with microsirculation
- Tendency to bottom out longterm

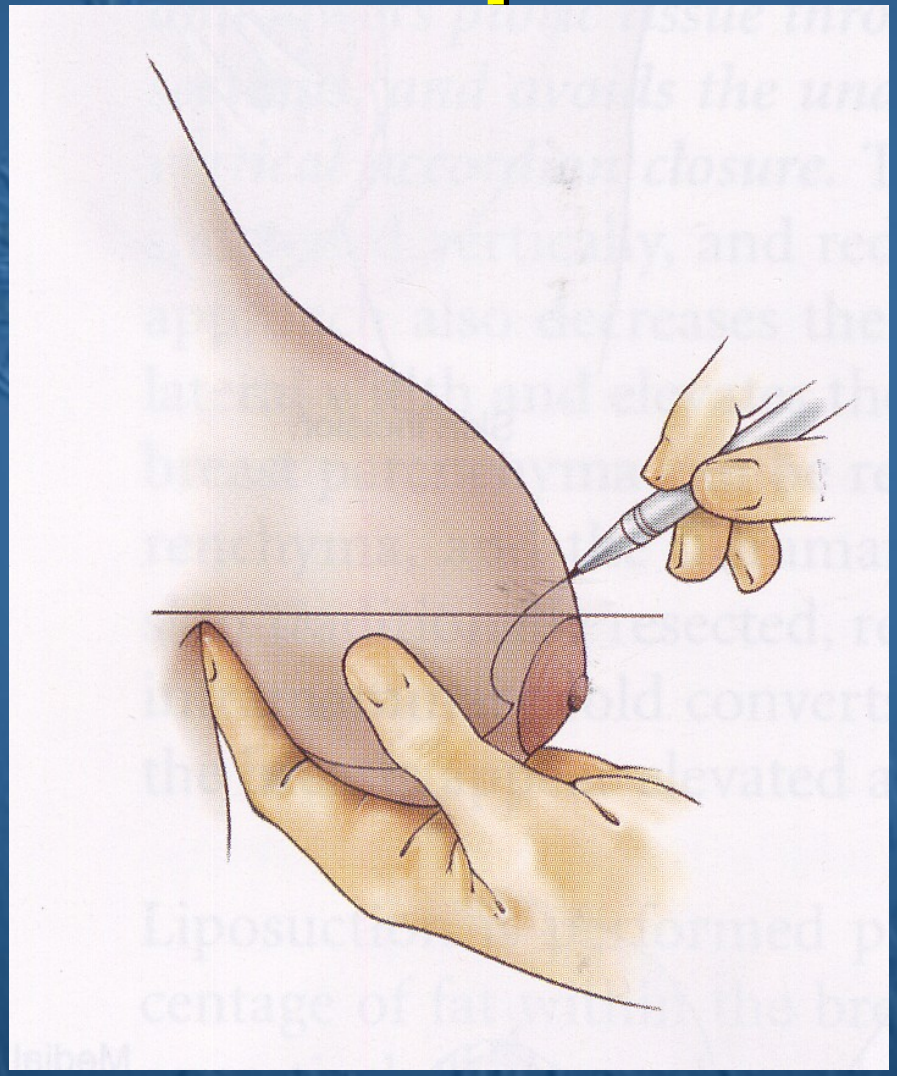
Vertical Mammaplasty with Liposuction

- Narrows breast horizontally
- Shortens breast vertically
- Removes fat laterally
- Resets ptotic tissue centrally and inferiorly
- Elevates IMC and converts lower breast skin to chest wall skin
- Liposuction prior to resection
- Postoperatively breasts are buised and tender x 3-4wks
- Remain firm, swollen and tender x several months
- Amount of tissue which can be removed depends on skin elastcity (not more than 1500gm)
- 10% require revision of vertical scar

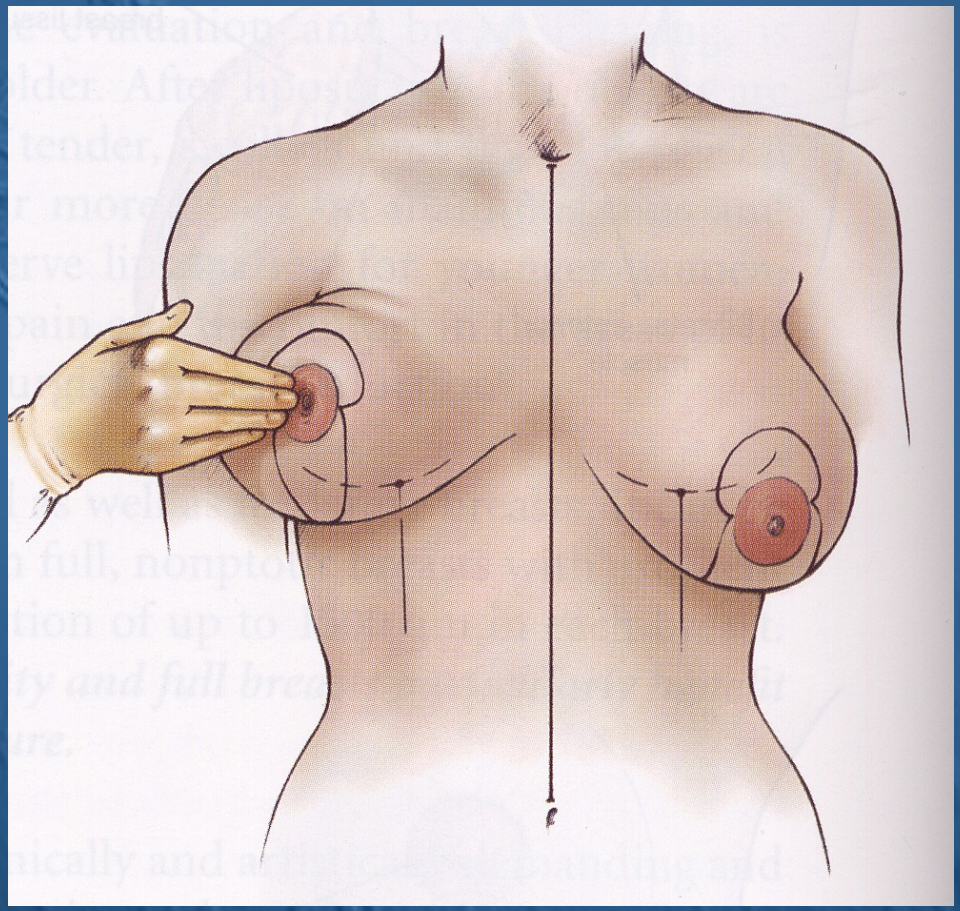
Technique I

1. Markings upright
2. Top of future areoal about 2cm above IMC
3. 40-45mm future NAC diameter
4. Lateral and medial limb with breast displaced to opposite side, from point 4cm inferior of top of future NAC to point just above IMC
5. Both are vertical when breast is displaced
6. The more force one uses to displace breast the tighter the closure
7. Connect medial and lateral line with top of future NAC elliptically
8. Preserve 6-7cm of vertica pillars, remainder medially and laterally to be resected
9. Wetting solution laterally for lipo

