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Breast

The GLAND-IQ Technique for Surgical Correction of Moderate to Severe Gynecomastia

Mirko S. Gilardino, MD, MSc, FRCSC, FACS*
Arturo Vela-Lasagabaster, MD, MSc, FEBOPRAS†

Summary: Surgical correction of gynecomastia currently ranks in the top five cosmetic procedures performed in men in the United States. Although removal of excess gland is relatively straightforward, the combination of glandular/fatty excess, significant skin redundancy, nipple ptosis, and nipple-areolar complex hypertrophy poses a significant challenge in the male patient desiring inconspicuous scars. The latter renders any form of skin and nipple reduction/elevation using traditional mastopexy patterns or breast amputation with free nipple grafting less favorable due to the surgical stigmata and scars produced with these techniques. To that end, we present our experience treating cases of moderate to severe gynecomastia involving significant skin excess (defined as Simon grade IIb and III) with a technique focused on avoiding visible extra-areolar scars, called the glandular excision, liposuction-assisted, areolar mastopexy for nipple repositioning and skin reduction with internal quilting sutures. *(Plast Reconstr Surg Glob Open 2024; 12:e5869; doi: 10.1097/GOX.0000000000005869; Published online 4 June 2024.)*

TECHNIQUE

All patients provided written consent for the use of their pre- and postoperative photographs. The described technique consists of a combination of targeted liposuction of the glandular and neighboring areas of lipodystrophy for initial debulking, an open superior-pedicled glandular excision, internal quilting sutures and a circumareolar mastopexy for areolar reduction, repositioning, and skin envelope redraping. The authors refer to this combination of techniques as the GLAND-IQ procedure (glandular excision, liposuction-assisted, areolar mastopexy for nipple repositioning and skin reduction with internal quilting sutures).

The preoperative markings are summarized in Figure 1. The areas of glandular and fatty excess and any volume asymmetry are marked along with the inframammary fold (IMF).

Next, the desired change in position and/or shape of the nipple areola complex (NAC) is marked. First, an oval neo-NAC is marked with its longest diameter measuring 27- to 30-mm angled slightly obliquely to mimic the ideal NAC.[1] Then, the external incision of the circumareolar mastopexy is marked. The superior border is located 3 cm above the IMF so that after the completion of the surgery, the inferior neo-NAC border will end up visually sitting on the IMF. [**See Video 1 (online)** which shows preoperative markings.] The distance between the bottom of the mastopexy incision and the IMF, and the medial border of the mastopexy incision and the midline, are respectively adjusted to be as symmetric bilaterally as possible. If the vertical skin excess (either NAC ptosis or infraareolar skin excess) vertical elevation of the NAC is less than 2–3 cm, the final shape of the exterior mastopexy incision is more circular (Fig. 2). If the vertical excess of skin is greater than 2–3 cm, then the final exterior mastopexy shape is a more vertically oriented ellipse (Fig. 3). Although the recommended ratio of outer to inner diameter has been previously described,[2] the senior author has achieved well-healed, inconspicuous peri-areolar scars by exceeding this ratio [**see Video 1 (online)**]. In the cases with severe ptosis and skin excess (eg., Rohrich grade IV), the patients are managed either with a traditional amputation and free nipple graft or preferably, with a first-stage radiofrequency-assisted liposuction to debulk and contract the skin envelope, followed 6–12 months later by the described GLAND-IQ procedure.

*From the *Division of Plastic and Reconstructive Surgery, McGill University Health Centre, Montreal, QC, Canada; and †Department of Plastic and Reconstructive Surgery, Hospital de la Santa Creu i Sant Pau, Barcelona, Spain.*

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The patient is positioned in supine position with arms abducted to 90 degrees. The procedure begins with liposuction, performed using either the IMF and/or lateral chest ports[3] Aspiration is performed with 4-mm cannulas with the goal of global fibrofatty debulking centrally and feathering more peripherally. The senior author aims to remove equal volumes of fat during the liposuction (hence the importance of equal volumes of infiltration on both sides).

