Modified Radical Mastectomy

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Preference Card

- Drapes: laparotomy sheet, ¾ sheets × 3
- Sutures: 3-0 Vicryl. 4-0 Monocryl, 3–0 nylon (drain stitch)
- Equipment: mastectomy set, #15 blade scalpel, electrocautery (set 40/40) and pad, Blake drain ×2, liga clip, major lap pack, Yankauer suction and suction tubing, Kerlix, 0.25 inch Steri-Strips, surgical glue, and surgical bra

Patient Positioning/Operating Room Setup (Fig. 5.1)

- Patient is supine with the arm abducted 90°.
- All pressure points are padded, pillow under knees.
- Surgeon stands ipsilateral to dissection site – below arm.
- Surgical assistant stands ipsilateral to dissection site – above arm.

Nodal Points

Incision

- An oblique elliptical incision is made using a 15 blade scalpel. The incision should encompass the nipple-areolar complex and any biopsy scar (Fig. 5.2).
- Incision may be tailored if reconstructive surgery is planned.
- Medial border of the incision is approximately 2 cm from the sternal edge.
- Lateral border of the incision should coincide with the lateral border of the pectoralis major.

Dissection

- The anatomy of modified radical mastectomy is delineated laterally by latissimus dorsi muscle, medially by sternal border, superiorly by the clavicle, and inferiorly by the inframammary fold.
- Superior and inferior skin flaps are raised using electrocautery, and gentle traction is applied to facilitate dissection (Fig. 5.3, panel 2).
- Skin flap thickness varies per patient, and body habitus should be 7–8 mm thick.
- Raise the superior flap in the avascular plane between the breast tissue and subdermal fat.
- The superior flap is elevated to the level of the clavicle and edge of the sternum medially.
- The inferior flap extends to inframammary fold inferiorly and to edge of latissimus dorsi laterally.

Anterior Chest Wall Dissection

- Once flaps developed, the specimen is retracted inferiorly to facilitate dissection of breast tissue off pectoralis muscles.
- Use the electrocautery to remove the breast en bloc, meticulously dissecting the fascia off pectoralis major from medial to lateral following the fibers of pectoralis major (Fig. 5.3, panels 3 and 4).
- Intercostal perforating arterial branches may require ligation.

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R. J. Rosenthal et al. (eds.), *Mental Conditioning to Perform Common Operations in General Surgery Training*,
https://doi.org/10.1007/978-3-319-91164-9_5