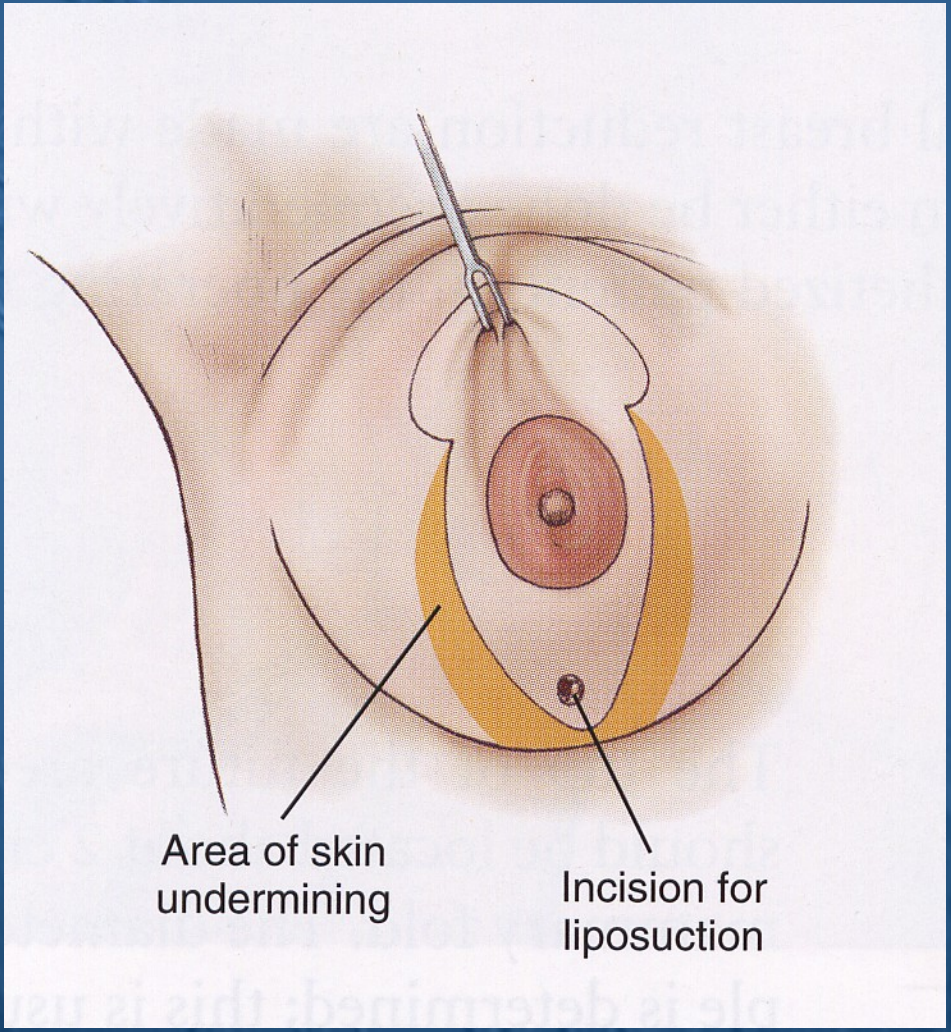
Step 1



Step 2



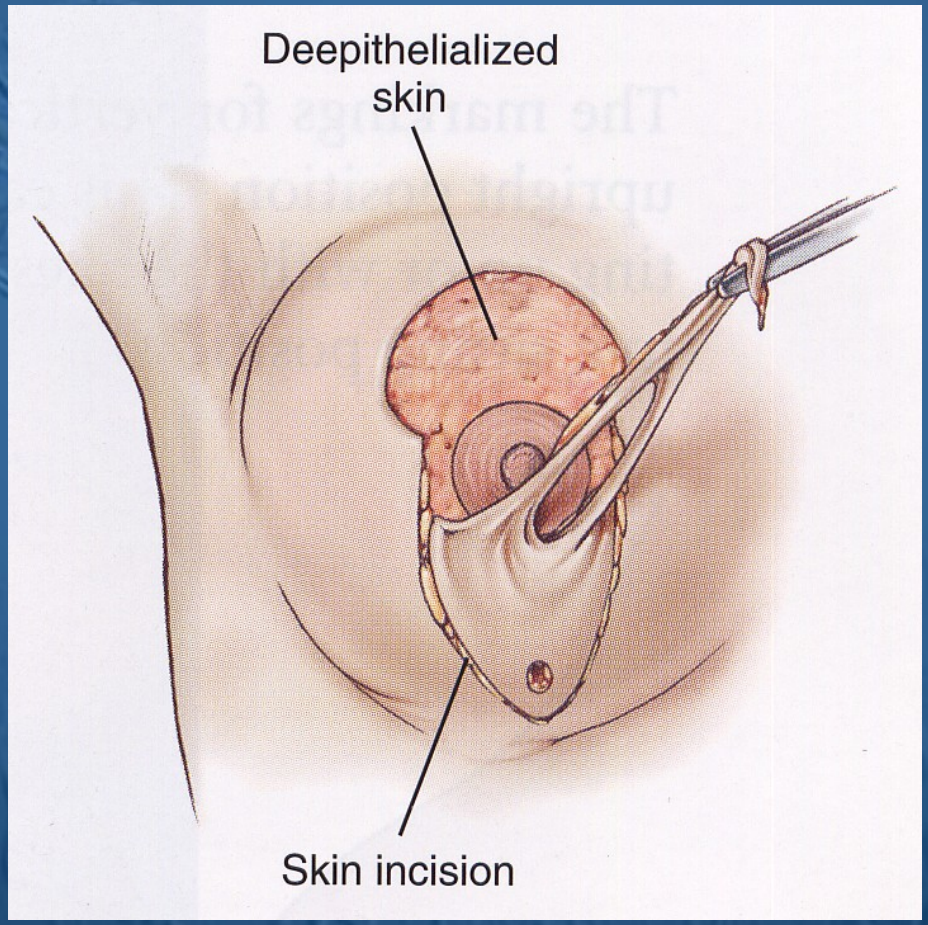
Step 3



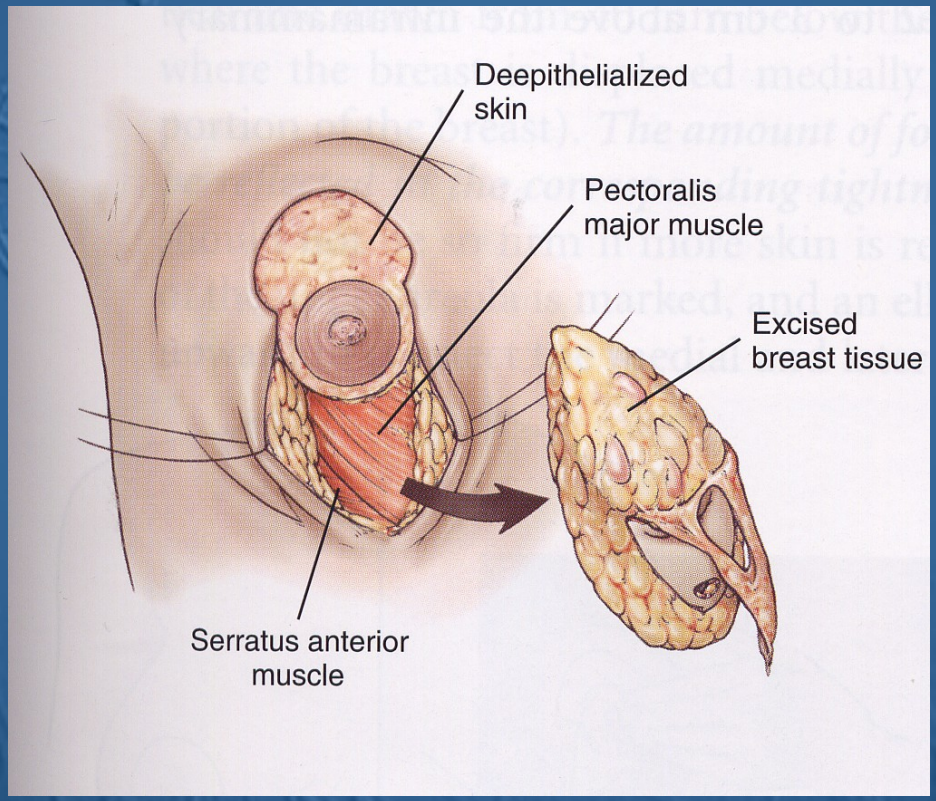
Technique II

10. Periareolar incision into deep dermis
11. Periareolar deepitheliazation
12. Incise vertical limbs with breast displaced to opposite side to pectoralis/serratu fascia
13. Reflect and resect V
14. Leave 2m below NAC
15. Remove additional parenchyma deep to NAV and laterally
16. Undermine medially and laterally to remove tissue in excess of the predetermined vertical pillars
17. Most resection is done centrally and inferiorly
18. Deep sutures 2-0 vicryl to reapproximate vertical pillars starting at point below newly positioned NAC
19. Closure with intracuticular 3-0 and 4-0 clear PDS, steri strips, drain prn
20. Gather excess skin inferiorly rather than near NAC

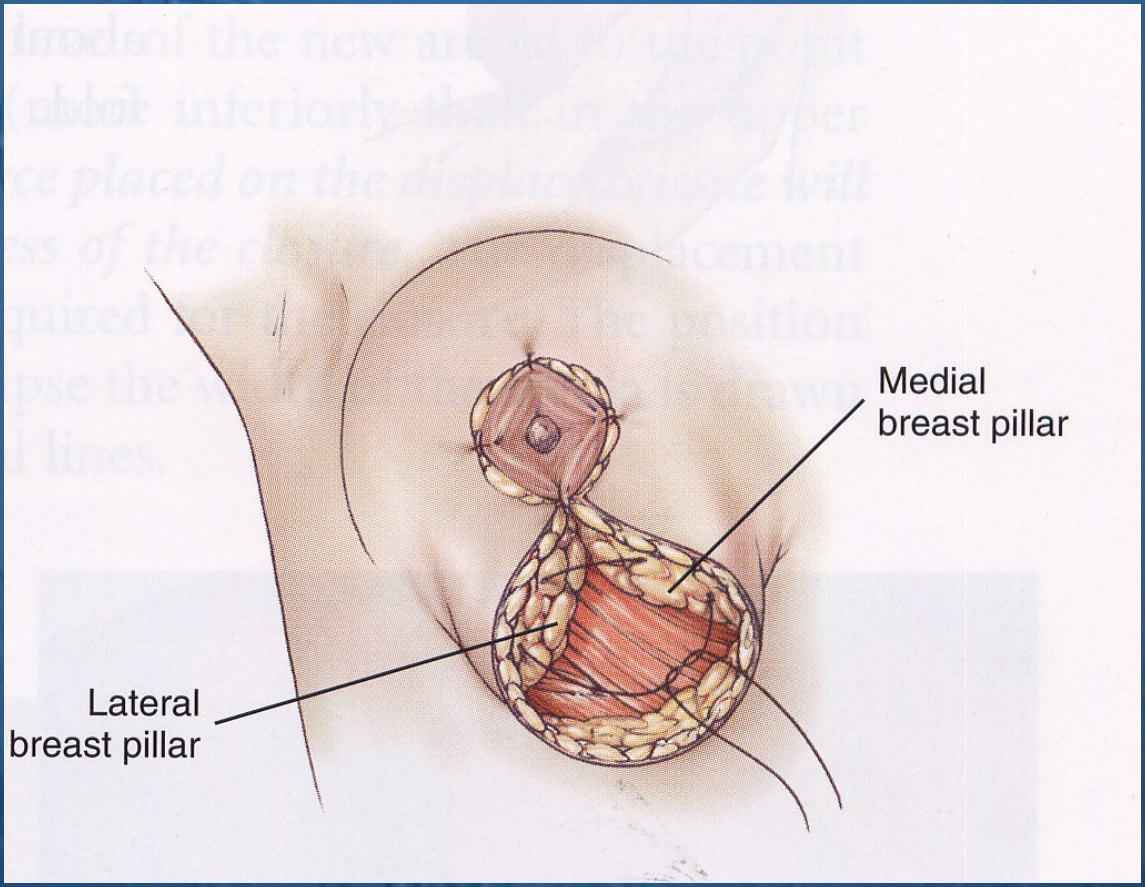
Step 4



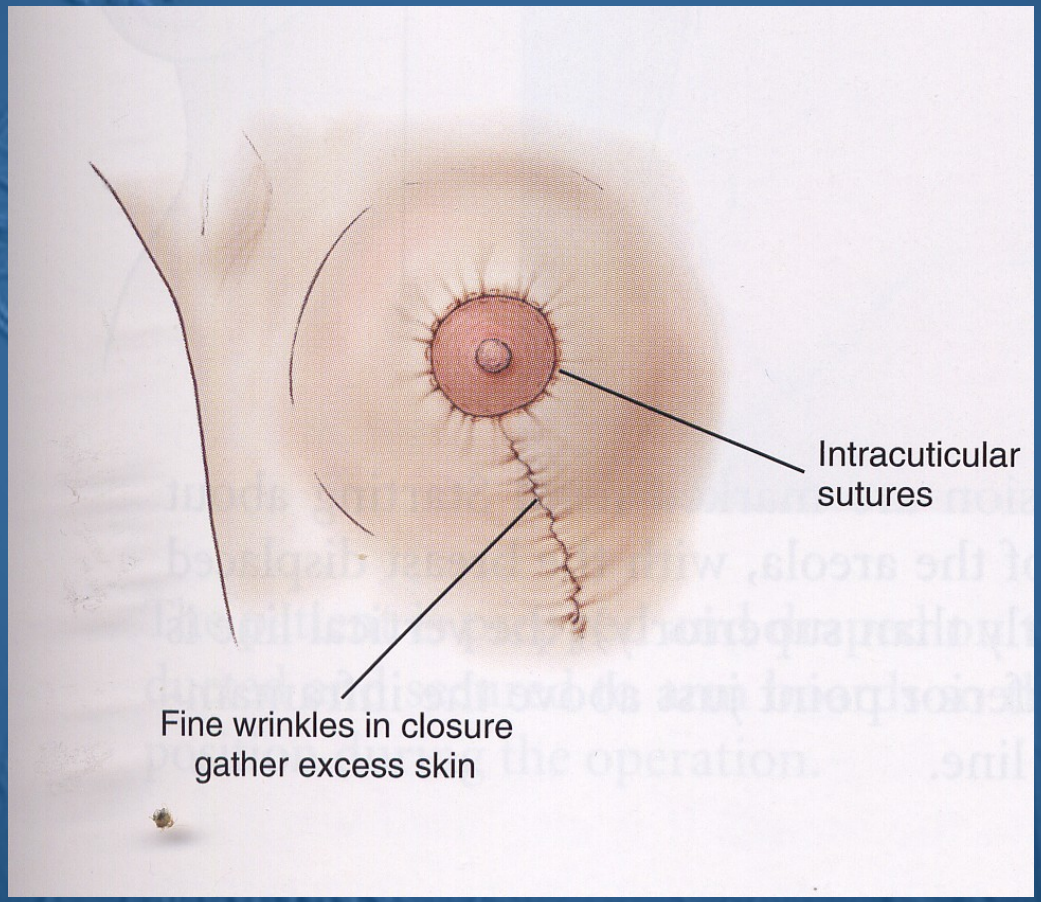
Step 5


Deepithelialized skin
Pectoralis major muscle
Excised breast tissue
Serratus anterior muscle