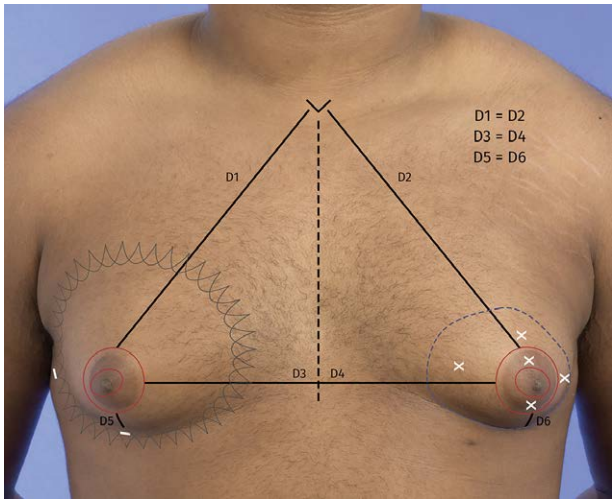

Fig. 1. A photograph of sample preoperative planning and marking of a grade III gynecomastia. The area of planned liposuction with feathering at the periphery is marked by the blue corrugated outline. The area of planned open breast parenchyma excision is estimated by palpations and noted as the dotted blue outline. The ideal size and oblique orientation of the neo-NAC is marked in solid red, as is the outer incision of the circumareolar mastopexy. Note that the top of this marking should be a symmetrical distance from the sternal notch on both sides to ensure equal NAC height bilaterally. The medial, lateral, and inferior limits are adjusted as described in the preoperative markings section to optimize symmetry between the two sides. The skin between the red markings is de-epithelialized. The white crosses mark the approximate location of the quilting sutures. The white dashes demonstrate possible liposuction port locations.

Takeaways

Question: How could we combine the different available techniques in male breast reduction in a single surgery to address type IIb/III gynecomastia?

Findings: The technical explanation and the videos allow the reader to learn the nuances of a combination of multiple surgical techniques for the treatment of moderate to severe gynecomastia.

Meaning: The combination of liposuction, gland excision, circumareolar mastopexy and quilting sutures can be used to treat moderate to severe gynecomastia without extra-areolar scars.

The circumareolar markings are incised, and the skin in between is de-epithelized. The glandular resection is approached through an incision in the inferior half of the de-epithelialized dermis. A superiorly based NAC pedicle is then undermined, maintaining a thickness of 1–1.5 cm. This plane of dissection is then carried out radially to the marked edges of the glandular excess down toward the pectoral fascia. The remaining glandular/fatty tissue is then removed, and the weights of each side used or adjusted to account for preoperative differences in volume. [**See Video 2 (online),** which shows liposuction and glandular excision.]

Closure begins with the placement of five to six quilting sutures of 4.0 Monocryl (Ethicon, Raritan, N.J.) between the pectoralis major fascia and the skin/pedicle flaps (Fig. 1). It is important to place the suture under the NAC symmetrically bilaterally because this can alter the position of the NAC. [**See Video 3 (online),** which shows quilting sutures and circumareolar mastopexy.]

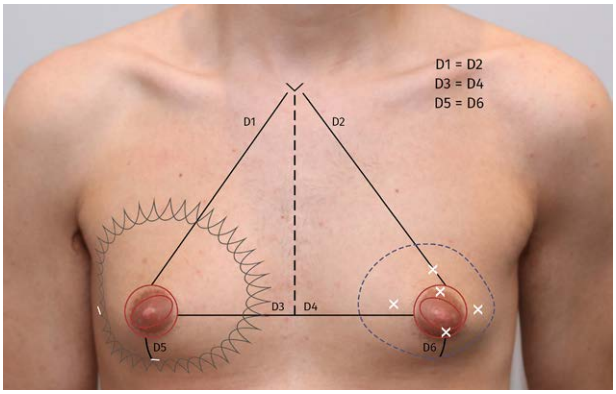

Fig. 2. A photograph of sample preoperative planning and marking of a patient with Grade IIb gynecomastia. Note that due to the minimal ptosis (<2–3 cm expected elevation), the circumareolar mastopexy in this case is more circular and was designed predominantly to reduce the areolar diameter and coning as well as to tighten the skin envelope, which becomes more excessive following volume reduction.

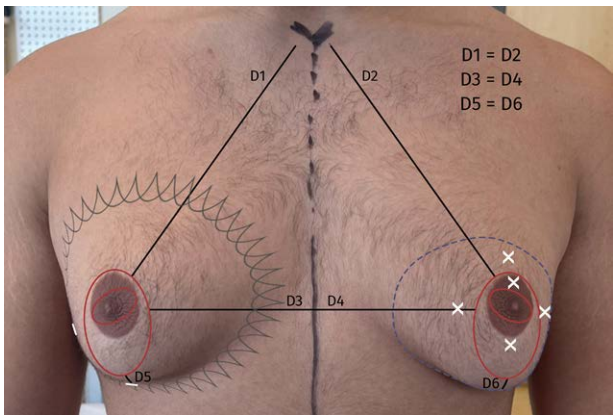

Fig. 3. A photograph of sample preoperative planning and marking of a patient with grade III (pseudoptosis) gynecomastia. Note that due to the pseudoptosis, the circumareolar mastopexy in this case is more vertically oriented. After the gland excision and contour liposuction, the vertical excess below the areola becomes evident (>2–3 cm), which necessitates removal of excess skin inferior to the NAC.

The NAC is then closed in cardinal points with interrupted intradermal sutures followed by a final running subcuticular suture. No drains are used, and a soft, gently compressive dressing is applied. The dressing is removed 48–72 hours later, and a compressive chest garment is worn for 1 month postoperatively **[see Video 3 (online)]**.

