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Surgical Management for Gynecomastia and Passot Technique

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Abstract:

Gynecomastia, defined as the benign proliferation of glandular breast tissue in males, is a common condition that can affect adolescents, adults, and elderly men. While mild cases may resolve spontaneously or respond to medical management, persistent or advanced forms often require surgical correction. The goals of surgery include removal of excess glandular tissue and fat, correction of skin redundancy, and restoration of a masculine chest contour. Several surgical techniques have been described, including liposuction, subcutaneous mastectomy, and combined approaches. The choice depends on the grade of gynecomastia, skin quality, and degree of ptosis. The Passot technique, originally described for female breast reduction, has been adapted for severe gynecomastia cases with significant skin excess. It provides effective tissue excision while repositioning the nipple–areola complex, minimizing visible scars, and improving aesthetic outcomes.

Keywords: Gynecomastia, Male breast reduction, Passot technique, Surgical management, Subcutaneous mastectomy, Aesthetic chest contour, Nipple–areola repositioning.

Introduction:

Several surgical techniques are currently available for the treatment of gynecomastia. The spectrum ranges from minimally invasive techniques, including liposuction, direct excision, and the pull-through technique, to more invasive methods that may combine liposuction with either subcutaneous mastectomy or reduction mammoplasty with or without free nipple grafting. Factors that must be considered when selecting a surgical treatment include the histological composition of the breast tissue (glandular versus adipose), the size of the NAC, and skin quantity and quality**(1)**.

Once the aforementioned criteria have been evaluated, the severity grade of gynecomastia often helps to direct final treatment planning. Definitive guidelines for the surgical management of gynecomastia do not presently exist. Although many surgeons have proposed algorithmic approaches and morphological or ultrasound classifications to help guide operative planning, the ideal technique continues to exist at the intersection between the goals of care of the individual patient and the impressions and preferred techniques of their plastic surgeon.

The aim of the surgery is to achieve a normal appearance of the masculine thorax with the smallest possible scar. The surgical technique used depends on the degree of the gynecomastia and the distribution and proportion of the different breast components (fat, parenchyma and looseness of the skin envelope). The most commonly used technique is subcutaneous mastectomy that involves direct resection of the glandular tissue using a peri-areolar or trans-areolar approach, with or without liposuction (**2, 3)**.

More extensive surgery, including skin resection, is required for patients with marked gynecomastia and those who develop excessive sagging of the breast tissue (with weight loss). Liposuction alone may be sufficient, if breast enlargement is purely due to excess fatty tissue without substantial glandular hypertrophy. Histological analysis of the gynecomastia tissue is recommended because unexpected findings such as spindle-cell hemangioendothelioma and papilloma occur in 3% of cases **(4)**.

In grade I, the enlargement is caused solely by glandular proliferation without adipose accumulation. Surgical correction involves mammary adenectomy performed by a semicircular inferior periareolar incision. Liposuction is not required. Grade II is characterized by excessive glandular tissue and local adiposity. In these cases, liposuction and surgical excision must be combined in the same operation. Mammary adenectomy without liposuction leads to unsatisfactory outcomes, with an uneven surface or asymmetry. In grade III, the operation begins with liposuction and is followed by glandular excision with periareolar removal of the tissue. It is necessary to detach the excess skin to obtain a good chest silhouette. The hallmarks of grade IV are severe ptosis and a large amount of redundant skin. One of the techniques for reduction mammoplasty is used to remove gland and skin and flatten the chest outline (**1, 5)**.

Table (1): Surgical therapy of gynecomastia (6).

Stage I/IIA liposuction	**periareolar subcutaneous mastectomy (Figures 1, 2)**
Stage II B liposuction	Periareolar subcutaneous mastectomy concentric mastopexy (Figure 3)
Stage III/IV	Inframammary fold mastectomy (Figure 4)