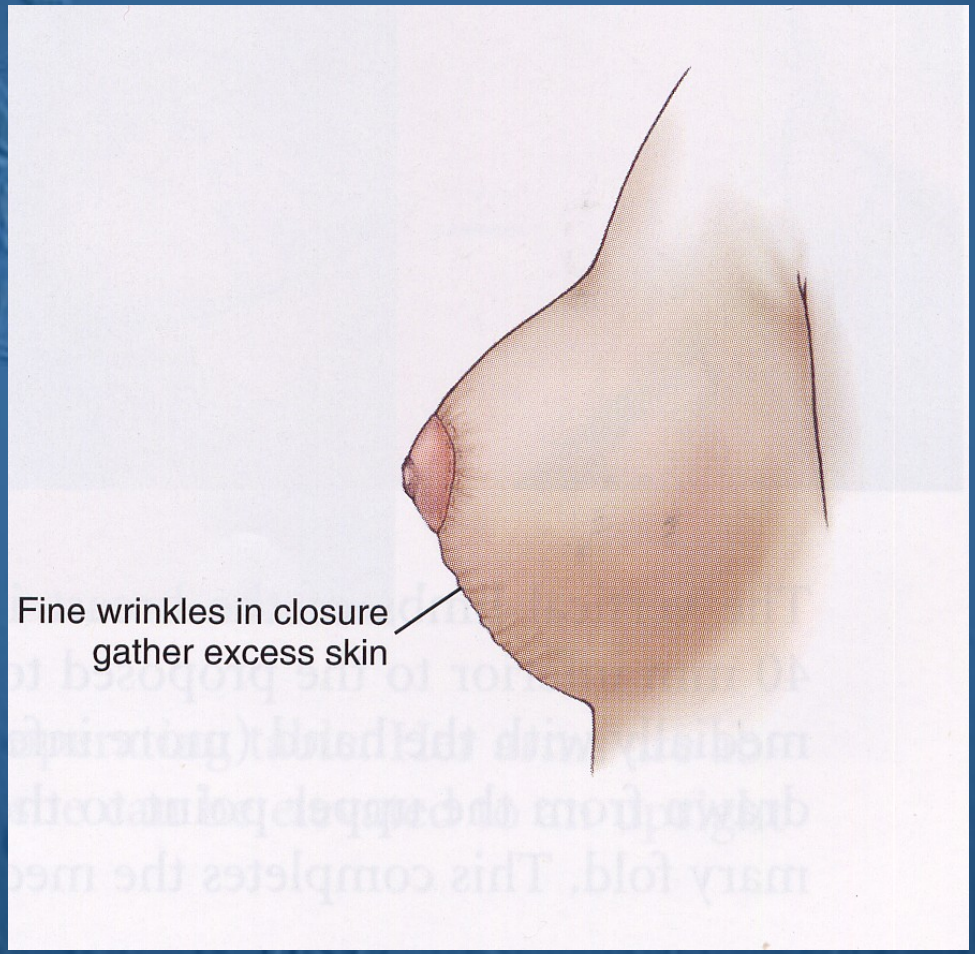
Step 6



Step 7


Intracuticular sutures
Fine wrinkles in closure gather excess skin

Step 8



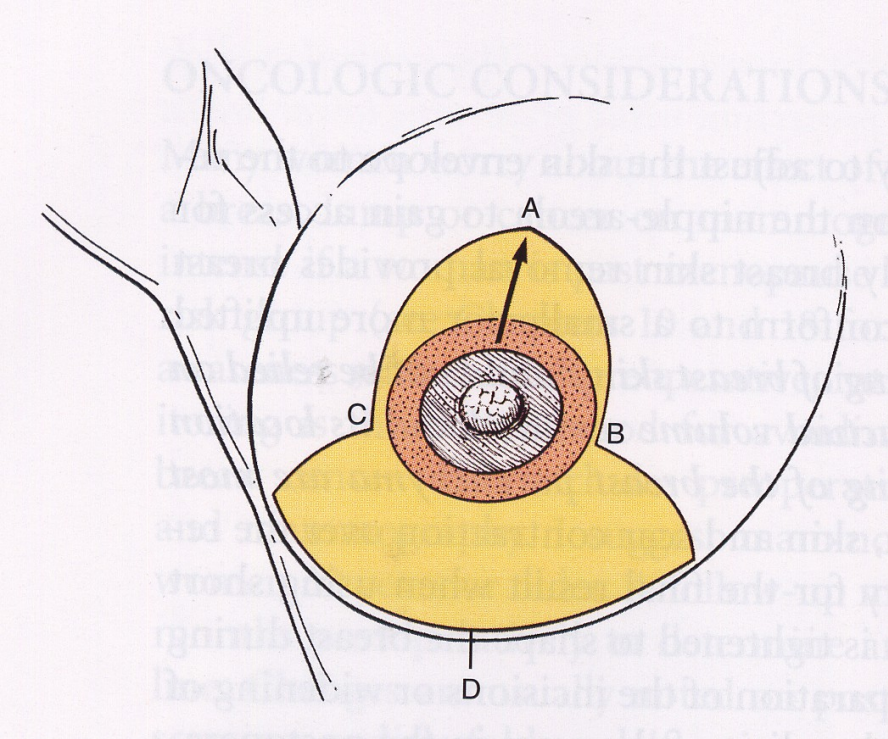
Superior Pedicle Technique

- 500gm – 2000gm reductions
- 5-7cm of NAC repositioning
- Pliable parenchyma
- Good NAC mobility
- Removal of parenchyma from inferior and lateral aspect
- Inverted T
- NAC moved on superior central parenchyma
- Lateral liposuction prn

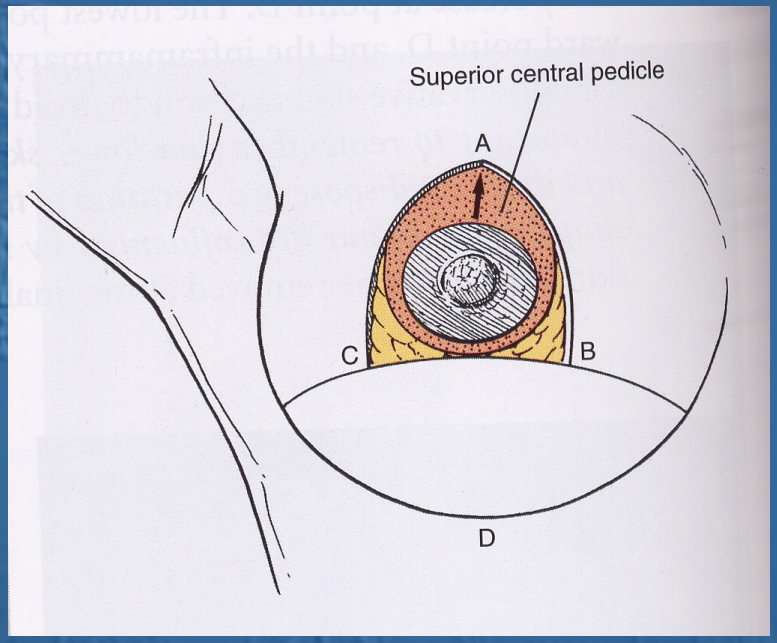
Markings

- Midbreast line (mid of clavicle to nipple or ASIS)
- Support breast to mark projection of IMC
- Apex of NAC 1-2cm above IMC when final volume is 300-500gm, lower if bigger
- Nipple 19-21cm from sternal notch
- Better to measure up than measure down
- Arcs of V 9cm tangential to current NAC, up to 11cm for bigger residual breasts
- Intersection of midbreast line with IMC
- Connect V to IMC medially and laterally (90 angle)
- 42-46mm circle in NAC
- Remark IMC with patient supine

