

Plastic and Reconstructive Surgery of the Breast

Justin R. Fernandes, MD
November 21, 2019



Outline

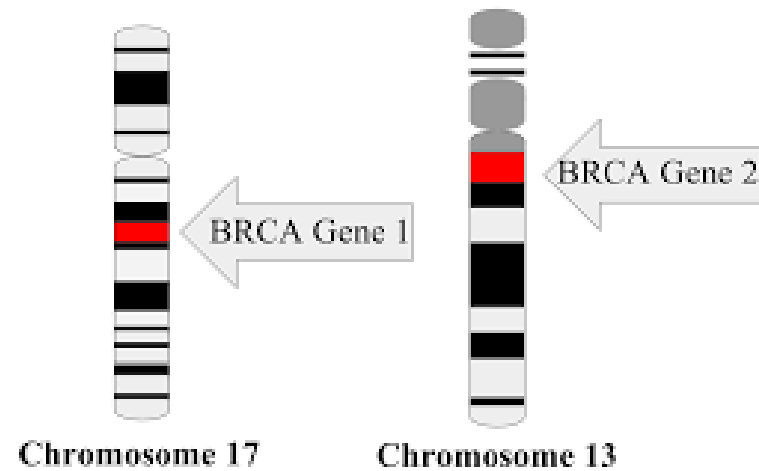
- ▶ Surgical Treatment of Breast Cancer
- ▶ Breast Reconstruction
 - ▶ Oncoplastic
 - ▶ Implant Based
 - ▶ Autologous
- ▶ Breast Implant Associated Anaplastic Large Cell Lymphoma
- ▶ Breast Reduction

Breast Statistics

- ▶ 1 in 8 U.S. women (about 12%) will develop invasive breast cancer
- ▶ 2019, an estimated 268,600 new cases of invasive breast cancer are expected to be diagnosed in women in the U.S., along with 62,930 new cases of non-invasive (in situ) breast cancer
- ▶ incidence rates in the U.S. began decreasing in the year 2000, decrease use of HRT
- ▶ Breast cancer deaths are higher than those for any other cancer, besides lung cancer
- ▶ 5 year survival is 90%
- ▶ 5 year survival for stage 1 breast cancer is 99%

Genetics

- ▶ 90% of cancers are spontaneous
- ▶ 10% have known genetic risk
 - ▶ BRCA1 - 72%
 - ▶ BRCA2 - 69% (7% male)
- ▶ Ovarian, prostate, pancreatic



Stages of Breast Cancer

Stage	Primary Tumor	Nodes	Metastases
Stage 1A	≤ 20 mm	None	None
Stage 1B	≤ 20 mm	Nodal Micrometastases (>0.2 mm <2.0 mm)	None
Stage IIA	≤ 20 mm > 20 mm ≤ 50 mm	N1 None	None None
Stage IIB	> 20 mm ≤ 50 mm > 50 mm	N1 None	None
Stage IIIA	≤ 50 mm > 50 mm	N2 N1 or N2	None
Stage IIIB	Extension to chest wall and/or skin	N0 - N2	None
Stage IIIC	Any size	N3	None
Stage IV	Any size	Any involvement	Detectable

N0 = no regional lymph node metastasis

N1 = 1-3 axillary lymph nodes involved and/or internal mammary nodes with metastases detected by biopsy

N2 = 4-9 axillary lymph nodes involved or clinically detected internal mammary nodes in the absence of axillary nodal involvement

N3 = ≤ 10 axillary lymph nodes involved, or infraclavicular lymph nodes, or clinically detected mammary lymph nodes with axillary involvement, or > 3 axillary nodes with internal mammary nodes detected by biopsy, or in ipsilateral supraclavicular lymph nodes

Surgical Treatment of Breast Cancer

- ▶ Breast Conservation Therapy (BCT)
 - ▶ Lumpectomy + radiation
- ▶ Mastectomy
 - ▶ Radical modified mastectomy
 - ▶ Nipple sparing mastectomy
- ▶ Sentinel Lymph Node biopsy
- ▶ Axillary Dissection

Breast Conservation Therapy (BCT)

- ▶ What is it?
 - ▶ Radiographic localization of cancer (needle, magnetic seed) and excision
 - ▶ Followed by Radiation
- ▶ Contraindications
 - ▶ Pregnancy, although such surgery may be done during the third trimester with radiation following delivery.
 - ▶ Two or more primary tumors in separate quadrants of the breast or diffuse microcalcifications.
 - ▶ Previous irradiation of the breast.
 - ▶ Persistent positive tissue margins after surgery.
 - ▶ Tumor Size (5cm)

Reconstruction after Lumpectomy

- ▶ None
- ▶ Fat Grafting
- ▶ Oncoplastic Techniques
- ▶ Implant
- ▶ Flap



Fat Grafting



- ▶ 70% survival, may need multiple treatment
- ▶ Can restore moderate volume
- ▶ Minimal effect on skin
- ▶ Macro-calcifications

