Cross-Chest Lipoplasty and Surgical Excision for Gynecomastia: A 10-Year Experience

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Gynecomastia is defined as the presence of abnormal benign enlargement of the male breast. Most authors report an overall incidence of 32% to 36%, and as many as 65% of adolescent boys are affected in some series. The incidence of bilateral involvement varies from 25% to 75% of patients.

Gynecomastia may be classified as either physiologic or pathologic, and although its origin is multifactorial, in many cases an identifiable cause is not found. Pathophysiologic mechanisms involve either a relative or an absolute excess of estrogens, a decrease in the level of circulating androgens, or a defect in androgen receptors. Physiologic gynecomastia occurs most frequently during times of male hormonal change as a result of the end effect of an altered estrogen/androgen balance on breast tissue or because of increased sensitivity of the tissue to normal estrogen levels. Pubertal gynecomastia is often self-limiting and regresses spontaneously, with most cases resolving within 3 years.

In adults, gynecomastia is associated with increasing age and, in particular, with progressive testicular hypofunction, an increase in body fat, and an increase in the estrogen/androgen ratio. Pathologic gynecomastia is associated with both androgen deficiency and estrogen excess. Both causes may be associated with medications, tumors, chronic disease, chromosomal abnormalities, endocrinologic disease, and a host of other conditions.

Although a mass in the male breast is always a cause for concern, just 1% of all breast cancers occur in men, and many studies have shown that men with gynecomastia are not at increased risk for breast cancer compared with other men. An exception is found in men with Klinefelter’s syndrome, which increases the risk for breast cancer by as much as 60 times the risk in the normal male population.

The classification of gynecomastia may be based on the scale adapted from Simon et al and is graded on the degree of breast enlargement, with or without the pres-
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ence of glandular tissue, skin excess, and ptosis (Table 1). In our practice, the age of the patient and the consistency, grade, and presence of unilateral or bilateral breast development determine the need for surgery. Before surgical consultation, a complete history and physical examination are conducted, with appropriate diagnostic testing and a consultation with an endocrinologist to determine the underlying cause of the gynecomastia.

Our treatment approach is based on the composition of male breast tissue. The proportions of fat and glandular tissue are assessed during the physical examination and confirmed on mammography. Once the analysis is complete, a precise treatment plan can be formulated and preoperative discussions may take place with the patient (and when appropriate, his parents). In patients with diffuse fatty enlargement of the breast, suction-assisted lipoplasty (SAL) alone is planned. In patients with fatty tissue plus a retroareolar glandular element, SAL followed by direct excision through an inferior periareolar incision is planned. For patients with only true retroareolar glandular gynecomastia, simple direct excision is planned.

Patients and Methods

We performed a retrospective review of the cases of 34 consecutive patients treated between 1991 and 2001 at the University of Texas Medical Branch in Galveston, TX. The mean age of our patients was 24 years. The average body-mass index was 26 kg/m², slightly above the ideal body weight for this age group. Eleven patients had mild breast enlargement (grade I gynecomastia), 20 patients had moderate breast enlargement without skin redundancy (grade IIa), and 3 patients had marked breast enlargement with skin excess (grade III) (Table 2). Nearly two-thirds of our patients had persistent pubertal gynecomastia, and almost one third of cases were idiopathic in nature. Other causes included hypogonadism, Klinefelter’s syndrome, and anabolic-steroid use in a bodybuilder (Table 3).

In our surgical approach, the patient is positioned supine, with the elbows flexed and the hands tucked at the waist (Figure 1). We believe that this position helps maximize the appearance of the enlarged breast while the patient is supine. General anesthesia is preferred but is not mandatory. When SAL was performed, we accomplished infiltration by infusing wetting solution in an intermediate surgical plane. Infiltrate was delivered with the use of a superwet technique, with a 1:1 ratio of infiltrate to estimated aspirate and a combination of 1 L of lactated Ringer’s solution with 2.5 mL of 8.4% sodium bicarbonate and 25 mL of 2% lidocaine with 1 mL of epinephrine 1:1000. Infusion was performed with a 2.0-mm cannula through an access site at the medial border of the contralateral nipple-areolar complex (NAC). No pretunneling was necessary (Figure 2).