Step 1



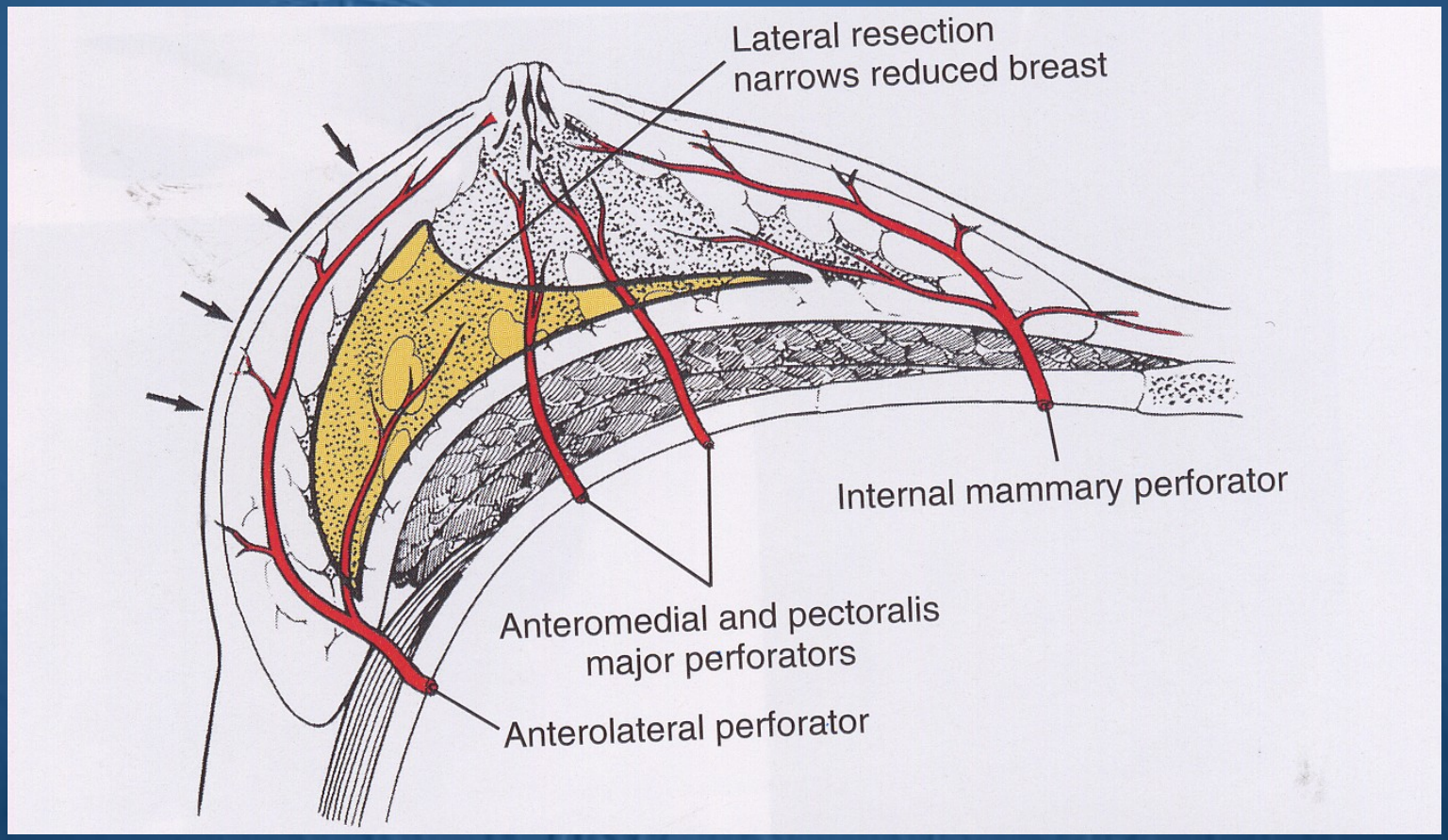
Step 2



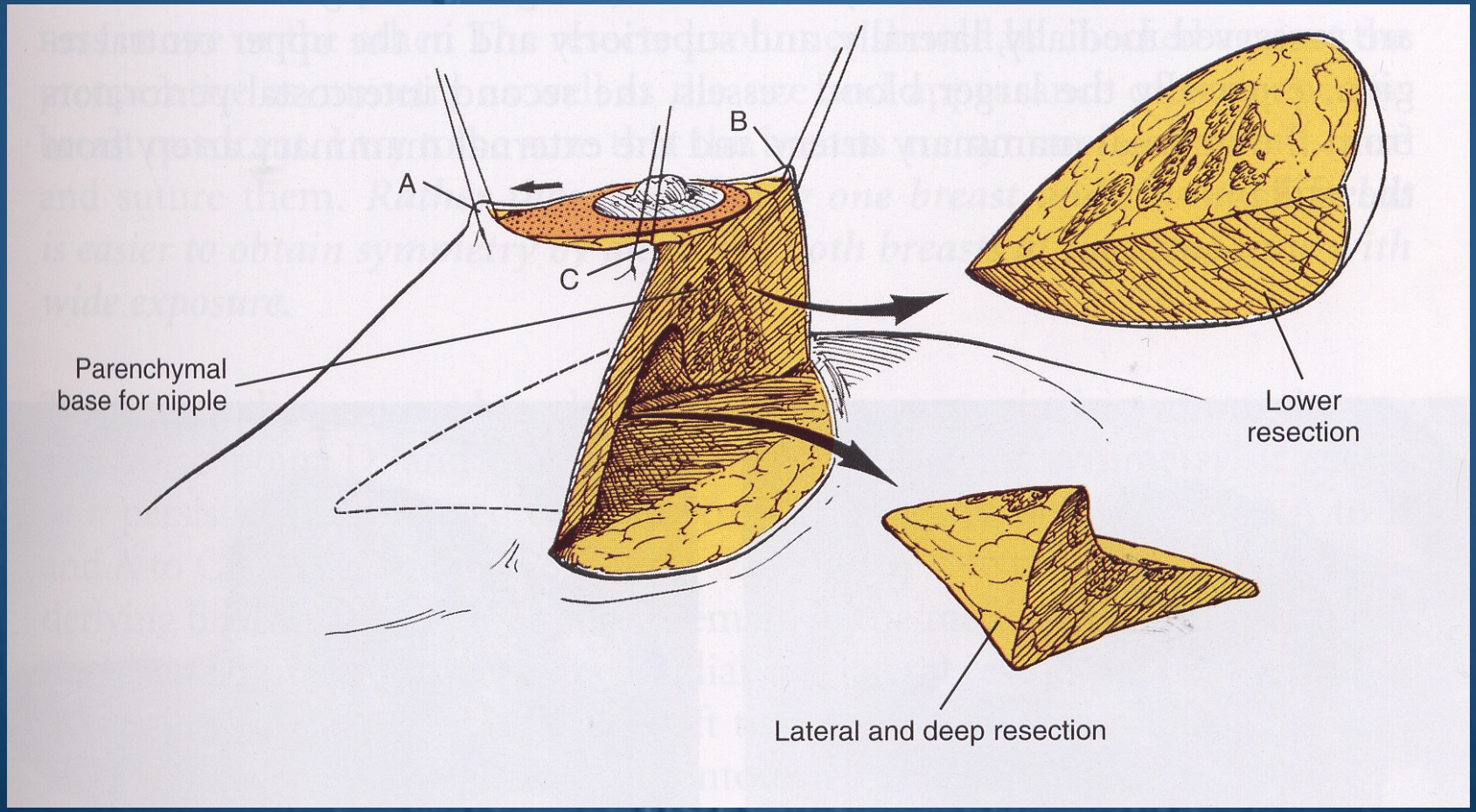
Technique I

1. Periareolar incision to dep dermis
2. Deepitheliazation of upper V
3. IMC incision down to deep fascia
4. Elevate in this plane to NAC level
5. Lift breast perpendicular to chest wall (at top of V and center of the lower resection line)
6. Resect portion projectin below final IMC
7. Resect a wedge of lateral parenchyma and (prn) a disc of deep central tissue
8. Position NAC, secure at apex
9. Check symmetry sitting, preliminary closure
10. Mark circle 2-3mm smaller than preserved NAC
11. Excise full thickness

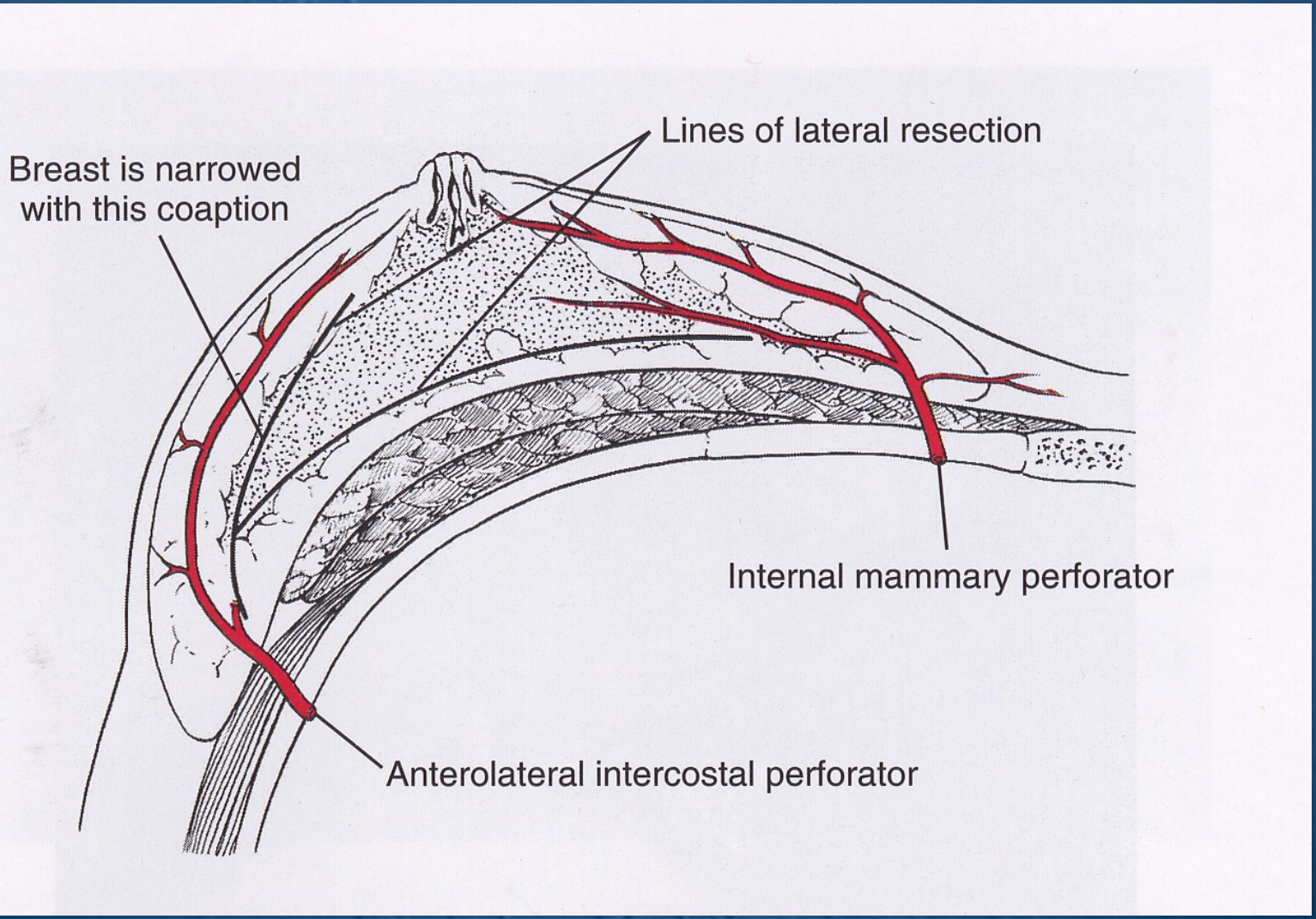
Step 3


Lateral resection
narrows reduced breast
Internal mammary perforator
Anteromedial and pectoralis
major perforators
Anterolateral perforator