Oncoplastic Techniques

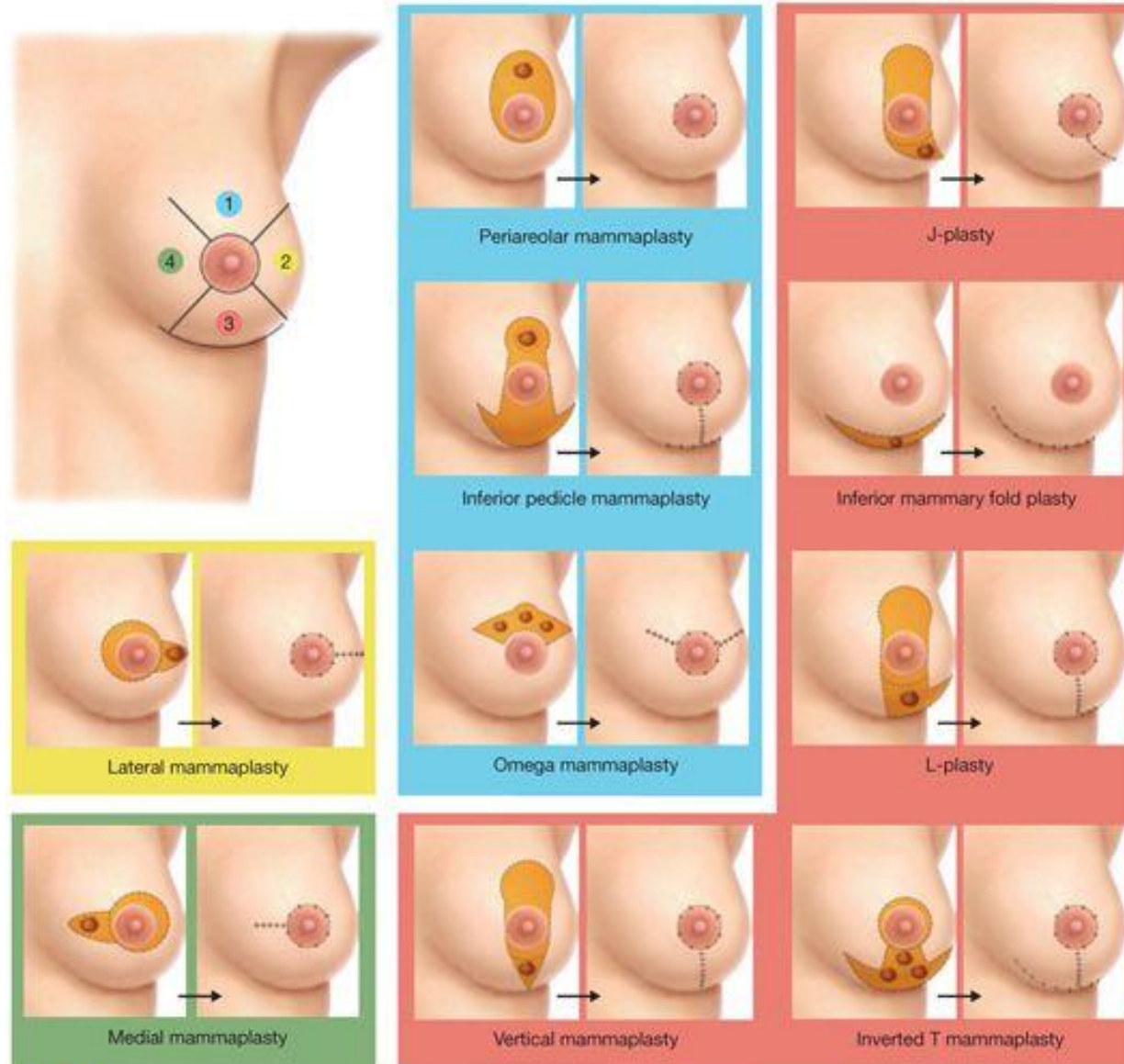


FIG 3 • There are multiple options for skin incisions for resections depending on the location of the defect, size of the defect, and size of the breast.

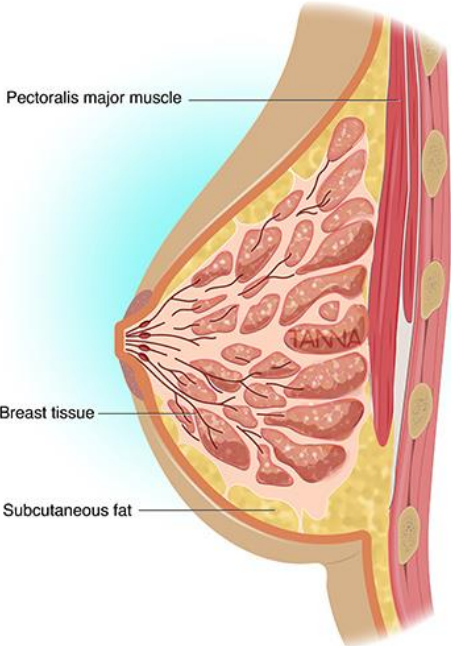
Reconstruction after Mastectomy

- ▶ Implant Based
 - ▶ Timing
 - ▶ Immediate (at time of mastectomy)
 - ▶ Delayed
 - ▶ Device
 - ▶ Implant (silicone, saline) vs. Tissue Expander
 - ▶ Position
 - ▶ Below the muscle (sub pectoral)
 - ▶ Above the muscle (pre pectoral)