After completing infiltration, we performed standard lipoplasty with a 4.0-mm Mercedes-tip cannula (Byron/Mentor Corp., Santa Barbara, CA) inserted into the contralateral medial NAC access site. We found a cannula length of 25 cm ideal for tunneling over the sternum to
Figure 1. Positioning the patient in the supine position, with the elbows flexed and the hands tucked in at the waist, helps maximize the appearance of the enlarged breast.

Figure 2. We carried out infusion using (A) a 2-mm cannula through (B) an access site at the medial border of the contralateral NAC.

Figure 3. We performed cross-chest lipoplasty by (A) inserting a 4.0-mm Mercedes-tip cannula, 25 cm long, into the contralateral medial NAC access site and (B) tunneling over the sternum to suction the contralateral prepectoral fatty breast.

Figure 4. The lateral chest was suctioned though an ipsilateral NAC site with a 4.0-mm cannula, 15 cm long.

suction the contralateral prepectoral fatty breast (Figure 3). The lateral chest was then suctioned through an ipsilateral NAC site at its lateral border with a 4.0-
When indicated for removal of any glandular tissue, we performed direct excision after liposuction through a periareolar incision incorporating both medial and lateral stab incisions. The determination that direct excision was necessary could be made before surgery, after lipoplasty, or occasionally at both stages. Excision was performed with the use of a superior pedicle pull-through technique, and the specimen was sent to the surgical pathology department for gross examination and permanent tissue sectioning for microscopic analysis (Figure 5).

At the end of the procedure, we placed a compression vest on the patient in the operating room; this vest was worn for 2 to 3 weeks after surgery (Figure 6). Outpatient follow-up was performed 1 week, 1 month, and 6 months after surgery. Because of the travel distance required for postoperative follow-up at our institution, some patients did not return for long-term follow-up.
Results

Of 34 consecutive patients, 12 underwent cross-chest SAL alone to correct what were determined during preoperative examination to be predominantly fatty breasts. Fourteen patients underwent cross-chest SAL and direct excision to correct fatty breast enlargement with a glandular element. Six patients underwent direct excision alone. Twenty-six patients were treated for bilateral gynecomastia. The average amount of lipoaspirate in bilateral breast SAL was 385 mL (range 75–800 mL), and the average amount of gland excised per breast in cases involving excision was 35 g (range 15–65 g). No skin excision was necessary in any case. Representative results are shown in Figures 7 and 8.

Complications were few. Of 34 patients, 1 patient who underwent direct excision alone had a hematoma requiring evacuation. Two patients who underwent SAL combined with excision experienced transient

Table 4. Complications

<table>
<thead>
<tr>
<th>Complication</th>
<th>SAL</th>
<th>SAL + excision</th>
<th>Direct excision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hematoma</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Seroma</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Infection</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Numbness</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Skin loss</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hypertrophic scar</td>
<td>0</td>
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</tbody>
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Figure 7. A, C, E, Preoperative views of a 16-year-old youth with moderate, diffuse chest enlargement (grade IIa). B, D, F, Postoperative views 1 week after cross-chest SAL with 550 mL of lipoaspirate. G, Postoperative appearance after 2 months.
NAC numbness that ultimately resolved (Table 4). No patient required revision for skin excess or secondary lipoplasty.