Step 4


A
B
C
Parenchymal
base for nipple
Lower
resection
Lateral and deep resection

Step 5


Lines of lateral resection
Breast is narrowed with this coaption
Internal mammary perforator
Anterolateral intercostal perforator

Technique II

12. Close vertical line to 5cm above IMC
13. Check NAC with pt sitting – 4.5 – 5.5cm above IMC with 300-500gm final breast volume, more if bigger
14. Intracuticular sutures for NAC
15. Hemostasis
16. Drains prn
17. Deep dermal and superficial fascia with vicryl
18. Intracuticular sutures for T
19. Light dressing
20. Brassiere on POD#1

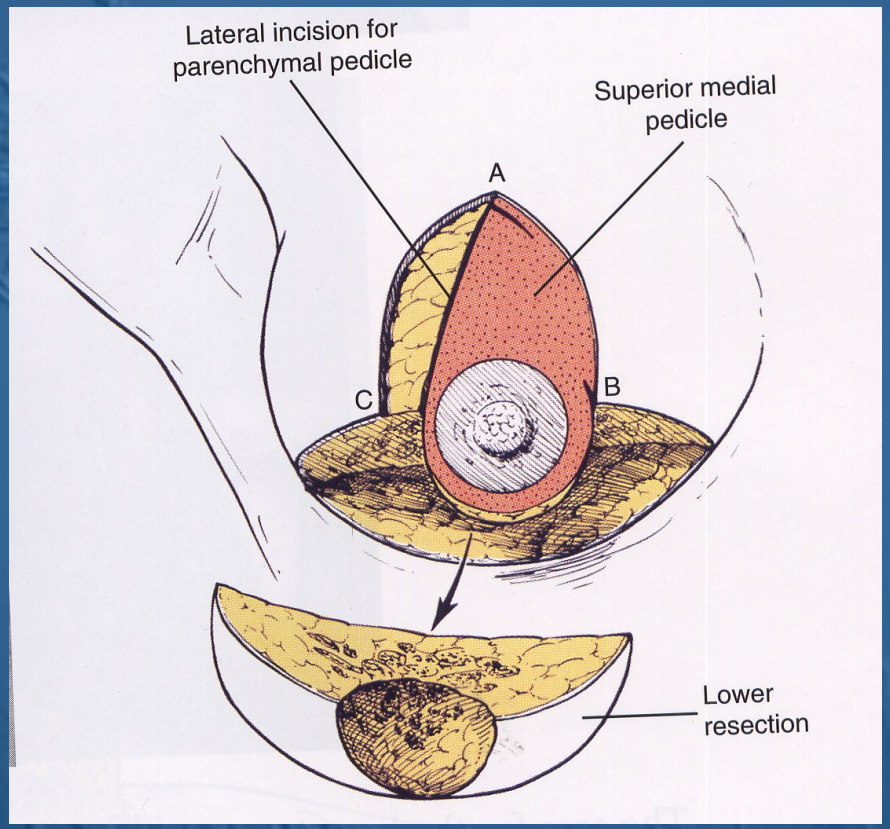
Superior Medial Pedicle Technique

- Reliable, unless impaired microcirculation (obese, smoker > 60PY, collagen vascular disease)
- 500gm – 2000gm reductions
- > 5-7cm of NAC repositioning
- Firm nonpliable parenchyma
- restricted NAC mobility
- Removal of parenchyma from inferior, lateral and upper lateral aspect
- Inverted T
- Upper tissue preserved
- Liposuction prn
- Same markings as for superior pedicle technique

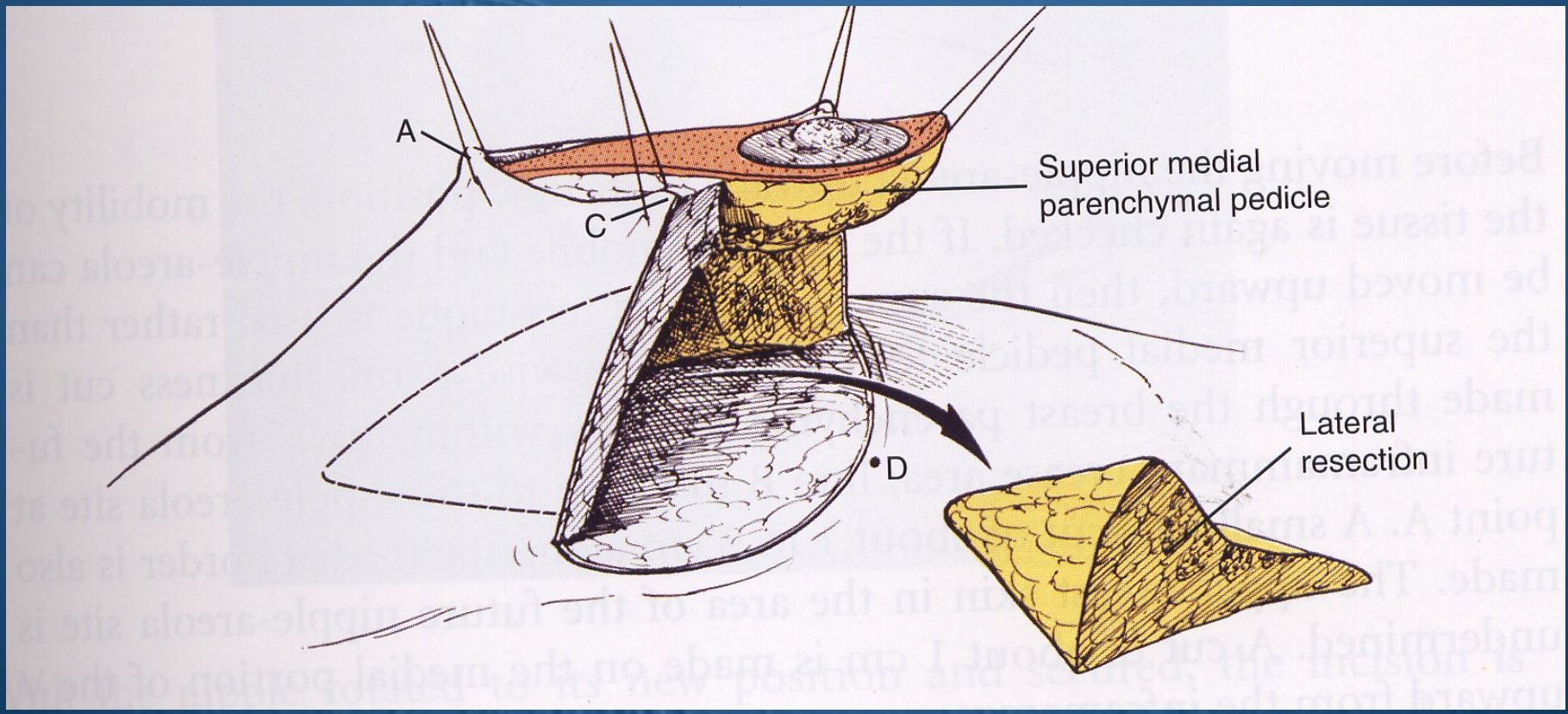
Technique I

1. Periareolar incision to dep dermis
2. Deepitheliazation of upper V
3. IMC incision down to sperficial layer of deep fascia
4. Elevate in this plane to NAC level
5. Resect medial portion by bevelling incision 45 deg superiorly with brast flat on chest
6. Elevate breasts off by lifting at apex of V and superior resection line
7. Resect transversely tissue projecting below future IMC
8. Delineate lateral resection on skin
9. Resect lateral wedge
10. If NAC is mobile enough, inset it otherwise make a full thickness cut lateral of the deepithialized area within the upper V

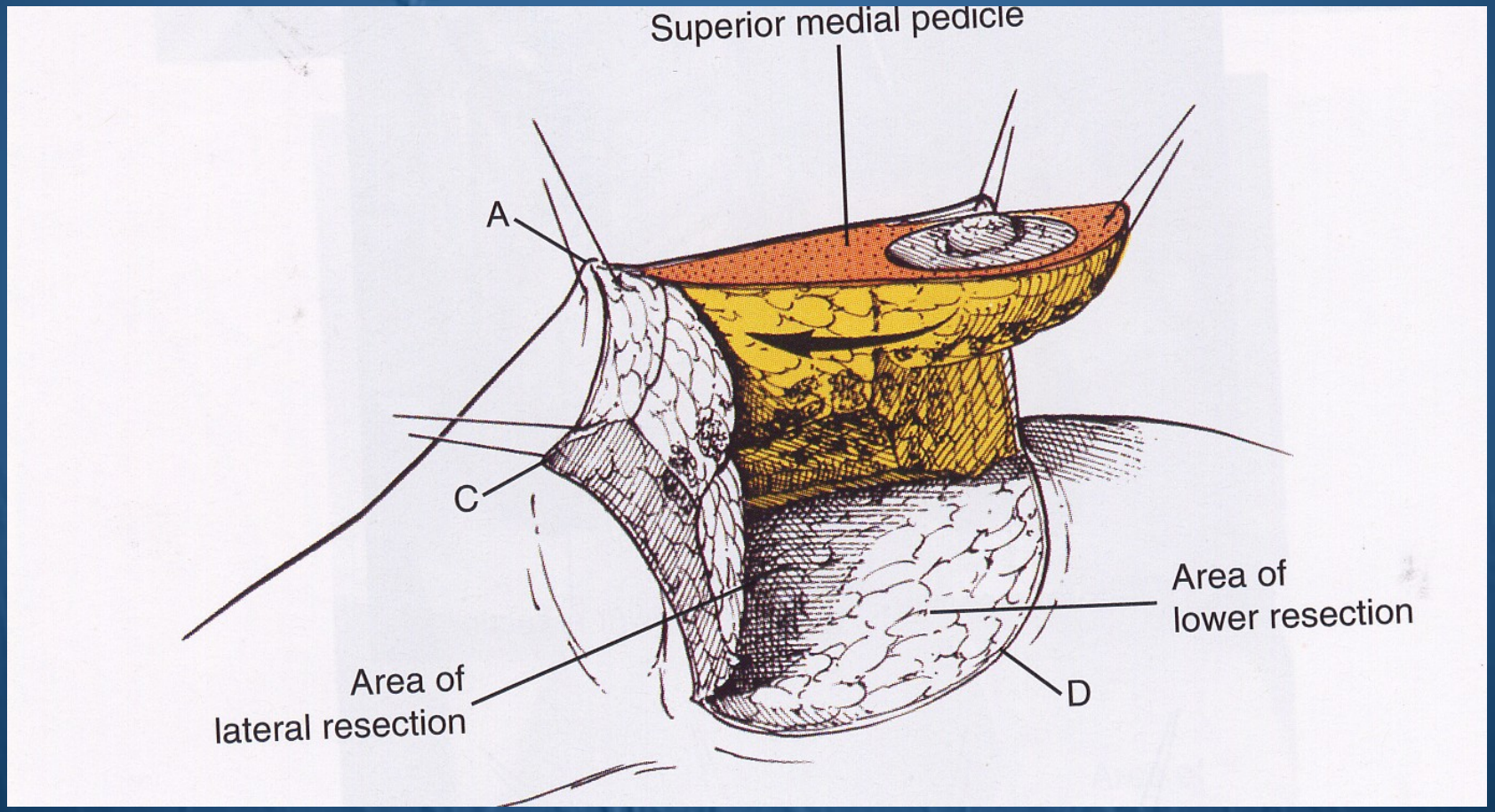
Step 1


Lateral incision for parenchymal pedicle
Superior medial pedicle
A
B
C
Lower resection