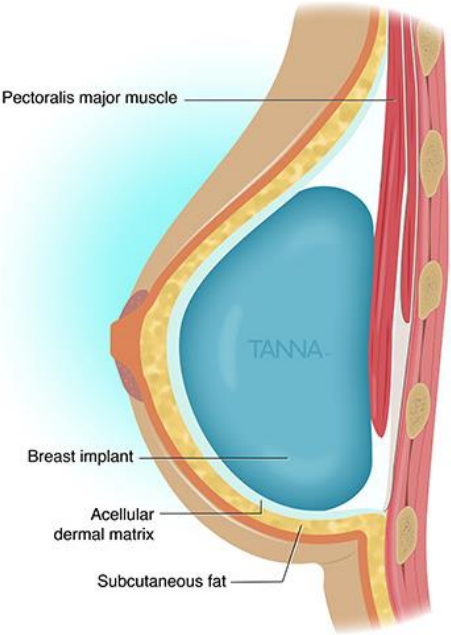


Implant Based Reconstruction

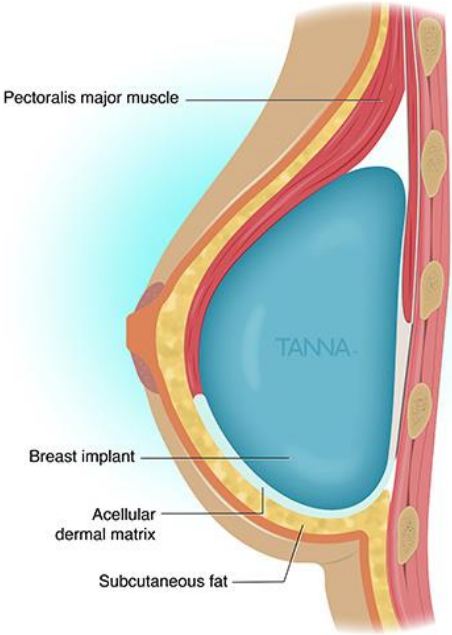
Native Breast



Pre-Pectoral Breast Reconstruction



Sub-Pectoral Breast Reconstruction

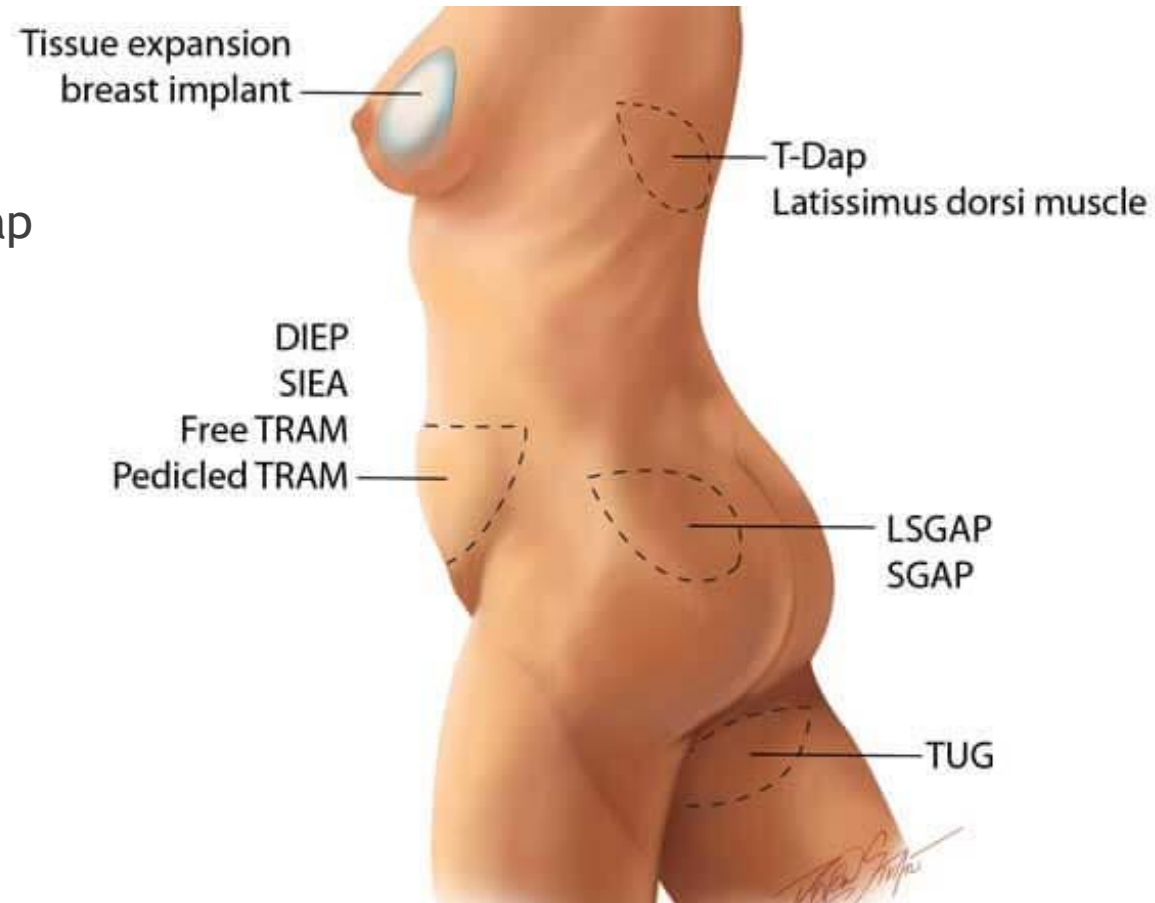


Implant Based Breast Reconstruction

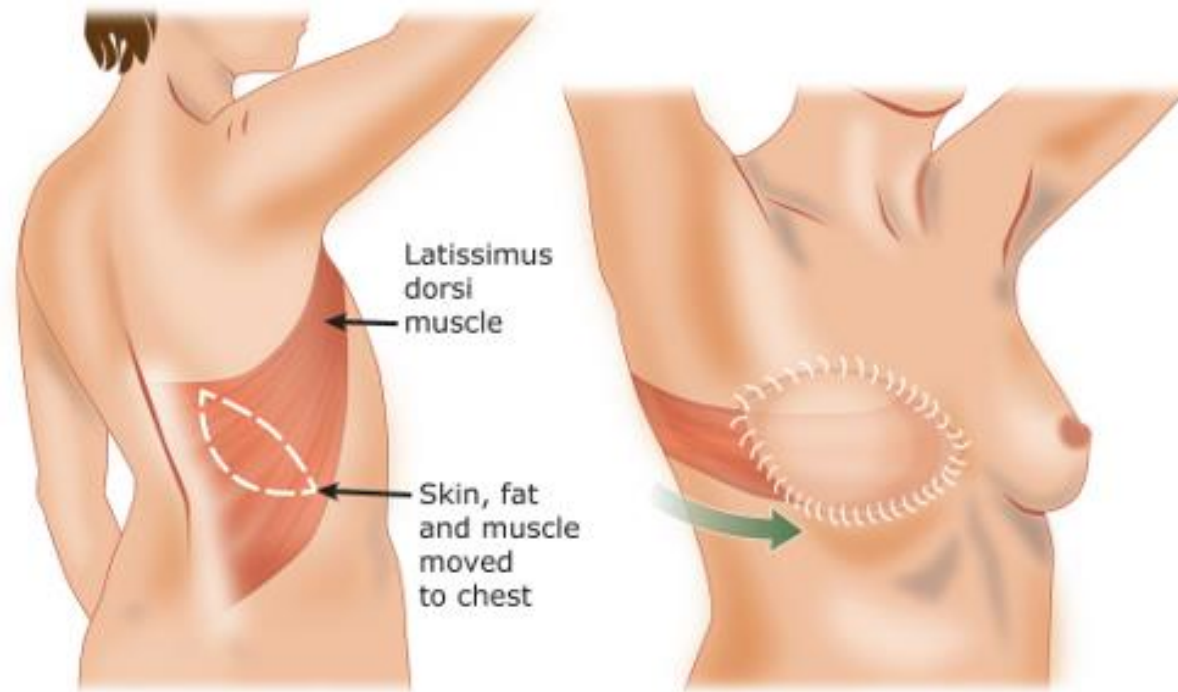


Autologous Breast Reconstruction

- ▶ Lattisimus Dorsi Flap
- ▶ TRAM Flap
- ▶ DIEP Flap

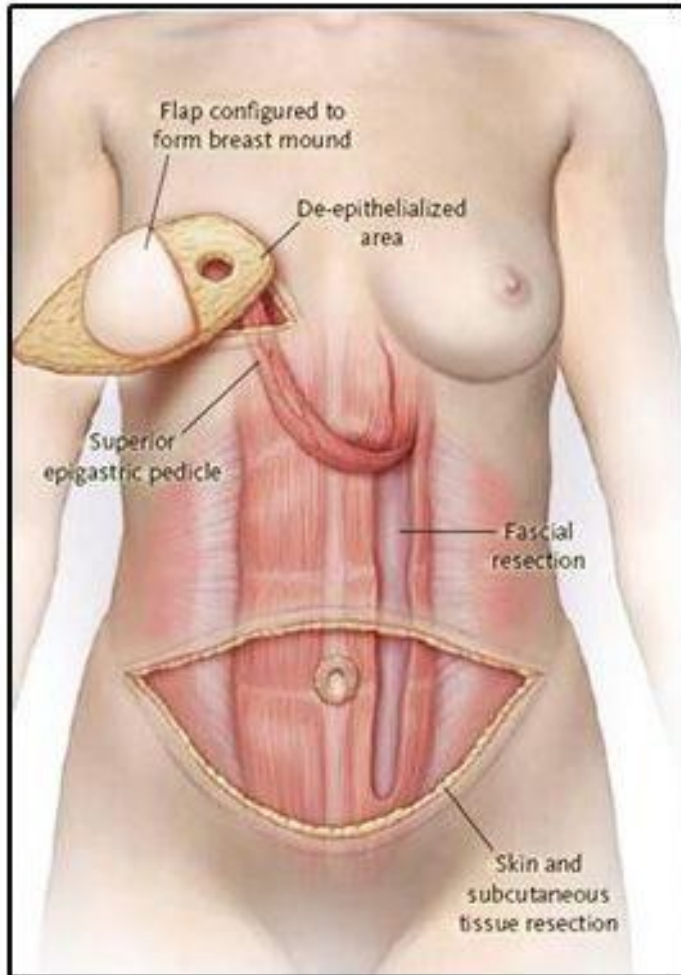


Latissimus Dorsi Flap