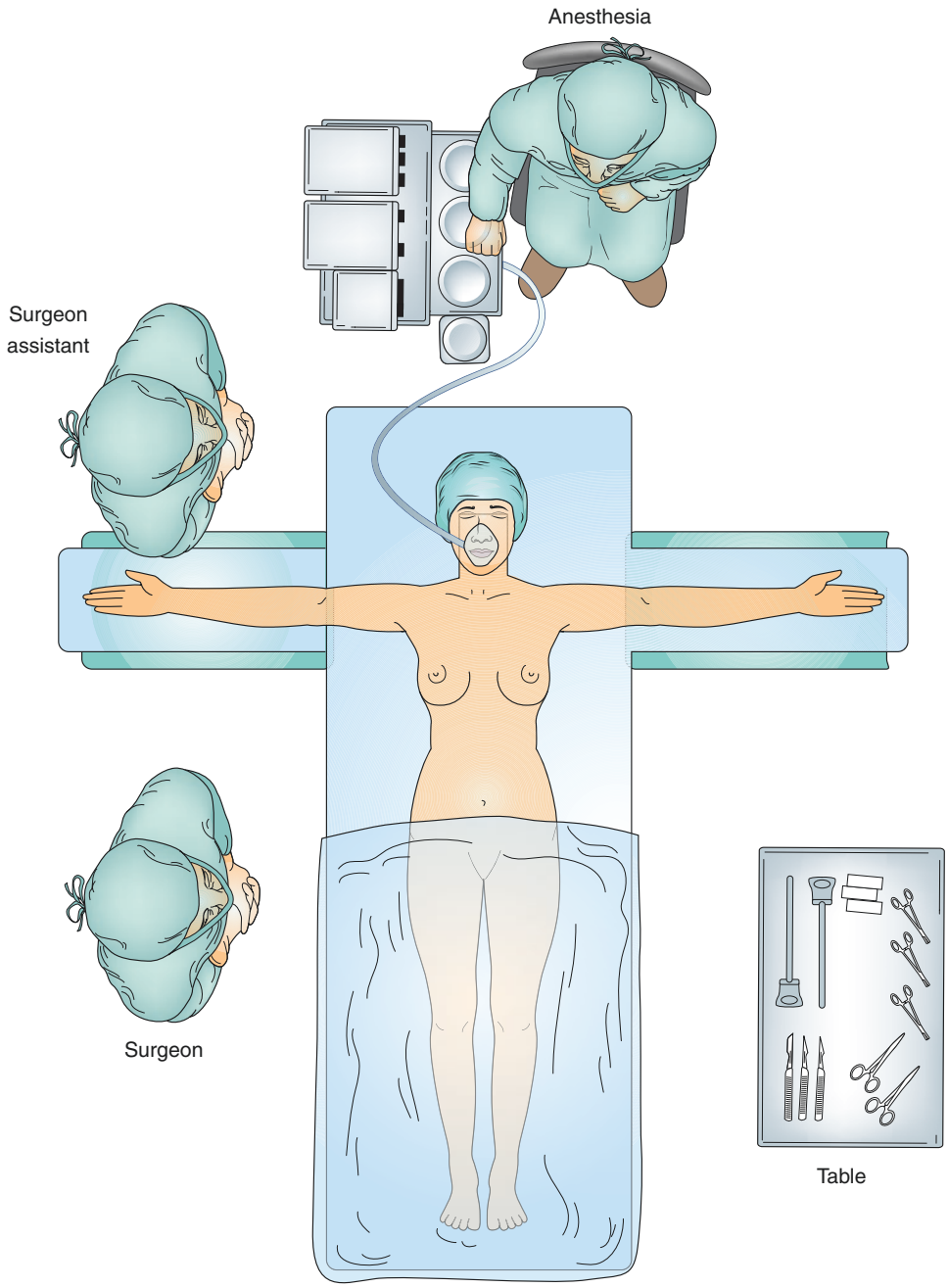

Fig. 5.1 Position of patient for left modified radical mastectomy at margin of operative table. The first assistant is cephalad to the arm board and shoulder of the patient to allow access to the axillary contents without undue traction on major muscle groups

- Retract the pectoralis major to visualize pectoralis minor; the interpectoral space is visualized for enlarged Rotter's nodes (interpectoral lymph nodes).

Axillary Dissection

- Attention is made to axilla; electrocautery should be avoided due to proximity of nerves and vessels.
- The clavipectoral fascia is incised along the lateral aspect of the pectoralis minor.
- With the pectoralis major retracted, the tissue overlying the axillary vein is gently dissected, exposing the axillary vein (Fig. 5.3, panel 5).
- The pectoralis major and minor are retracted cephalad and medially, exposing the level I and II lymph nodes (lateral and inferior to pectoralis minor muscle); this tissue is included in the en bloc specimen.
- Identify and avoid the medial and lateral nerves supplying the pectoralis major muscle. The medial nerve arises from the medial cord of the brachial plexus and passes through the pectoralis minor muscle, but this anatomy varies. The