Step 2


A
C
Superior medial
parenchymal pedicle
D
Lateral
resection

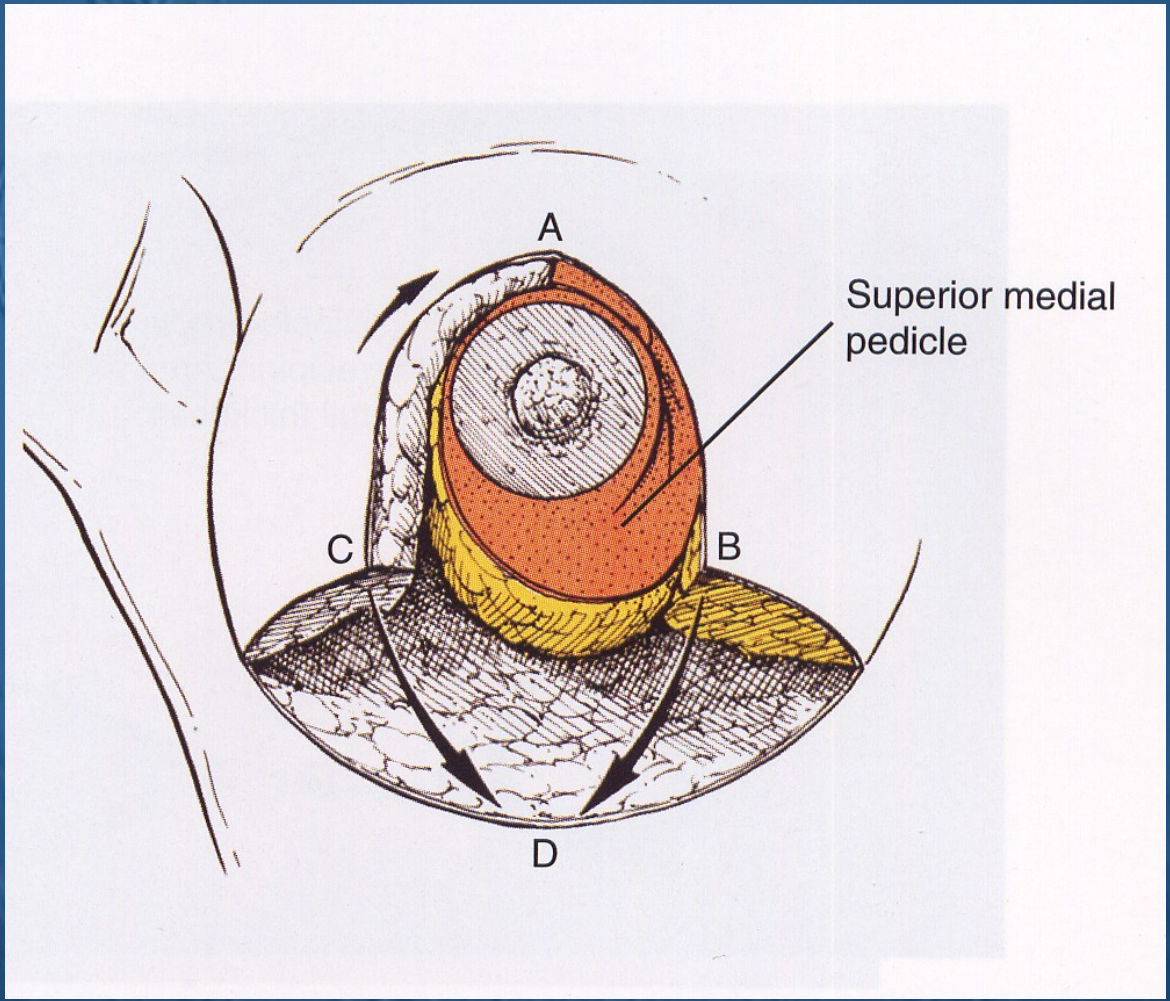
Step 3


Superior medial pedicle
A
C
Area of
lower resection
Area of
lateral resection
D

Technique II

11. 1-2cm backcut at medial pillar
12. Undermine breast skin around future NAC area
13. 1cm cut at lower medial V
14. Rotate NAC into position
15. Preliminary closure form lateral and medial toward T point
16. Resect excess skin medially
17. NAC inset as previously

Step 4



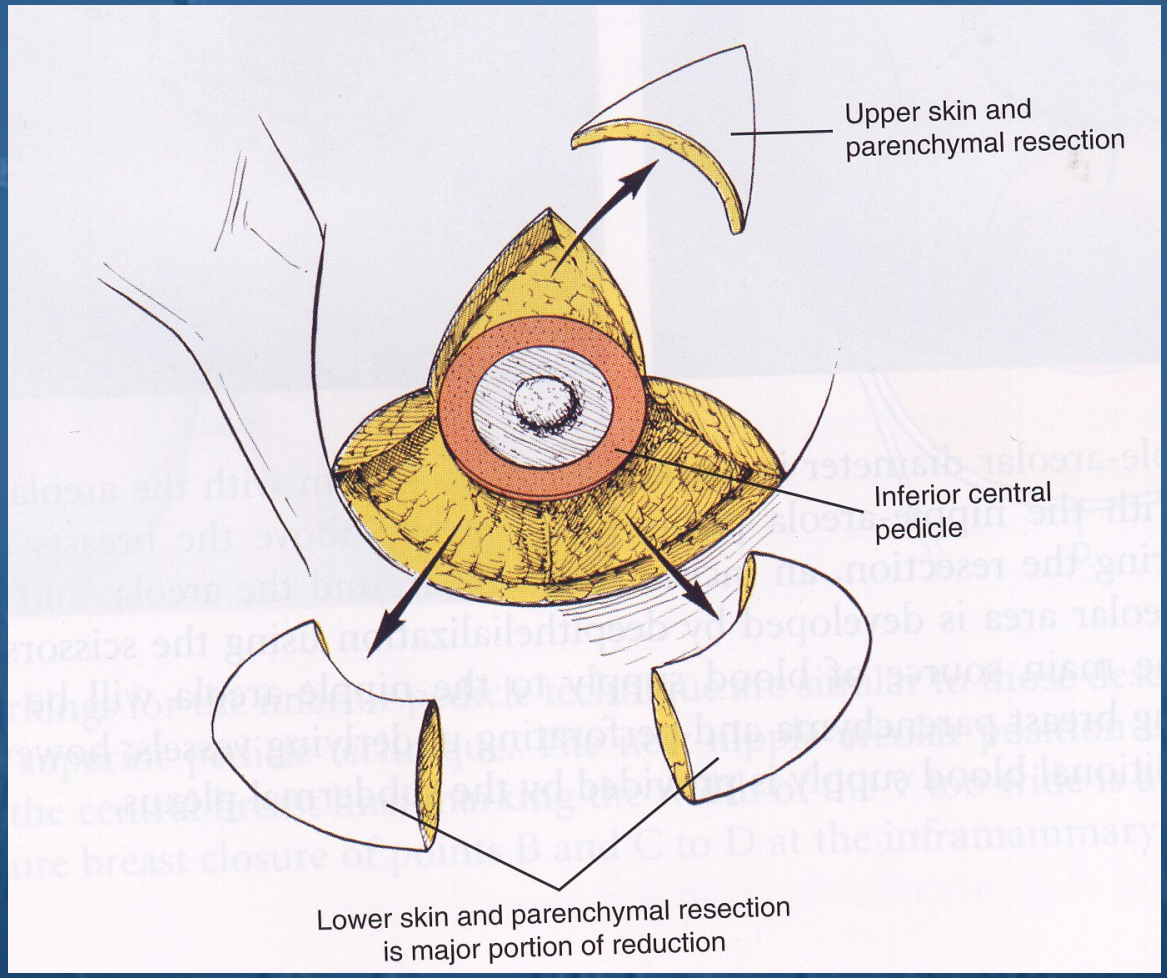
Inferior Central Pedicle

- Relies and chest wall blood supply
- Shaping in all quadrants
- Flaps above future IMC elevate as 1.5-2cm flaps
- Resection tangentially
- Avoidance of overresection superiorly and medially
- Late bottoming out of cetral mound
- Versatility of NAC movement
- Lateral liposuction prn
- Markings as for superior pedicle