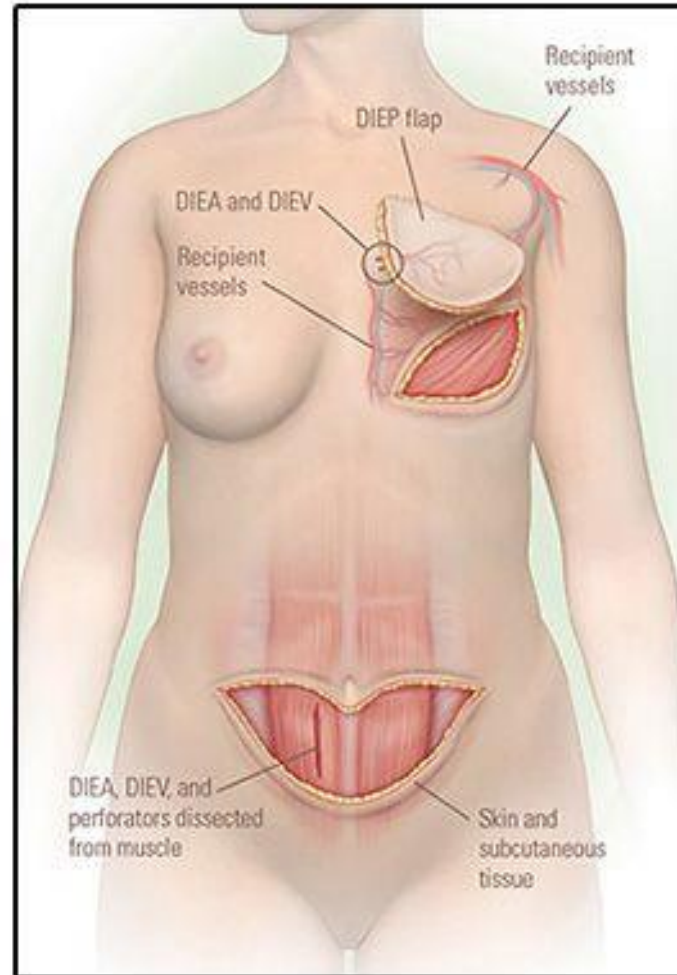
Latissimus Dorsi Flap Reconstruction

Abdominal Flaps



TRAM Flap

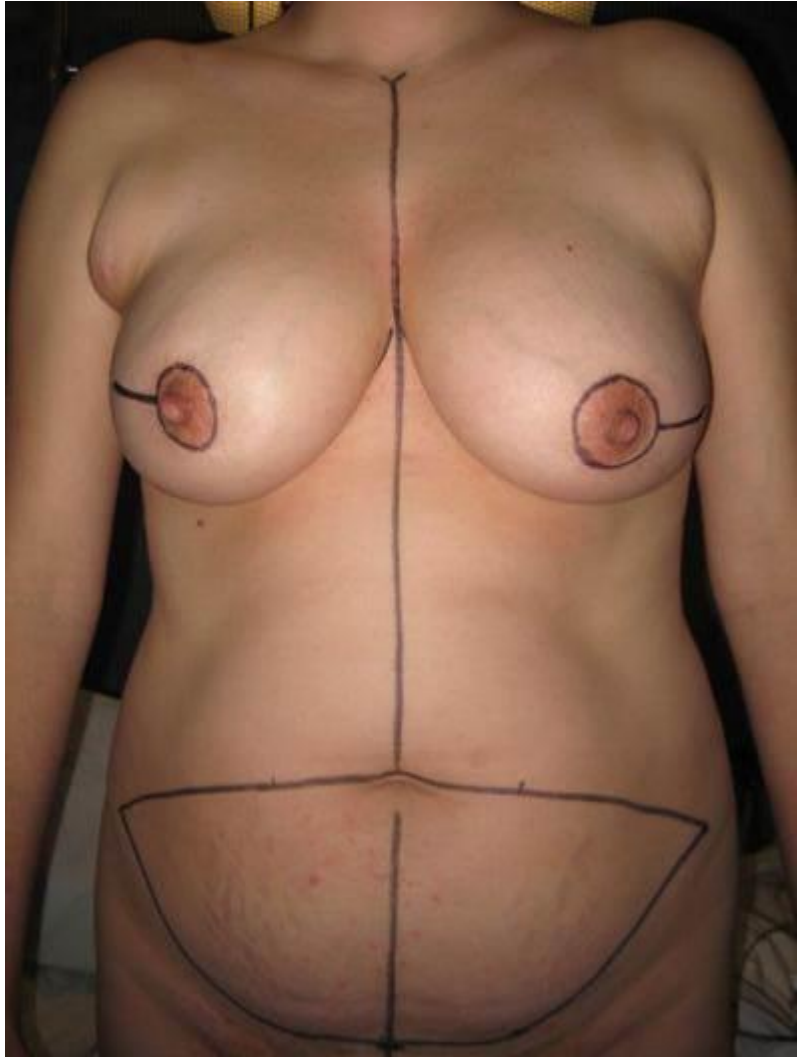
Lower abdominal skin, fat and one of the rectus muscle are transferred to the mastectomy site and contoured appropriately to reconstruct the breast.



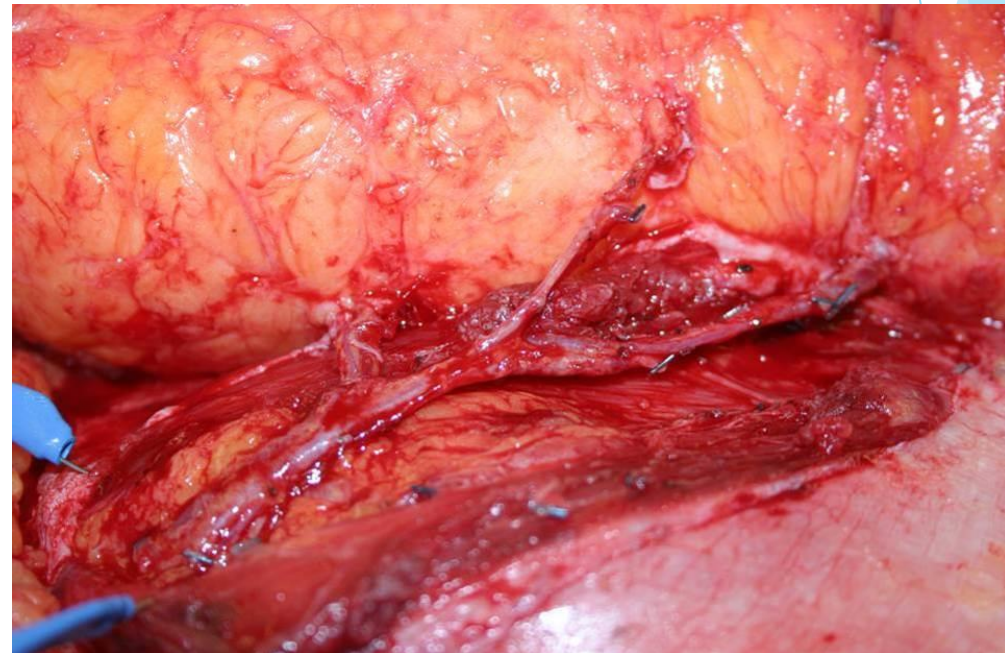
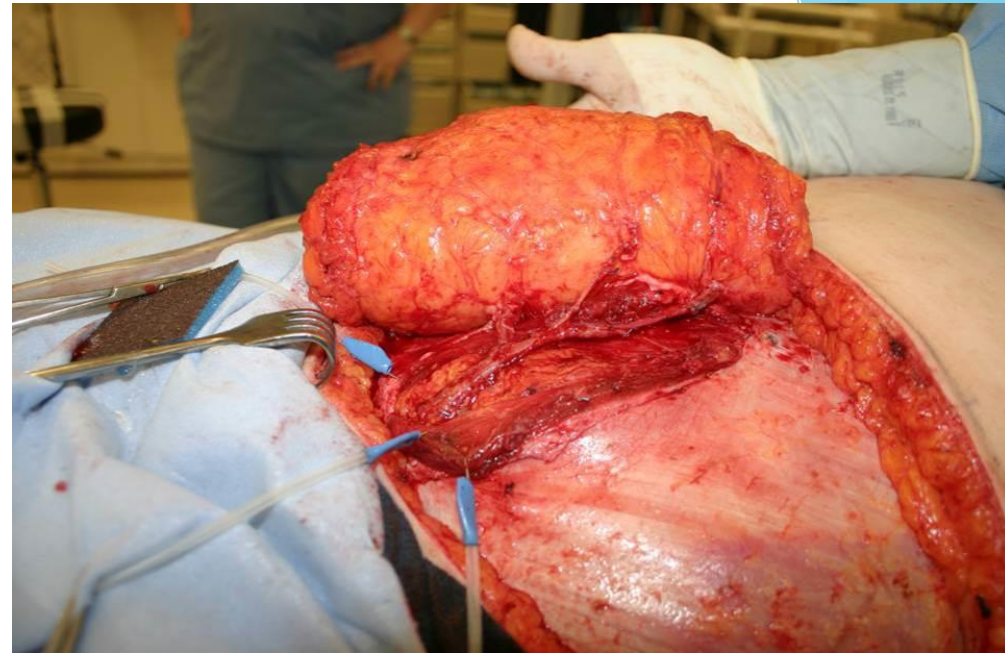
DIEP Flap

The DIEP flap also uses the skin and fat from the lower portion of the abdomen, but spares the rectus muscle.