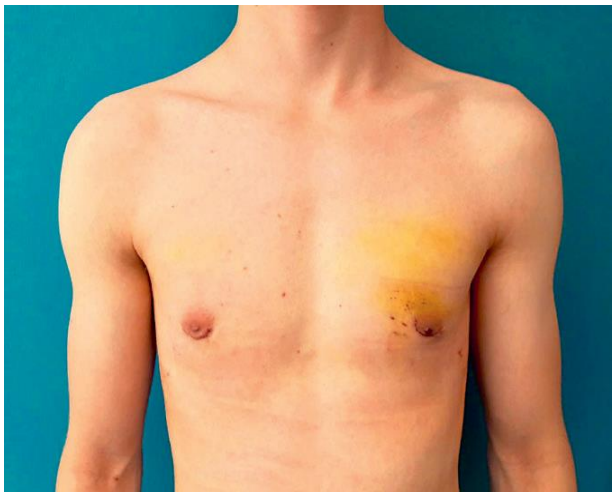

Fig. (1): Gynecomastia postoperative, periareolar subcutaneous mastectomy (frontal view)

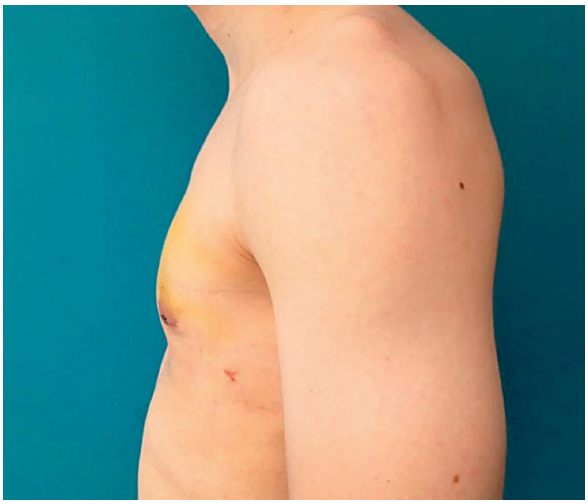

Fig. (2): Gynecomastia postoperative, periareolar subcutaneous mastectomy (Side view)

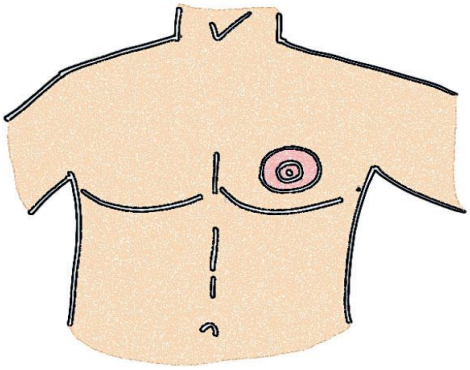

Fig. (3): Operative procedure according to Benelli (7).

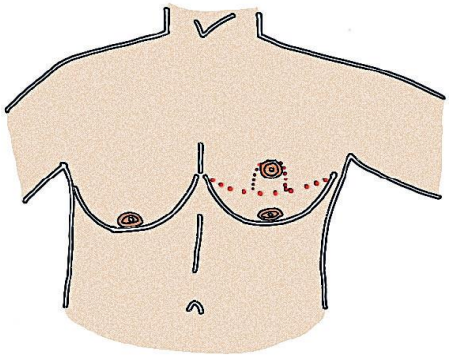

Fig. (4): Operative procedure according to Kornstein (8).

An alternative modification to the simple liposuction is the power-assisted liposuction technique. This is performed to contour the breast tissue without having to exert as much physical force as standard liposuction with a syringe and cannula. The cannula reciprocates at a controlled but surgeon adjustable rate, with separate precise control of the suction pressure. This technique works very effectively in combination with a tumescent and super tumescent approach. The aspirate volume from liposuction can range from 50 to over 1,000 mL. In contrast the excision of the fibroglandular tissue can range from a few grams to over 1,000 g. **(9)**.

Ultrasound-assisted liposuction (UAL) is another modified method that may facilitate the removal of tougher sub-areola glandular tissue at the time of liposuction. Care is needed with this technique to avoid the potential complication of thermal injury to the overlying skin. Standard liposuction or UAL in combination with gland resection through a minimal caudal semicircular periareolar incision and conventional liposuction effectively corrects most grades of gynecomastia (**10, 11)**.

The use of mammotome (new breast biopsy instrument) is a minimal invasive tool that appears safe and ensures reasonable cosmoses and patient satisfaction rates, although there are only limited reports of its use in gynecomastia and no long-term follow-up data. The potential risk of skin injury and hemorrhage may limit the use of mammotome **(6)**.

surgical treatment produces good cosmoses and is well tolerated. Nevertheless, invasive techniques that require minimal surgical incision have recently emerged and may offer faster recovery and lower rates of local complications. Histologic analysis is recommended in true gynecomastia corrections to rule out unexpected histologic findings **(5)**.