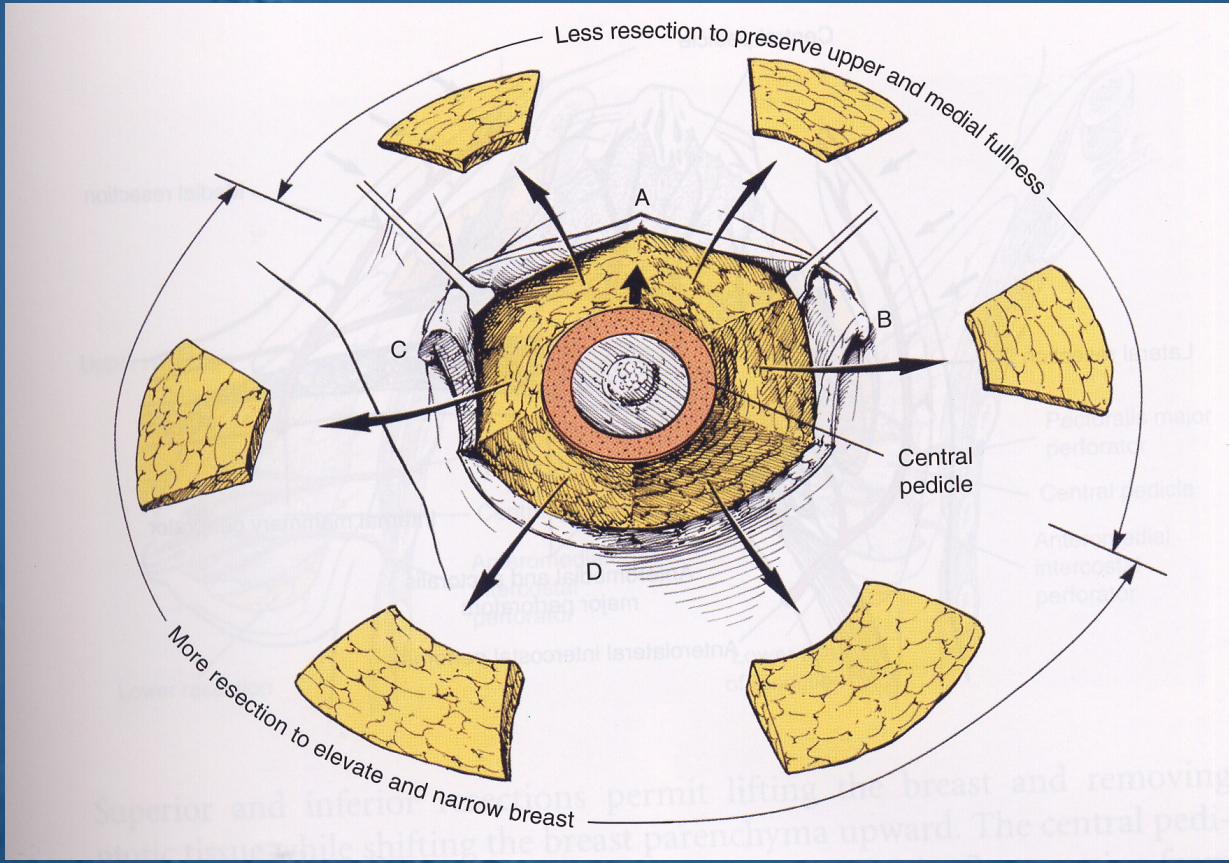
Technique I

1. Initially supine with breast centralized on chest wall so that there is no ptosis, NAC in ICS 4 centrally over breast
2. Circumareolar incision
3. Deepitheliazation of upper V
4. Mobilization of upper flap 1.5 – 2cm thick
5. Excision of uper triangle
6. IMC and vertical incisons
7. Resection of lower skin with 1-2cm of subjacent tissue
8. Excision tangentially from central mound (more laterally and inferiorly), stop short of deep fascia
9. Move NAC
10. Close T from periphery to central point
11. Inset NAC

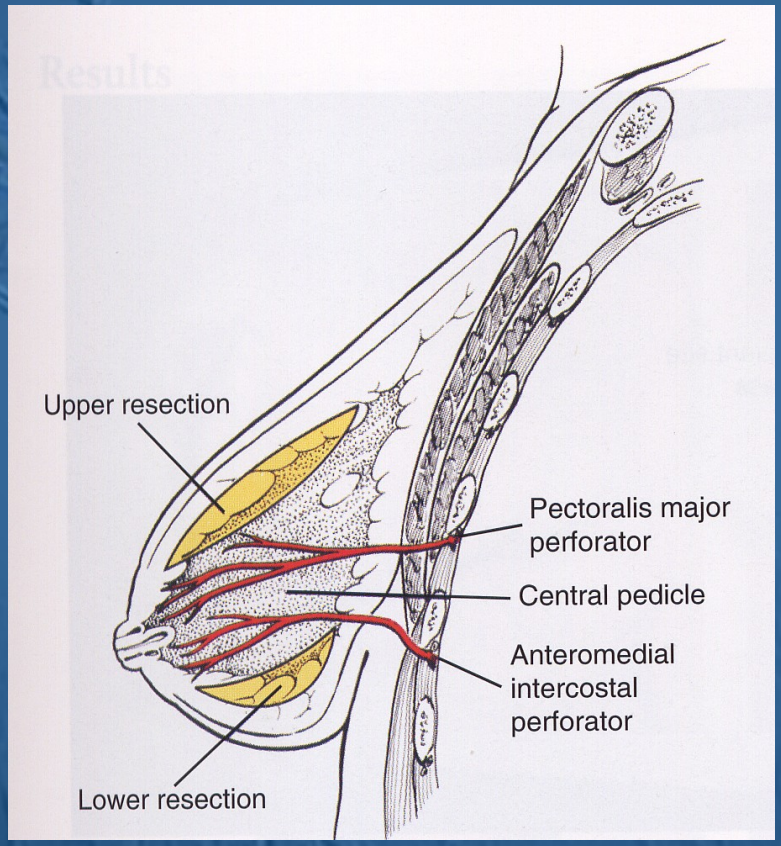
Step 1


Upper skin and
parenchymal resection
Inferior central
pedicle
Lower skin and parenchymal resection
is major portion of reduction

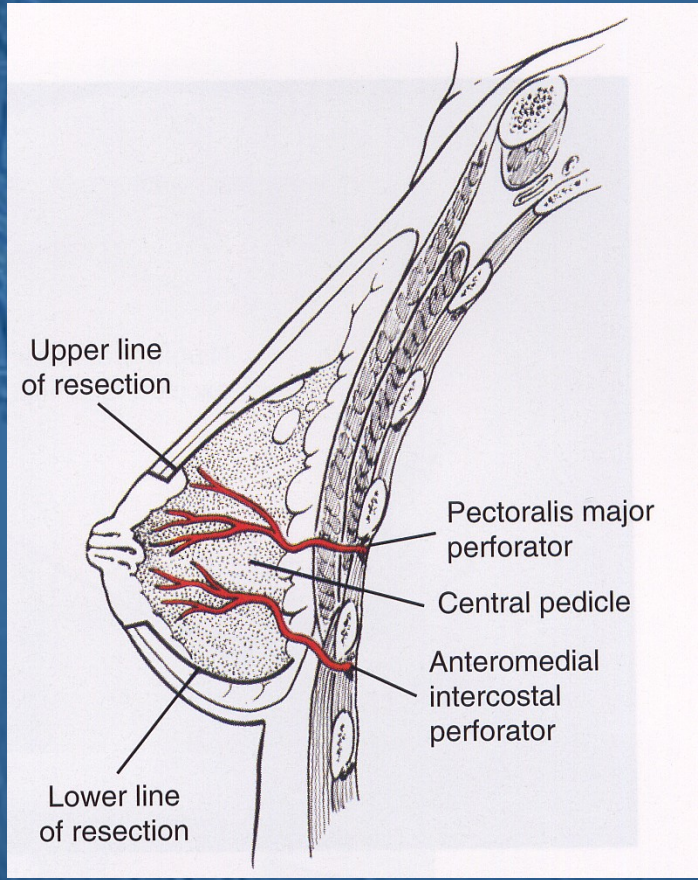
Step 2


Less resection to preserve upper and medial fullness
A
B
C
D
Central pedicle
More resection to elevate and narrow breast

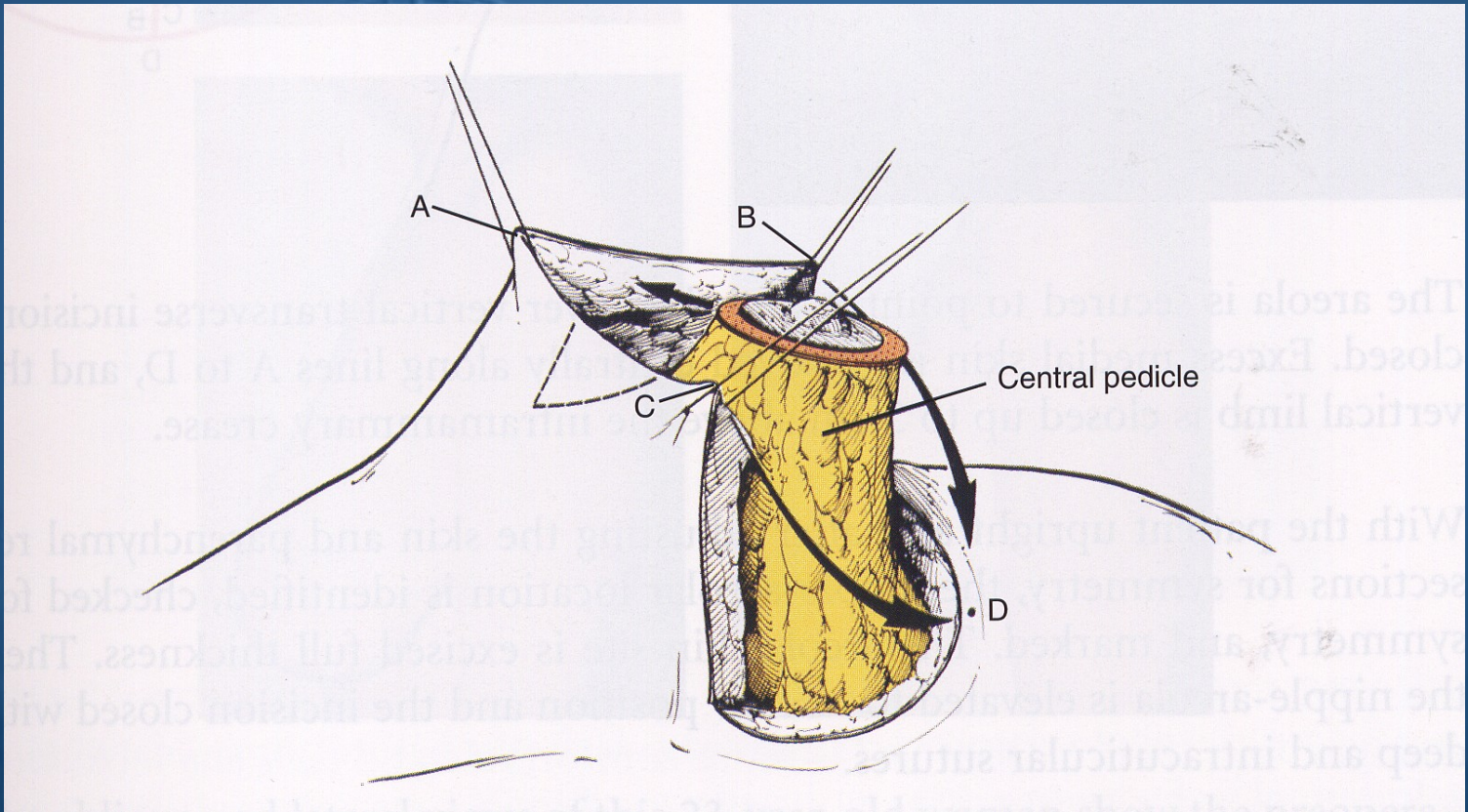
Step 3


Upper resection
Pectoralis major perforator
Central pedicle
Anteromedial intercostal perforator
Lower resection