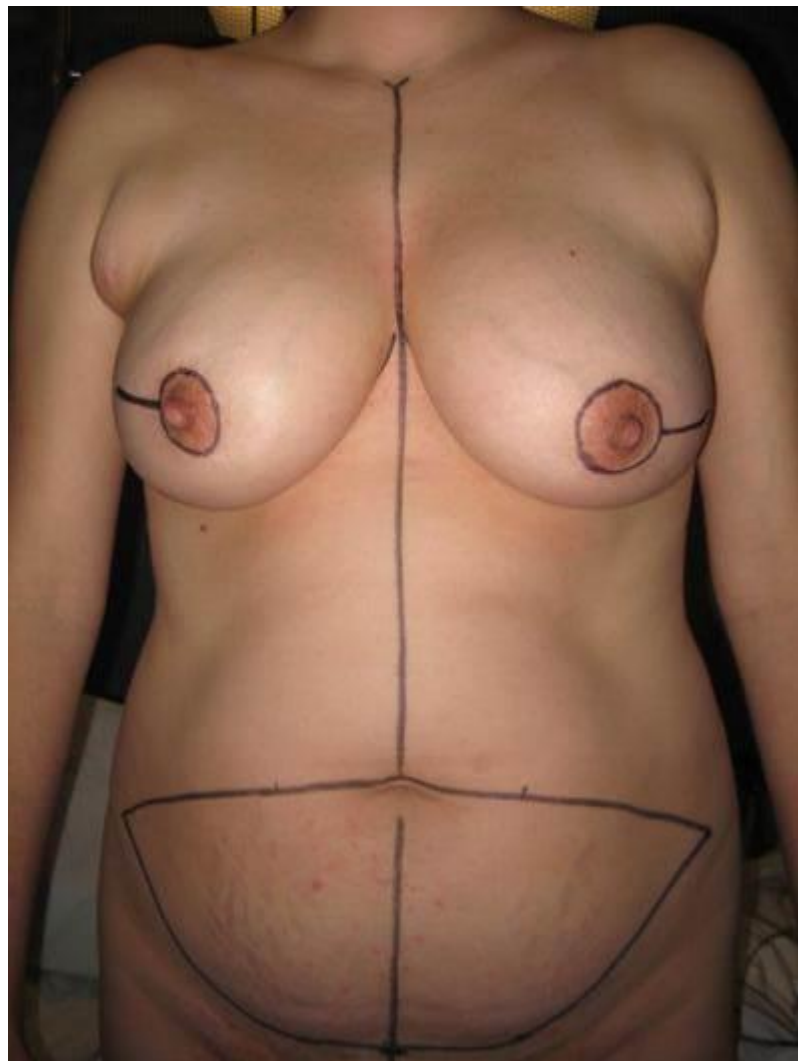
DIEP Flap



DIEP Flap

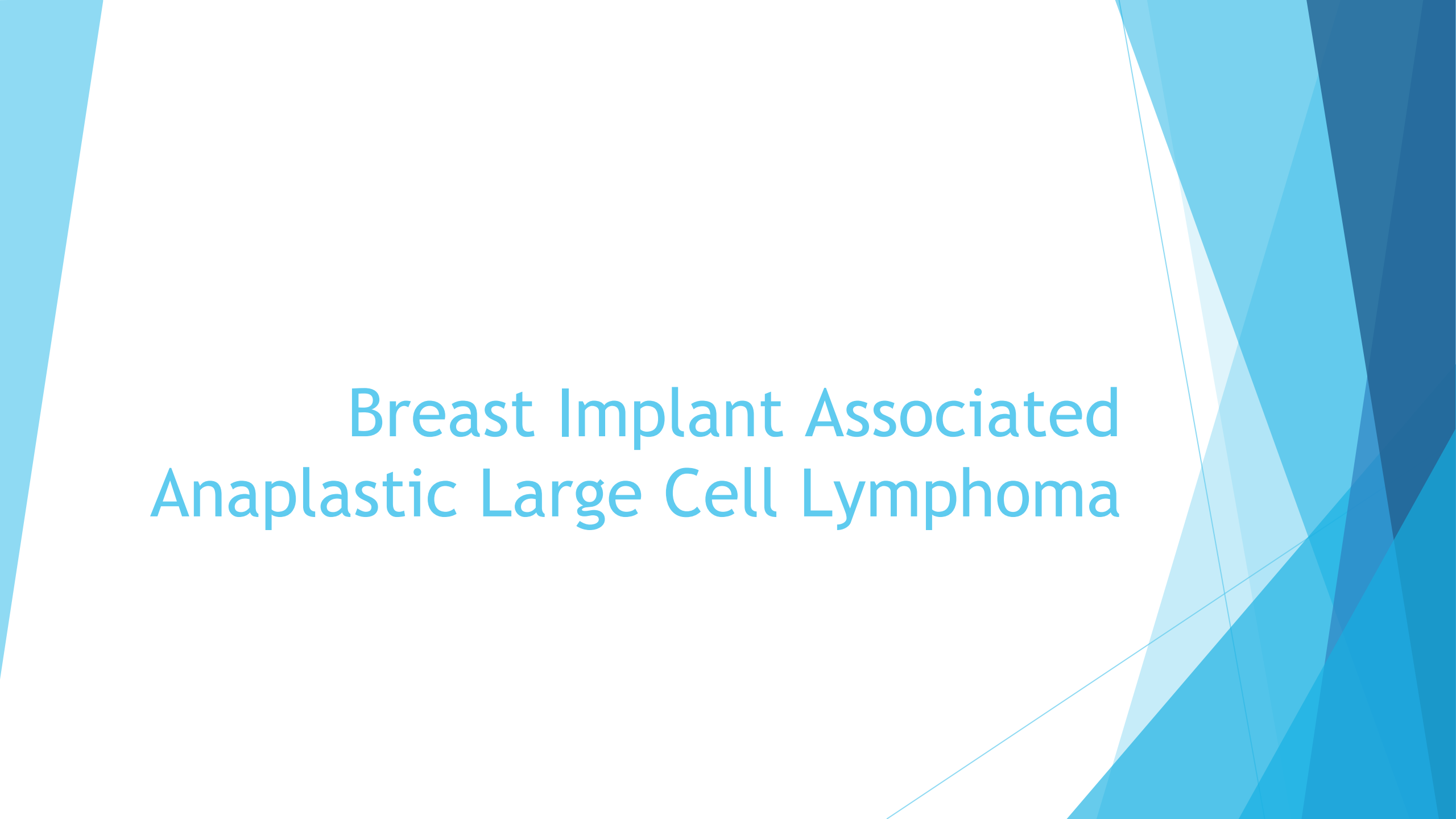


DIEP Flap



Nipple Reconstruction



The background features abstract, overlapping geometric shapes in various shades of blue, ranging from light sky blue to deep navy blue. The shapes are primarily triangles and polygons, creating a modern, layered effect. The text is centered in the white space between these shapes.