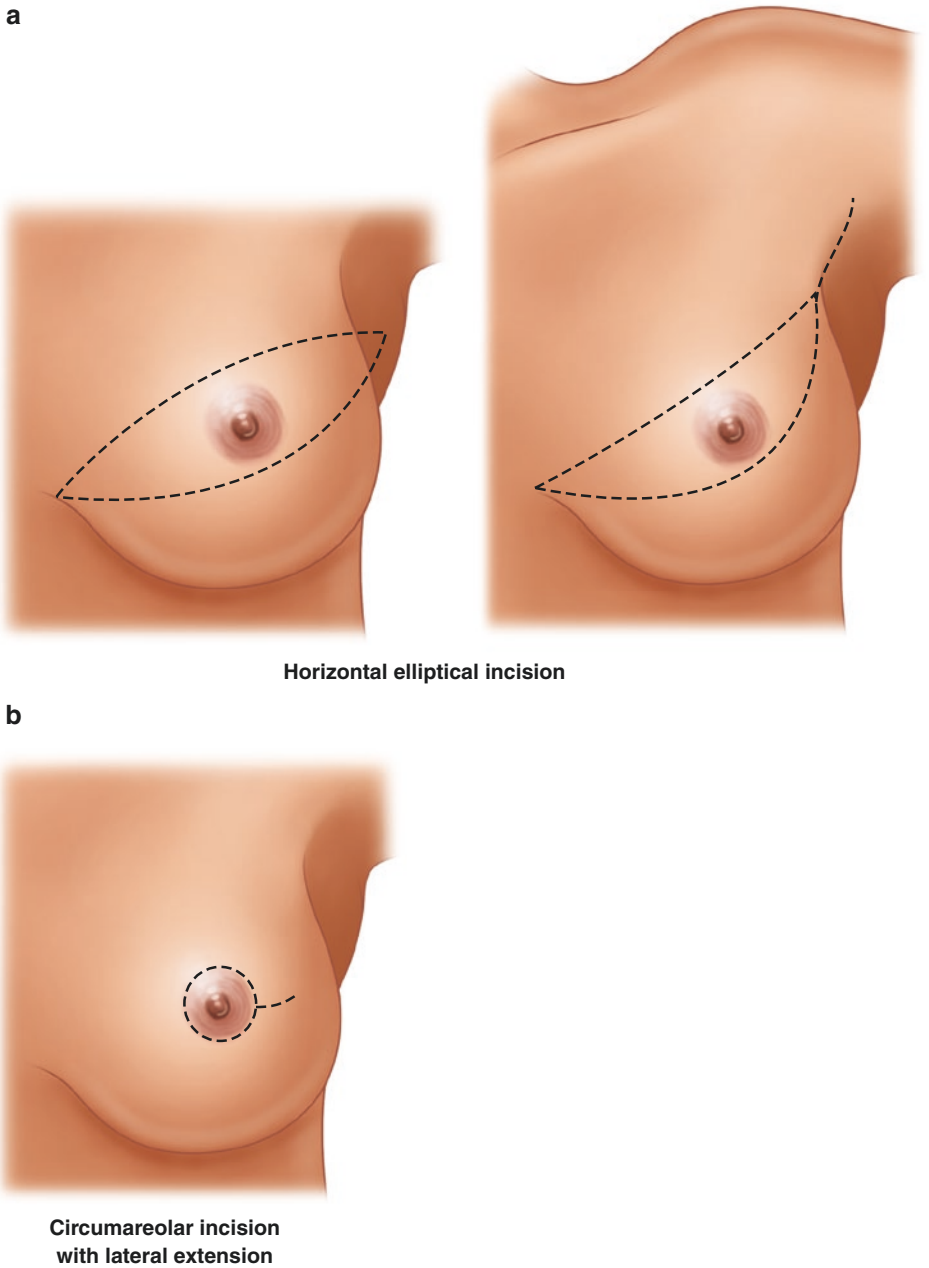

Fig. 5.2 Elliptical incisions. (a) Elliptical incision including the nipple-areola compex and with lateral extension. (b) Circumareolar incision with lateral extension

lateral branch arises from lateral cord and passes medial to the pectoralis minor near its insertion and found in close proximity to the thoracoacromial artery (Fig. 5.3, panels 6–10).

- The dissection continues inferiorly and laterally.
- Identify the long thoracic nerve, which extends inferiorly along the serratus anterior and lies deep to axillary vein.
- Identify the thoracodorsal nerve, which lies deep to the subscapular vein and artery.
- The intercostobrachial nerve is identified originating beneath the second rib and extending transversely.
- The breast is retracted laterally; the long thoracic nerve and thoracodorsal nerve are preserved.
- The specimen is freed from latissimus dorsi laterally and suspensory ligaments in the axilla and scapularis muscle posteriorly; superficial veins and lymphatic should be ligated with 3-0 Vicryl.
- The specimen should be oriented and marked for pathologic examination.