Discussion

Historically, the surgical management of gynecomastia has involved excision with or without adjunctive
SAL and has involved 2 objectives: to reconstruct
the male chest contour and histologically clarify suspicious
lesions. The treatment has evolved from excision
through a single submammary incision, as reported by
Paulus Aegineta as early as 635 AD, to excision through
a variety of periareolar, circumareolar, and transareo-
lar incisions. Circumareolar excision with skin exci-
sion based on the degree of ptosis and skin excess were
described in 1973 by Simon et al, who also classified
gynecomastia with the use of a simple, useful system.
Excision of skin and tissue with free nipple graft, as
well as inferior pedicle reduction techniques with skin
excision, have been described for severe gynecomastia.
Combined modalities such as SAL with excision fol-
lowed, and Rosenberg described most cases of gyneco-
mastia as being amenable to SAL alone. Zocchi later
described ultrasound-assisted lipoplasty as being useful
for the treatment of gynecomastia, and Rohrich et al,
as well as Gingrass et al, have researched these
applications and expanded on them. A complete and
detailed review of etiologic factors and the history of
surgical management of gynecomastia is not the focus
of this paper but may be found in a recent excellent
review article by Rohrich et al.

In our practice, we have been pleased with the post-
operative appearance of most of our patients after stan-
dard SAL with or without direct excision. Despite the
occurrence of a hematoma in one patient who under-
went direct periareolar excision alone, the complica-
tion rate has been low and the results predictable in mild to
moderate cases of gynecomastia. Technical tips include
keeping a disc of retroareolar glandular tissue in cases of
excision to prevent retraction of the areola and concomi-
tant deformity resulting from scarring in this area. We
also prefer to gain access to the contralateral prepectoral
fatty breast in cases of SAL from a unique cross-chest
access site. This permits the use of a remote portal entry
to feather the contralateral superior and medial breast,
as well as greater technical ease in performing the proce-
dure with the use of one’s dominant hand to suction and
the nondominant hand to pinch the soft tissue and guide
the cannula (see Figure 3). We have found that cross-
chest suctioning does not cause contour irregularity or
symmastia.

Conclusion

SAL has been adapted for the correction of gyneco-
mastia. Despite newer technologies such as ultrasound-
assisted lipoplasty, traditional SAL with a unique cross-
chest technique and direct excision as indicated is a
valuable approach, providing predictable success. We
prefer to obtain a mammogram for surgical planning
because it offers a qualitative assessment of the fat/glan-
dular proportions of the male breast, as well as a confir-
mation of the preoperative examination findings to
guide suctioning as opposed to direct excision. In our
series, bleeding, postoperative ecchymosis, and contour
irregularities have not been problems, and skin retrac-
tion has been adequate in all cases. We have found that
this technique is most useful in mild to moderate
gynecomastia and that it facilitates sculpted, homoge-
nous reduction of the retroareolar glandular and fat ele-
ments for a smooth chest contour.

References

1993;328:490–495.
3. Pensler JM, Silverman BL, Sanghavi J, et al. Estrogen and proges-
terone receptors in gynecomastia. Plast Reconstr Surg
JAMA 1961;178:449.
5. Williams MJ. Gynecomastia: its incidence, recognition, and host char-
6. Evans GF, Anthony T, Turnese RH, et al. The diagnostic accuracy of
mammography in the evaluation of male breast disease. Am J Surg
2001;181:96–100.
7. Simon BE, Hoffman S, Kahn S. Classification and surgical correction
8. Webster JP. Mastectomy for gynecomastia through semi-circular
plete circumareolar approach in the surgical management of skin
11. Kornstein AN, Cinelli PB. Inferior pedicle reduction technique for larg-
12. Courtias EH. Gynecomastia: analysis of 159 patients and current rec-
13. Rosenberg GJ. Gynecomastia: suction lipectomy as a contemporary
14. Zocchi ML. Ultrasonic-assisted lipoplasty: technical refinements and
of gynecomastia: defining the role of ultrasound-assisted liposuction.
16. Rohrich RJ, Beran SJ, Kenkel JM, et al. Extending the role of liposuc-
tion in body contouring with ultrasound-assisted liposuction. Plast

Suggested Reading

Teimourian B. Ultrasound-assisted liposuction (Correspondence and Brief Communications). Plast Reconstr Surg 1997;100:1623-1625.

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