Breast Implant Associated Anaplastic Large Cell Lymphoma

BIA-ALCL Timeline



Epidemiology

- ▶ 656 cases
- ▶ 17 reported deaths

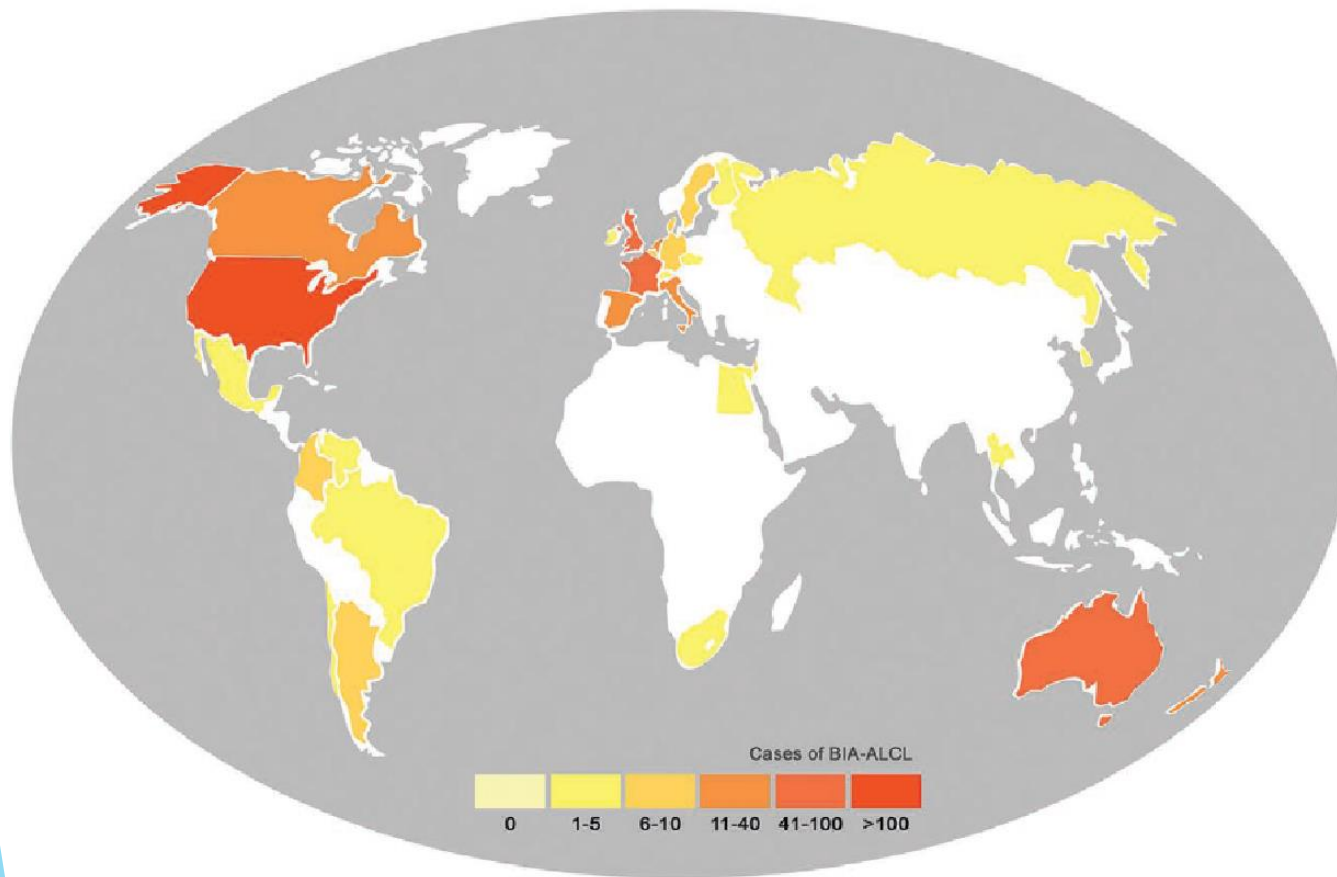


Table 1. Global Numbers of BIA-ALCL Cases and Related Deaths

Country	Cases	Deaths
Argentina	6	
Australia	81	3
Belgium	10	
Brazil	3	1
Canada	25	
Chile	2	
China	0	
Colombia	6	
Czech Republic	1	
Denmark	7	
Egypt	1	
Finland	7	
France	55	3
Germany	7	
Ireland	1	
Israel	8	
Italy	28	
Japan	0	
Mexico	4	
Netherlands	40	1
New Zealand	13	1
Norway	3	
Romania	0	
Russia	2	
Singapore	0	
South Africa	1	
South Korea	1	
Spain	29	
Sweden	6	2
Switzerland	4	
Taiwan	Not reported	
Thailand	1	
Venezuela	2	
United Kingdom	45	1
United States	257	5
Total	656	17

As of November 2018, a total of 656 cases have been identified worldwide with 17 deaths reported.

BIA-ALCL

- ▶ T-cell lymphoma which begins at the implant interface
- ▶ Anaplastic Lymphoma Kinase (ALK) negative
 - ▶ some similarities with systemic-ALCL
- ▶ CD30+
 - ▶ TNF receptor on activated T and B cells, ALCL
- ▶ CD4+
 - ▶ T-helper cells - interact with B cells, APCs, differentiate into Th subsets

Implant Texture



Smooth



Textured

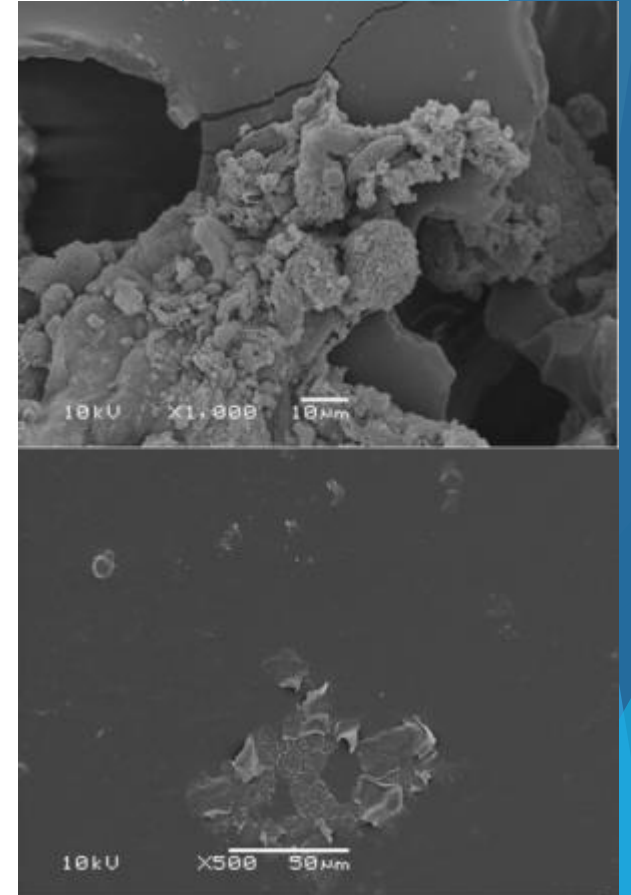
More incorporated
Less rotation
Less capsular contracture

Implant Texture - Relative Risk of BI-ALCL

Manufacturer	Texture Type	Surface Area	Surface Grade	Relative Risk (Compared to Mentor Siltex)
Silimed	Polyurethane	High	4	23.4
Allergan/Inamed	Biocell	Intermediate	3	16.5
Mentor	Siltex	Low	2	1
Mentor	Smooth	Minimal	1	0

Biofilm

- ▶ Collective of micro-organism growing on a surface
 - ▶ Architecture infers some host resistance
- ▶ Textured implants > surface area and rates of biofilm formation vs. smooth implants
- ▶ A gram negative shift has been reported in the BIA-ALCL microbiome
 - ▶ Ralstonia - GNB found in soil, water and medical solutions
 - ▶ ? Causative or opportunistic
- ▶ Lipopolysaccharide coating may be immune trigger