Step 4


Upper line
of resection
Pectoralis major
perforator
Central pedicle
Anteromedial
intercostal
perforator
Lower line
of resection

Step 5



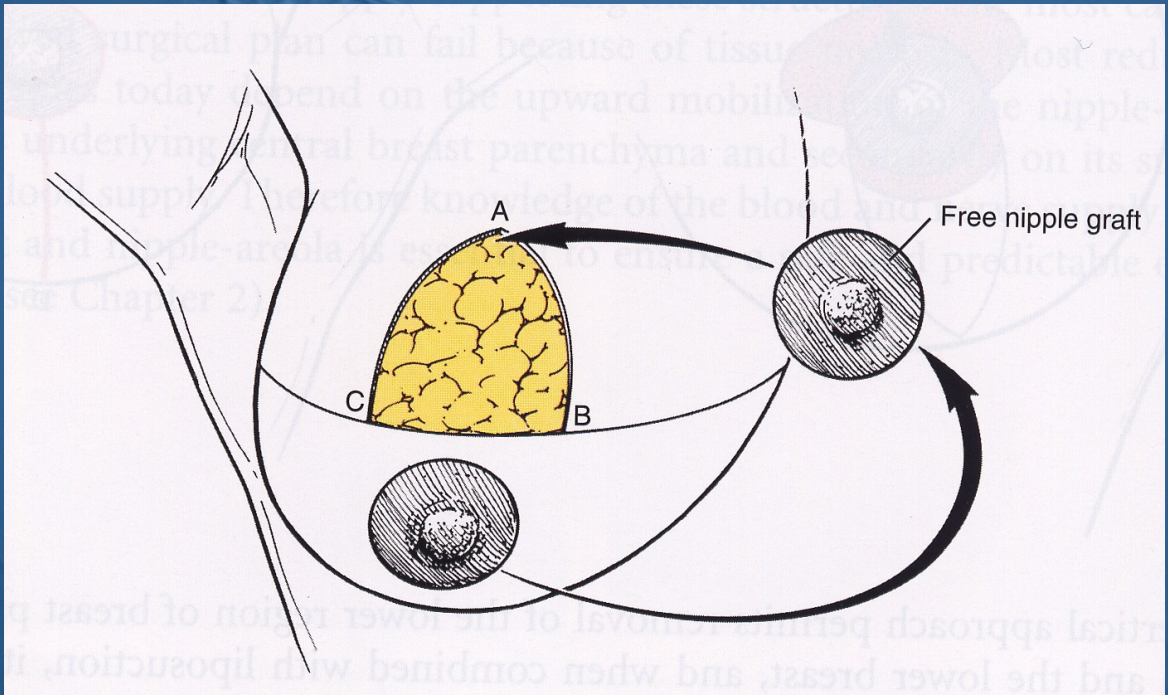
Free Nipple Graft

- No pedicle to carry NAC
- Inferior and lateral excision
- Minimizes fat necrosis and NAC devascularization
- For very large breasts with compromised microcirculation
- Liposuction laterally prn
- No lactation potential
- Return of sensation
- Markings as for superior pedicle
- Main danger – NAC too high

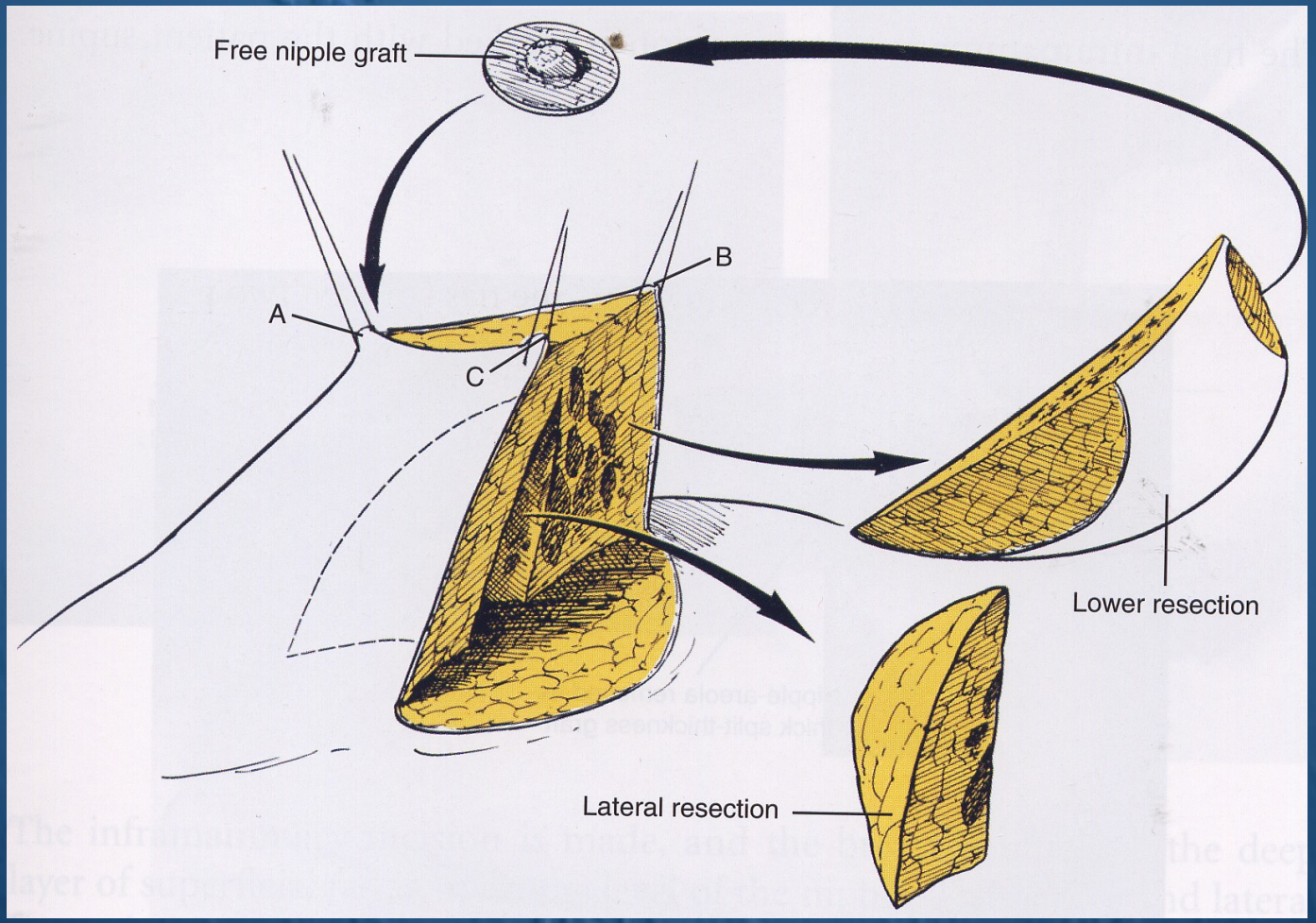
Technique I

1. Circumareolar incision
2. NAC removed tangentially as thick split graft, preserve in gauze sponge
3. IMC incsion
4. Dissection at level of deep fascia to NAC level
5. Medial and lateral incisions (bevelled ipward)
6. Lift brest perpendicular to chest wall
7. Resect breast tissue inferior to future IMC
8. Resection of lateral wedge
9. Closure from periphery to center of T
10. Determine NAC site and deepithelilize
11. Graft NAC
12. Complete closure

Step 1



Step 2



Postoperative

- Dressing change down to steri sttrips on POD #1
- Drain pulled on POD#1
- Shower on POD# 1
- No disturbace or massaging of breast area
- No activities requiring raising arms overhead for 4-6wks
- No NSAIDs x 3-4wks
- No active/passive smoking x 2-3 wks
- Desensitization starting after 2-3wks
- Anticipate decreased sensation

Ancillary Procedures

- Reduction-augmentation
- Chest contouring
- Abdominal contouring

Ancillary Procedures – Reduction Augmentation

- To restore upper fullness
- Implant subpectorally (sup.) and subglandularly (inf.)
- Superior or superior medial technique preferred
- Can btain better symmetry with an opposite reconstructed breast

Ancillary Procedures – Chest Contouring

- Liposuction laterally
- Infiltrate
- Part. if IMC extendes to back

Ancillary Procedures – Abdominal Contouring

- Upper abdominal fat is accentuted after reduction
- Months until final result
- More painful than reduction

Special Problems

- Elderly

1. Reduction only exceptionaly if > 65y/o
2. Free nipple graft

- At risk for breast cancer

1. Preop. Mammograms if risk or > 30y/o
2. Simpler techniques with less risk of fat necrosis
3. General surgeon available
4. Pathologic exam, precise labelling
5. Any new lump postop. must be explained

Problems and Complications

- Aesthetic – wait 1yr to correct

1. Insufficient reduction
2. Asymmetry
3. Dog ears
4. NAC malpositioning
5. Scar problems

- Operative

1. Hematoma
2. Infection
3. Delayed healin of T

Hematoma

- Within hours
- Reoperate
- Use wetting solution
- Meticulous intraoperative hemostasis
- Avoid NSAIDs pre and postop.

Infection

- Related to decreased blood supply, nonviable tissue
- Low risk after reduction
- Staphs in ducts
- Cover for gram pos.
- Drain suspicious seromas/hematomas

Delayed Healing of T

- Tension round T point
- Close from periphery to center
- Conservative markings
- Consider 3 clips to absorbe some tension for 2-3 wks

Dog Ears

- Excision of ski with extra sc tissue during closure

Inadequate Reduction

- Weight gain, lactation, insufficient resection, operation prior to final growth
- Use similar technique for reoperation as for primary operation

NAC Problems

- Choice of technique
- If questionable intraop -> use NAC as split graft
- No tight inset
- Conservative debridement
- Healing by secondary intention
- Nipple areoal reconstruction
- Tattoo if loss of pigmentation
- If NAC appears too high because of further ptosis -> resect again
- Lower NAC results in further scars

Scar Problems

- Reconsider operation if tendncy to form bad scars
- Avoid T, tight closures, tight NAC inset, close in layers, no overhead activity x 2mo
- Triamcinolone intralesionally
- Correction after 1yr

Asymmetry

- No immediate reoperation
- Early – swelling, stretching, hematoma, seroma

Fat Necrosis

- Decreased bllod flow
- Thickening -> necrosis/liquefaction -> microcalcification, atrophy
- Resembles lump -> evaluate with FNA

Overreduction and Upper Breast Flattening

- Implant
- Rarely LD