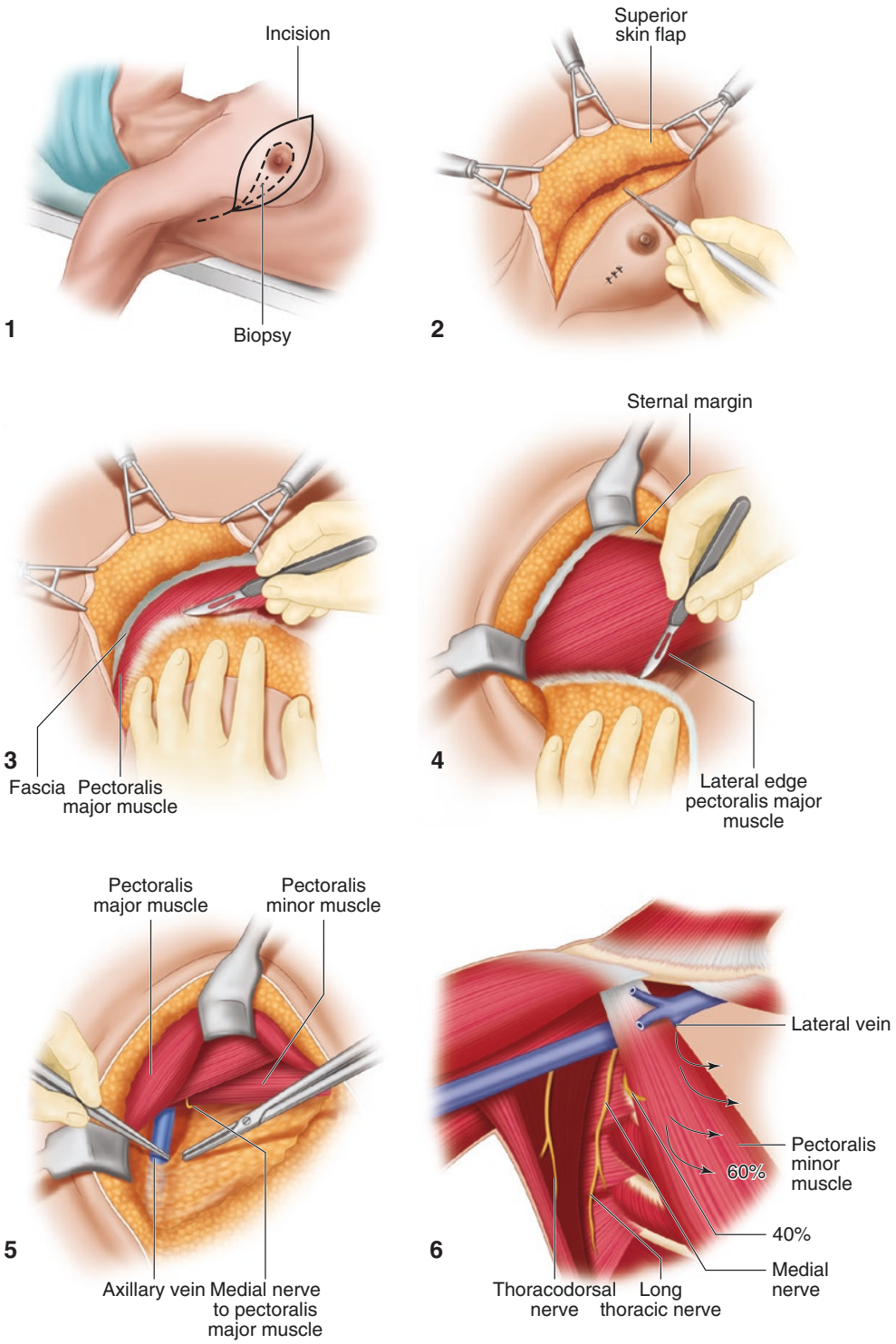

Fig. 5.3 Modified radial mastectomy

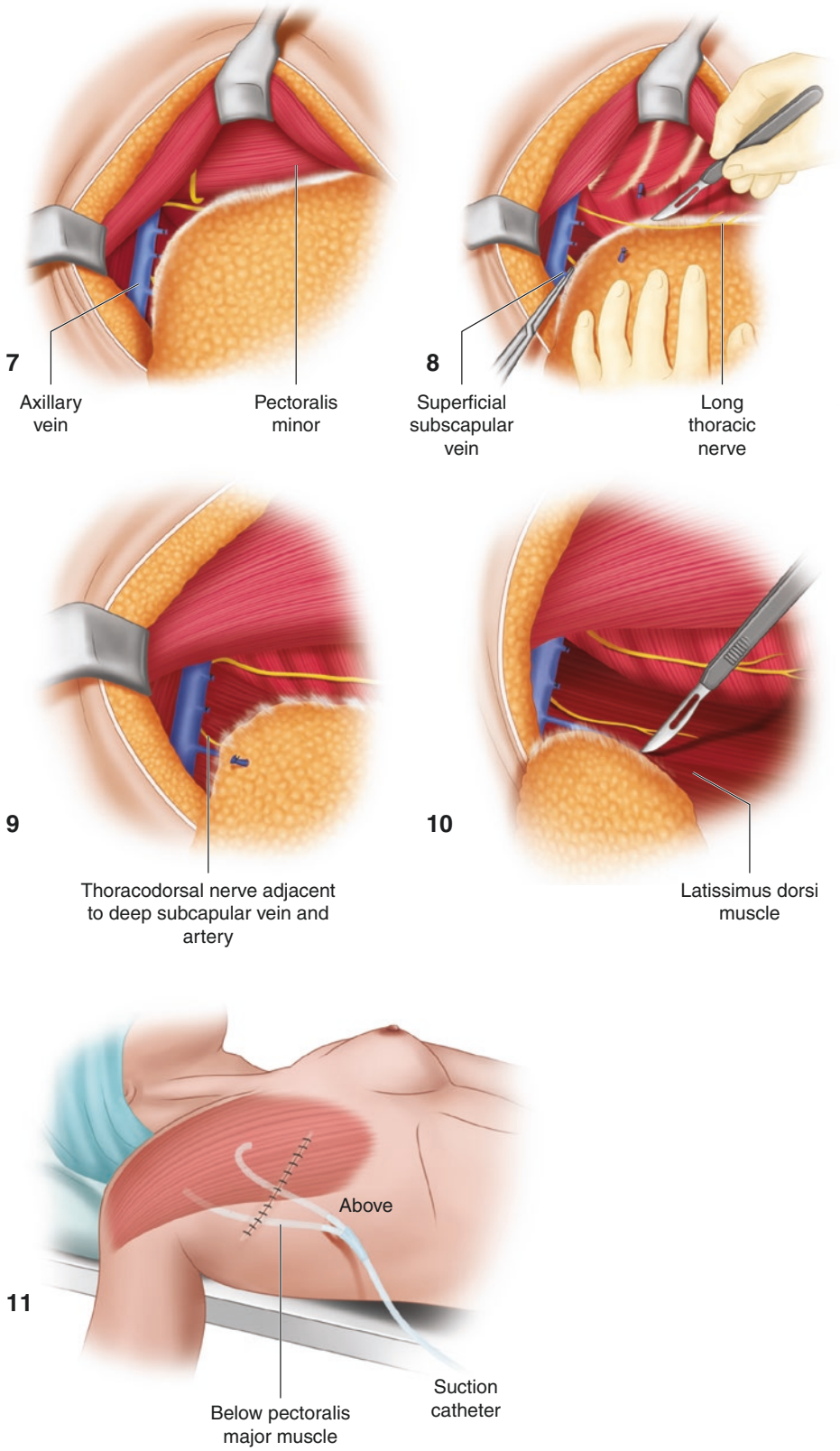

Fig. 5.3 (continued)

Hemostasis, Irrigation, and Drainage

- The wound is irrigated with saline and inspected for hemostasis.
- Two Blake drains are introduced in two separate stab incisions made inferior to the flap midaxillary position. One is placed in the axilla and the other in anterior chest. Drains are secured with 3-0 nylon (Fig. 5.3, panel 11).
- Wound is closed in two layers. The deep dermal layer is re-approximated with interrupted 3-0 Vicryl, and the skin is re-approximated with 4-0 running subcuticular Monocryl suture.

Dressing

- The surgical site is cleaned and dried.
- 0.25 inch Steri-Strips (may use surgical glue) are placed along the length of the incision, Kerlix fluff dressing and surgical bra are placed.

Pearls and Pitfalls

- Postoperative complications include seroma, wound infection, skin flap necrosis, chest wall pain, and lymphedema.
- Seromas are usually prevented with drain placement.
- Thin flaps should be avoided to prevent possible skin flap ischemia and tissue necrosis.
- Careful dissection of axilla with identification of nerves to avoid injury.