Presentation

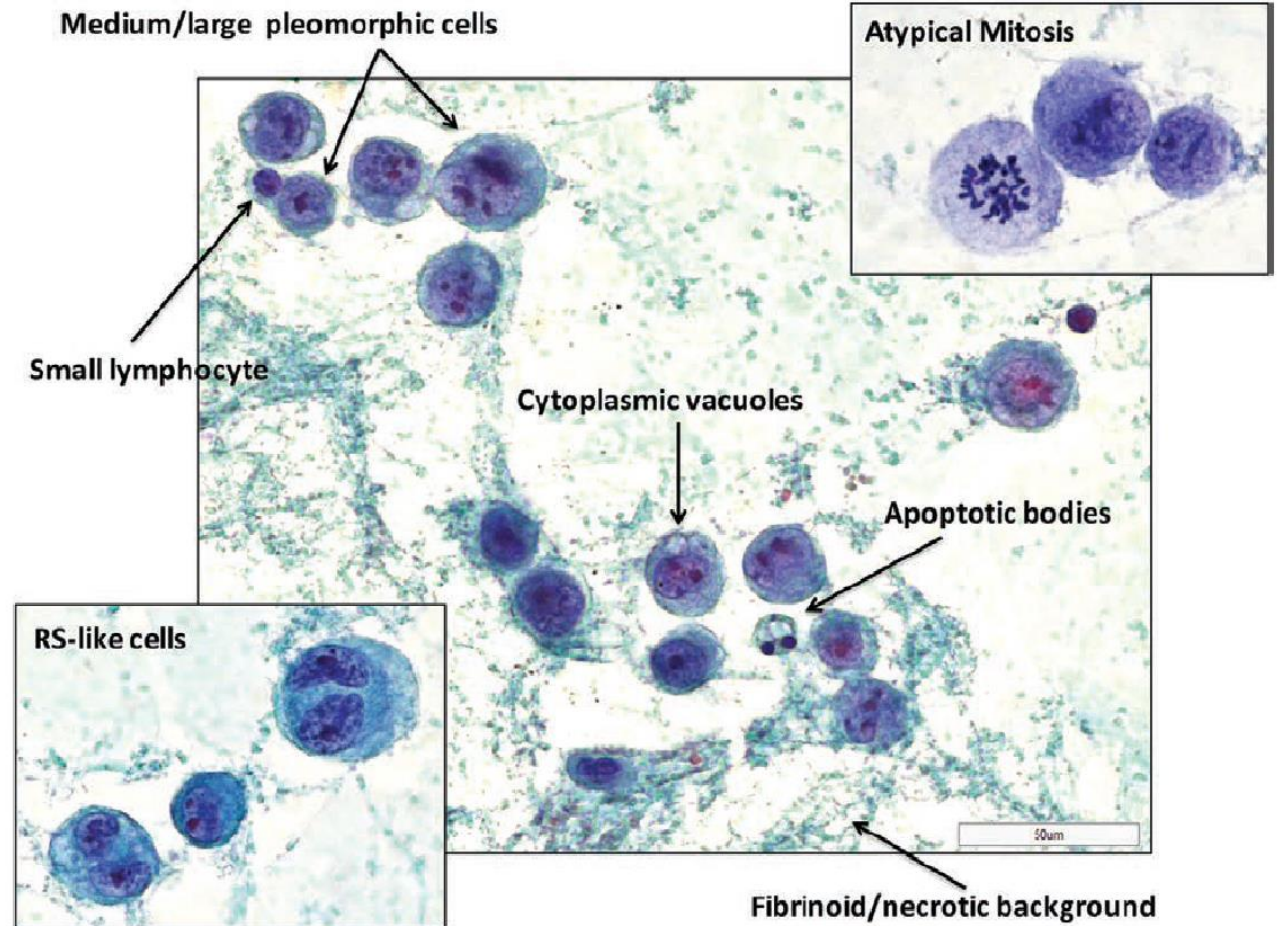
Clinical Findings at Presentation	n (%)
Local symptoms	
Yes	85 (95.5)
No	2 (2.2)
Not reported	2 (2.2)
Periprosthetic fluid/seroma (n = 85)	
Yes	73 (85.9)
No	15 (17.6)
Unknown	0 (0.0)
Not reported	1 (1.2)
Capsular contracture (n = 85)	
Yes	28 (32.9)
Grade IB (n = 28)	0 (0.0)
Grade II (n = 28)	2 (7.1)
Grade III (n = 28)	11 (39.3)
Grade IV (n = 28)	9 (32.1)
No	56 (65.9)
Not reported	5 (5.6)
Palpable breast mass (n = 85)	
Yes	13 (15.7)
No	74 (87.1)
Unknown	0 (0.0)
Not reported	2 (2.4)
Pain (n = 85)	
Yes	26 (30.6)
No	61 (71.8)
Not reported	2 (2.4)
Breast skin lesions (n = 85)	
Yes	7 (8.2)
No	80 (94.1)
Unknown	0 (0.0)
Not reported	2 (2.4)
Redness (n = 85)	
Yes	12 (14.1)
No	75 (88.2)
Unknown	0 (0.0)
Not reported	2 (2.4)
Systematic symptoms at time of presentation	
Yes	8 (9.0)
No	75 (84.3)
Not reported	6 (6.7)
Fevers (n = 8)	4 (50.0)
Night sweats (n = 8)	2 (25.0)
Weight loss (n = 8)	2 (25.0)
Nonbreast skin lesions (n = 8)	1 (12.5)