DISCUSSION

Wiesman et al demonstrated that 75% of the revisional surgery for grade III gynecomastia required a skin excision that was not performed in the prior procedure.[4]

With the exception of periareolar techniques, all the described techniques for excess skin removal result in visible scars in nonpigmented skin that are stigmatic of gynecomastia surgery.[5]

Although the techniques described here are by no means novel and commonly performed in isolation by plastic surgeons, the authors' described GLAND-IQ formally combines them in a synergistic, single-stage operation to address grade IIb/III gynecomastia while minimizing visible scar burden. [**See figure, Supplemental Digital Content 1,** which shows postoperative photograph (6weeks) of a patient with grade III gynecomastia and Fitzpatrick type V skin. **http://links.lww.com/PRSGO/D257**.] [**See figure, Supplemental Digital Content 2** which shows postoperative photograph (6weeks) of a patient with grade IIb gynecomastia. **http://links.lww.com/PRSGO/D258**.]

In the senior author's experience of using this technique over 10 years, no patients required revisional surgery, attesting to the reasonable effectiveness of the technique. There were no instances of nipple necrosis, seroma, or hematoma. In the literature, the most common reported complications following gynecomastia surgery are hematoma (4.4%–5.8%) and seroma (2.1%–3.9%),[6] together constituting the most common nonaesthetic reason to require a second surgery.[4,7]

In a systematic review, Innocenti et al have already demonstrated that techniques involving liposuction (whether alone or combined with open resection) have lower hematoma rates.[6] Transcutaneous quilting sutures have also been described with a low hematoma rate (1.3%), although some patients require an additional visit for removal and some develop visible cutaneous track marks.[8]

The GLAND-IQ approach involves the use of internal quilting sutures that do not require removal and avoid the risk of cutaneous pigmentation. Additionally, the persistent quilting effect 3–4 weeks postoperatively further reduces the risk of fluid collection, obviating the need for drains. From an aesthetic standpoint, the combination of open and liposuction-based fibrofatty tissue reduction is advantageous because it creates smooth skin contours and a more even transition between the sharply resected tissue and the patient's native tissues.[9,10] Quilting sutures help predictably reposition the ptotic NAC. Adding a circumareolar mastopexy avoids the stigmata of gland reduction coupled with an aesthetically oversized areola, which often puckers, wrinkles, or remains hypertrophic without dedicated reduction. Furthermore, the ability to control NAC position and to simultaneously reduce the skin excess caused by fatty and glandular reduction helps provide an optimal aesthetic result without the need for visible extra-areolar cutaneous scars.

Mirko S. Gilardino, MD, MSc, FRCSC, FACS
Division of Plastic, Reconstructive and Aesthetic Surgery
McGill University Health Centre and
Montreal Children's Hospital
McGill Faculty of Medicine
1001 Decarie Boulevard, B05.3310
Montreal, Canada H4A 3J1
E-mail: mirko.gilardino@muhc.mcgill.ca

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REFERENCES

1. Beer GM, Budi S, Seifert B, et al. Configuration and localization of the nipple-areola complex in men. *Plast Reconstr Surg.* 2001;108:1947–1952; discussion 1953.
2. Spear SL, Kassan M, Little JW. Guidelines in concentric mastopexy. *Plast Reconstr Surg.* 1990;85:961–966.
3. Wall SH Jr, Lee MR. Separation, aspiration, and fat equalization: SAFE liposuction concepts for comprehensive body contouring. *Plast Reconstr Surg.* 2016;138:1192–1201.
4. Wiesman IM, Lehman JA Jr, Parker MG, et al. Gynecomastia: an outcome analysis. *Ann Plast Surg.* 2004;53:97–101.
5. Kazzazi F, Malata CM. Application of the Lalonde (horizontal-only scar) breast reduction technique for correction of gynaecomastia in dark skinned patients. *Gland Surg.* 2019;8:287–293.
6. Innocenti A, Melita D, Dreassi E. Incidence of complications for different approaches in gynecomastia correction: a systematic review of the literature. *Aesthetic Plast Surg.* 2022;46:1025–1041.
7. Hood K, Ganesh Kumar N, Kaoutzanis C, et al. Hematomas in aesthetic surgery. *Aesthet Surg J.* 2018;38:1013–1025.
8. Murugesan L, Karidis A. External quilting: new technique to avoid haematoma in gynaecomastia surgery. *Aesthetic Plast Surg.* 2020;44:45–51.
9. Lista F, Ahmad J. Power-assisted liposuction and the pull-through technique for the treatment of gynecomastia. *Plast Reconstr Surg.* 2008;121:740–747.
10. Hammond DC. Surgical correction of gynecomastia. *Plast Reconstr Surg.* 2009;124:61e–68e.