Complications of Surgical Management:

The most frequent early complication following surgical management of gynecomastia is hematoma. Postoperative complications may include numbness of the nipple and areolar areas, the shedding of tissue due to loss of blood supply, breast asymmetry, nipple necrosis or flattening and hypertrophic or broad scars **(Figure 7)**.

Seroma, over resection with saucer-type deformity, under resection, unappealing scarring and infections are also observed. Patients and their parents or guardians should be well informed about possible risks, as some complications are managed surgically **(1, 5)**.

Passot technique

The Passot technique, with no vertical scar and with NAC trans- position, is an effective technique for the surgical treatment of severe gynecomastia as it allows for wide tissue resection, with low morbidity and good esthetic

and functional outcomes. In the surgical correction of the severe grades of gynecomastia, especially those associated with ptosis and post- weight-loss skin and tissue redundancy. **(12).**

The Passot technique was introduced in 2006 by Dr. Passot minimally invasive surgery and precise tissue removal to offer a more refined approach. as an advancement in gynecomastia surgery. The Passot technique emerged as a response to these challenges, integrating advances in **(13).**

The first report of vertical scarless mastopexy is attributed to Passot; he performed the procedure using an inferior-pedicled flap and published the report in 1925. Excess fatty tissue was removed as a wedge from only the inferior pole of the breast. not extending as far back as the Passot scar, with a similar button-holing siting of the new nipple position. **(14).**

The technique was aimed at lowering the risk of scar hypertrophy or keloid development over the vertical aspect of the Wise pattern scar in the inclined population. **(14).**

The Passot technique is notable for its emphasis on minimizing incisions and optimizing glandular tissue excision. The procedure typically begins with a small periareolar incision, which is strategically placed to reduce visible scarring. Through this incision, the surgeon performs glandular tissue removal using specialized instruments, allowing for precise control and minimal disruption of surrounding tissues. Concurrently, liposuction is employed to address any residual fatty tissue, contributing to an improved chest contour. This dual approach is designed to balance effective tissue removal with minimal aesthetic impact (**13).**

The minimal scarring achieved through the Passot technique is particularly valued for its aesthetic benefits, which contribute to high levels of patient satisfaction **(12).**

The techniques based on pedicles usually preserve the tactile sensitivity of the NAC. For most patients with moderate to severe gynecomastia, peri-areolar excisions and skin resections should suffice; however, for patients with severe gynecomastia associated with various grades of ptotic NAC, extra-areolar incisions and scars might be needed. Wise pattern reduction has become an essential tool for severe gynecomastia surgeons, with some esthetic and scar tissue concerns associated with the vertical component of the scar, leading to a search for more cosmetic incision placements. **(15)**

The procedure typically involves making a circumareolar incision around the areola. This allows for better access to the underlying breast tissue while minimizing visible scaring. The surgeon removes the excess glandular tissue and, in some cases, fat from the breast area. This help to achieve a more natural and contoured chest appearance **(16)**.

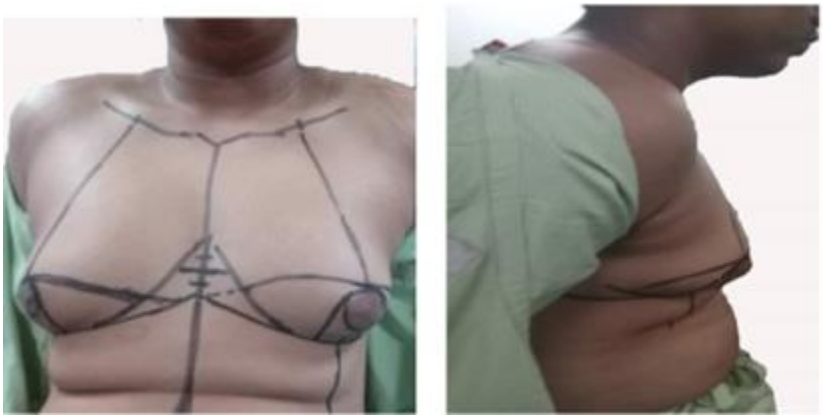

Fig. (5):preoperative images depicting the diagnosis and operative site.