Access Reader Checklist Appendix

☑ READER CHECKLIST
Modified Radical Mastectomy

✓ PREFERENCE CARD

►**Instruments**
__Drapes: laparotomy sheet, ¾ sheets x 3
__Sutures: 3-0 vicryl. 4-0 monocryl, 3-0 Nylon (drain stitch)
►**Equipment**
__Mastectomy set
__#15 blade scalpel
__Electrocautery (set 40/40) and pad
__Blake drain x2
__Liga clip
__Major lap pack
__Yankauer suction and suction tubing
__Kerlix fluff,
__¼ inch steri strips,
__Surgical glue
__Surgical bra

✓ PATIENT POSITIONING/ OPERATING ROOM SETUP

►**Patient Position**
__Patient is supine with arm abducted 90 degrees
__All pressure points padded, pillow under knees
__Surgeon stands ipsilateral to dissection site - below arm
__Surgical assistant stands ipsilateral to dissection site - above arm

✓ NODAL POINTS

►**Incision**
__Oblique elliptical incision made using 15-blade scalpel. Incision should encompass nipple-areolar complex and biopsy scar
__Incision may be tailored if reconstructive surgery planned
__Medial border of incision approximately 2cm from sternal edge
__Lateral border of incision should coincide with lateral border of pectoralis major

►**Dissection**
__Anatomy of modified radical mastectomy delineated laterally by latissimus dorsi muscle, medially by sternal border, superiorly by clavicle, inferiorly by inframammary fold
__Superior and inferior skin flaps raised using electrocautery; gentle traction applied to facilitate dissection
__Skin flap thickness varies by patient and body habitus; should be 7-8 mm thick
__Superior flap raised in avascular plane between breast tissue and subdermal fat
__Superior flap elevated to level of clavicle and edge of sternum medially
__inferior flap extends to inframammary fold inferiorly and edge of lattisimus dorsi laterally

►**Anterior Chest Wall Dissection**
__After flaps developed, specimen retracted inferiorly to facilitate dissection of breast tissue off pectoralis muscles
__Electrocautery used to remove breast en block, meticulously dissecting fascia off pectoralis major from medial to lateral following fibers of pectoralis major
__Intercostal perforating arterial branches may require ligation
__Retract pectoralis major to visualize pectoralis minor: interpectoral space visualized for enlarged Rotter's nodes (interpectoral lymph nodes)

►**Axillary Dissection**
__Attention paid to axilla; avoid electrocautery due to proximity of nerves and vessels
__Clavipectoral fascia incised along lateral aspect of pectoralis minor
__With pectoralis major retracted, tissue overlying axillary vein gently dissected, exposing axillary vein

►**Axillary Dissection Continued....**
__Pectoralis major and minor retracted cephalad and medially, exposing level I & II lymph nodes (lateral and inferior to pectoralis minor muscle); tissue included in en bloc specimen
__Identify and avoid medial and lateral nerves supplying pectoralis major muscle. Medial nerve arises from medial cord of brachial plexus and passes through pectoralis minor muscle, but anatomy varies. Lateral branch arises from lateral cord and passes medial to pectoralis minor near its insertion and found in close proximity to thoracoacromial artery
__Dissection continues inferiorly and laterally
__Identify long thoracic nerve, extending inferiorly along serratus anterior, deep to axillary vein
__Identify thoracodorsal nerve, deep to subscapular vein and artery
__Intercostobrachial nerve identified originating beneath 2nd rib and extending transversely
__Breast retracted laterally, long thoracic nerve and thoracodorsal nerve preserved
__Specimen freed from latissimus dorsi laterally and suspensory ligaments in axilla and scapularis muscle posteriorly, superficial veins and lymphatic ligated with 3-0 vicryl
__Specimen oriented and marked for pathologic examination

►**Hemostasis, Irrigation, and Drainage**
__Wound irrigated with saline, inspected for hemostasis
__2 Blake drains introduced in 2 separate stab incisions made in inferior flap mid-axillary position, 1 in axilla and 1 in anterior chest
__Drains secured with 3-0 nylon, wound closed in two layers
__Deep dermal layer re-approximated with interrupted 3-0 vicryl and skin re-approximated with 4-0 running subcuticular monocryl suture

►**Dressing**
__Surgical site cleaned and dried
__¼ inch steri strips (or surgical glue) placed along length of incision
__Kerlix fluff dressing and surgical bra placed