- ▶ Local Symptoms
 - ▶ Seroma - 86%
 - ▶ Pain - 30%
 - ▶ Mass - 15%

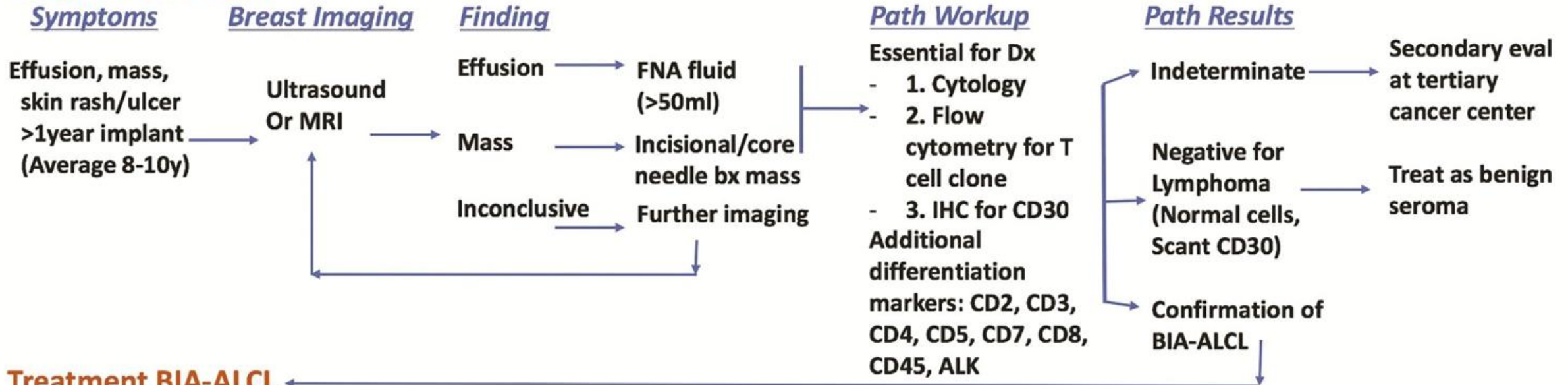
- ▶ Systemic Symptoms
 - ▶ None - 85%

Fluid Aspiration

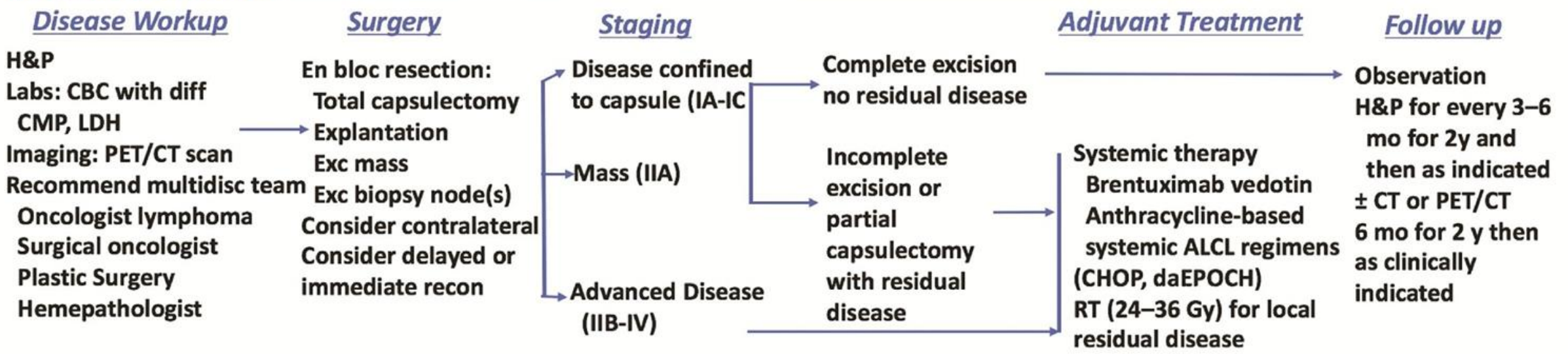
- ▶ Confirmation of Seroma with Ultrasound
- ▶ Fine Needle Aspiration of 20+ cc
- ▶ Cytological Examination (r/o BI-ALCL)
 - ▶ Atypical T lymphocytes (>10%)
 - ▶ CD 30 +
 - ▶ ALK negative



Diagnosis BIA-ALCL



Treatment BIA-ALCL



BIA-ALCL

- ▶ BIA-ALCL is rare disease - 656/35 million
- ▶ Textured implants are at greatest risk
- ▶ Risk increases with degree of texturing
 - ▶ Grade 4 surface 1/3,000
 - ▶ All implants 1/50,000*
- ▶ 90%+ present with stage 1 disease
 - ▶ remission rates approach 95%
- ▶ Advanced Disease is likely due to delay in diagnosis and treatment

Breast Reduction

- ▶ Common Surgery
 - ▶ 100,000/year
 - ▶ Our office 100+/year
- ▶ Satisfaction
 - ▶ Highest rates
 - ▶ No correlation to amount resected
- ▶ Does insurance cover it?
 - ▶ Yes (usually)
- ▶ Who??
 - ▶ Everyone 16-60+ years
 - ▶ (Comorbidities, smoking)
- ▶ Breast Feeding
 - ▶ No problem



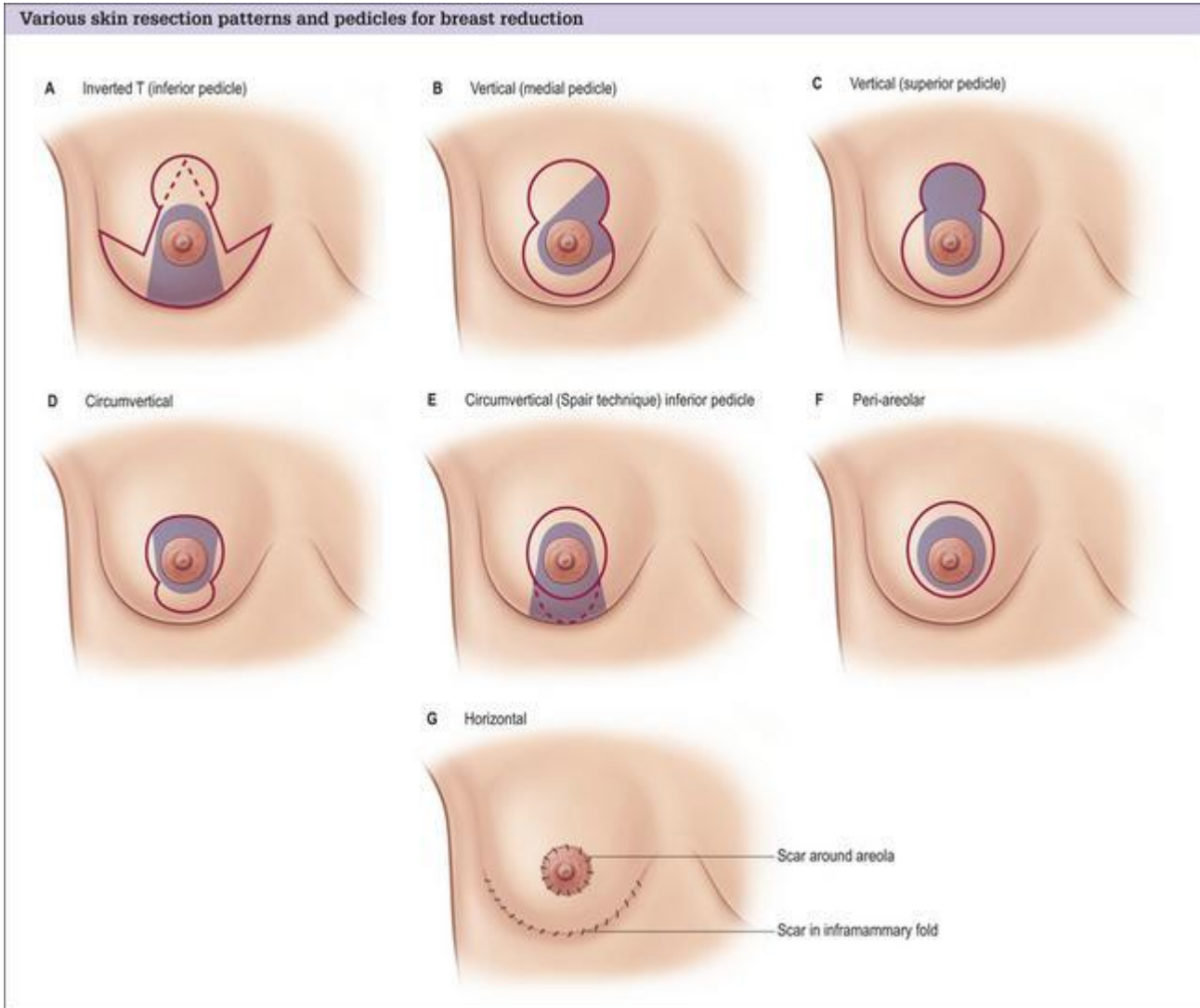
Breasts Reduction Indications (insurance)

- ▶ **Macromastia**
 - ▶ Planned amount resected vs. height, weight, BMI
 - ▶ >500g to be removed
- ▶ **Symptoms**
 - ▶ Back pain, neck pain, shoulder strap grooving, intertrigo, breast pain/numbness
- ▶ **Other treatment exhausted**
 - ▶ Nsaids, pain medication, exercise, physical therapy, chiropracter, special bras and shapewear
 - ▶ For 3+ months

Complications of Breast Reduction

- ▶ Wound healing issues
- ▶ Infection
- ▶ Bleeding
- ▶ Loss of nipple sensation
- ▶ Loss of nipple
- ▶ Loss of skin flaps
- ▶ Fat Necrosis

Breast Reduction



Wise Pattern, Inferior Pedicle

Breast Reduction Procedure



1. Incisions outline the area of the excess tissue to be removed.



2. Excess skin and fat are removed. The nipple and areola are then moved to a new and higher position.



3. The incisions are brought together to reshape the now smaller breast.



4. Sutures are placed around the areola and can extend downwards and horizontally under the breast crease.