The incision extends from the lateral edge of the sternum to the anterior axillary line, or posterior, according to the amount of skin to be removed. The patient is in dorsal decubitus, removal of excess areolar skin, maintenance of the NAC in the posterior pedicle based on the fourth intercostal perforating branch. **(17)**

The direct excision of glandular tissue is performed through peiareolar incision. Careful dissection and removal of the excess glandular tissue are carried out, and ensuring preservation of the nipple-areolar complex. Removel of all excess glandular and fatty tissue in previously marked area. **(18**).

Taking care to keep the flaps broad-based, on the inframammary fold, while tapering toward the apex, to ensure good vascularity of the nipple-areola complexes (NAC); the neo-nipple areola site is marked on either side. **(19).**

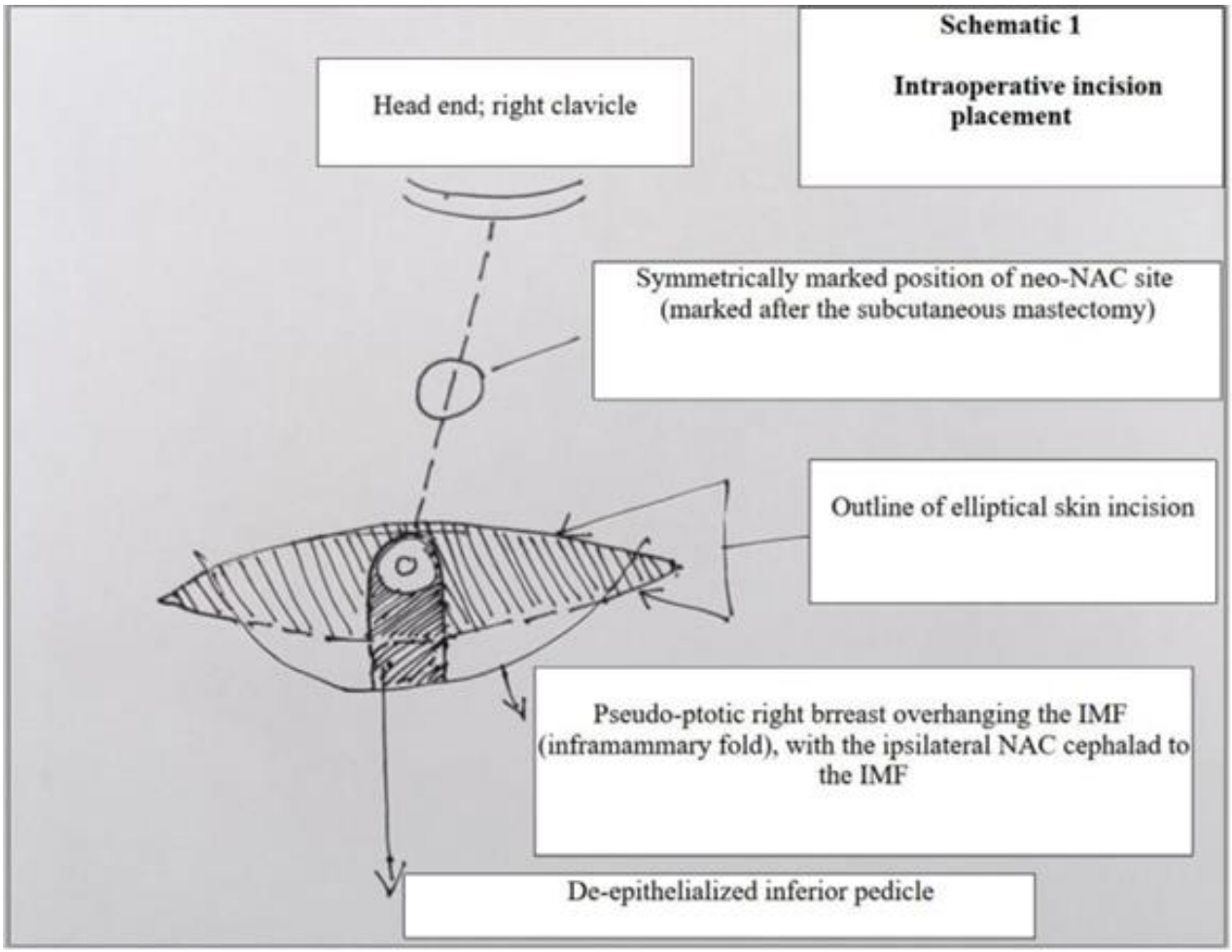

Fig. (6):intraoperative incision placement schematic.

A circular skin segment is excised smaller in diameter than the NAC ipsilaterally, and the pedicled flap is tunneled subcutaneously to the excised skin site**. (14).**

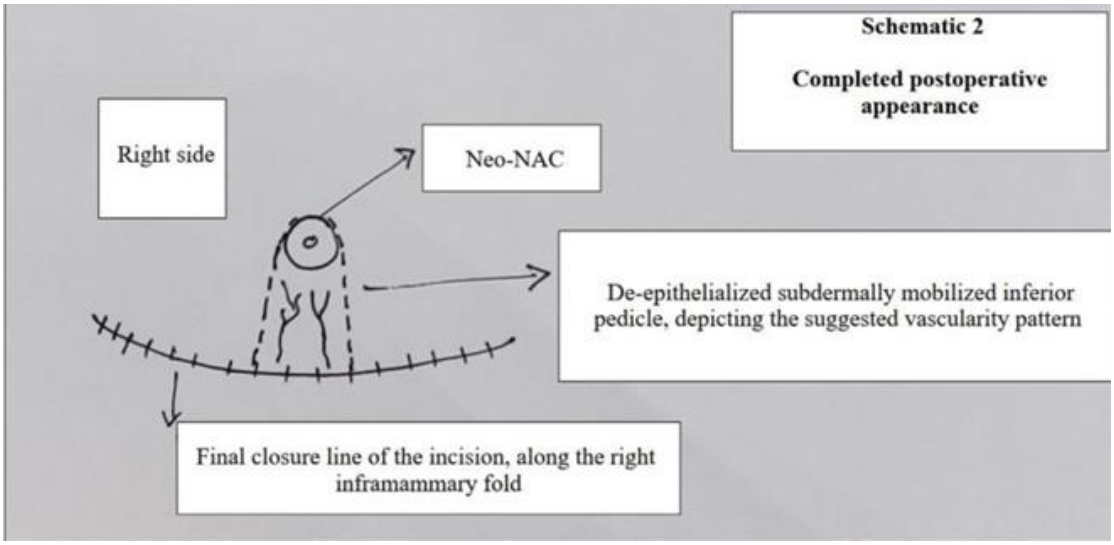

Fig. (7):complete procedure with the inferior subdermsl pedicle.

Take care to trim the pedicle sufficiently to prevent bulging and at the same time to prevent saucerization defects at the new site. The liposuction following glandular tissue excision, liposuction is performed to address any remaining adipose tissue and contour irregularities. **(20).**

In cases of sever gynecomastia where there may be significant skin laxity, the technique also often includes skin tightening procedures to ensure the skin conforms to the new contour of the chest. **(21).**

Fig. (8): complete procedure with the inferior subdermsl pedicle.

After the surgery, patients typically need to wear a compression garment to help reduce swelling and support the new breast contour. Recovary time and postoperative care are essential for optimal result. **(22).**

The Passot technique is not devoid of potential complications. Postoperative issues such as seromas, hematomas, and infections can occur, although their incidence is relatively low. Specific to the Passot technique, there may be risks of asymmetry or contour irregularities if the glandular tissue is not removed with precision. Additionally. **(12).**

Some patients may experience temporary numbness or altered sensitivity in the chest area. Careful surgical technique and adherence to postoperative care guidelines are essential to mitigating these risks **(23).**

Clinical evaluations of the Passot technique have generally reported positive outcomes. A study by **(24)** found that patients who underwent the Passot technique experienced significant reductions in breast volume and improvements in overall chest appearance. Patient satisfaction was high, and the technique was associated with a low incidence of complications.

The Passot technique provides better control over glandular tissue removal and results in fewer complications related to residual glandular tissue. The emphasis on minimal scarring and precise excision makes the Passot technique particularly suitable for patients with significant glandular hypertrophy. **(12).**

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