A New Classification and Treatment Protocol for Gynecomastia

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BACKGROUND: It is not uncommon to encounter patients who have undergone surgery for gynecomastia but who were not fully satisfied with the results. Although various approaches and techniques based on presurgical classification systems aimed at yielding the best possible surgical outcomes have been offered, standardized recommendation that is generally accepted by surgeons is lacking.

OBJECTIVE: The author reports on a new classification system and treatment protocol for the surgical treatment of gynecomastia.

METHODS: A system was developed that classifies patients into 3 types based on skin elasticity, presence of an inframammary fold (IMF), and mammary ptosis. Surgical excision of the breast mass was followed by a combination of destruction of the IMF, ultrasound-assisted lipoplasty (UAL) of the chest wall, ultrasound stimulation of the breast skin, and periareolar deepithelialization, depending on the gynecomastia classification.

RESULTS: This classification and the treatment protocol were applied to 30 patients, 13 to 60 years of age, between January 2005 and December 2007. Among these patients, 12 were classified as type 1, 6 as type 2, and 12 as type 3. Follow-up ranged from 3 to 18 months. Complications were common to all types of cases and techniques. They included 2 hematomas, 1 wound dehiscence, 5 cases of residual gynecomastia in those patients who underwent UAL alone, and 3 minor aesthetic problems near areolae.

CONCLUSIONS: The proposed new classification and treatment protocol were found to help solve problems associated with surgical outcomes for all types of gynecomastia, although the issue of residual gynecomastia in patients undergoing UAL alone requires further study. (Aesthetic Surg J 2009;29:26–31.)

Gynecomastia is a common aesthetic problem encountered by plastic surgeons. Most patients seek a flat chest without evidence of enlarged breasts or any visible scars. The shape, size, and content of the breasts vary considerably both from patient to patient and between sides of the same patient. Although different approaches and techniques based on various presurgical classification systems have been proposed,1-7 a standardized recommendation that is generally useful for surgeons to uniformly achieve the best possible outcome is lacking.

It is not uncommon that gynecomastia patients are not fully satisfied with the outcomes of surgery. The reasons for this dissatisfaction include residual gynecomastia, persistence of an inframammary fold (IMF) sharply demarcating the chest from the abdomen (as is present in women), persistence of loosely hanging breast skin, and unsightly scars on the chest. To overcome these problems, various techniques or combinations of techniques were applied for different types of gynecomastia by the author for a period of more than 7 years. After carefully analyzing the results, a new classification and treatment protocol were devised and applied to 30 patients.

METHODS

Classifications of gynecomastia are shown in Figure 1 and are as follows: type 1—enlarged breasts with elastic skin and no fold; type 2—enlarged breasts with elastic skin and an IMF; and type 3—ptotic breasts with inelastic skin. Borderline type 1 cases, or cases in which the existence of an IMF in one view or the other is uncertain, are treated as type 2.

Treatment Protocol

Type 1. Surgical excision of the breast mass was performed through a Webster incision,8 leaving a few millimeters’ thickness of tissue behind the areola to prevent the nipple from appearing retracted.9,10 A marginal rim of subcutaneous fat was excised to prevent a saucer- or dish-shaped deformity at the treated area. Ultrasound-assisted lipoplasty (UAL) was used in all cases for chest wall contouring following surgical excision.11,12

Type 2. Surgical excision of the breast mass as described above was followed by destruction of the IMF using a blunt liposuction cannula.10,13,14 UAL of a wide...
area of the surrounding chest wall and upper abdomen was performed,9,10,13,14 followed by stimulation of the dermal surface of the breast skin by ultrasonic energy with 30% energy output for 3 minutes without using suction.15

**Type 3.** Surgical excision of the breast mass was performed followed by destruction of the IMF, UAL for contouring of the surrounding chest wall and upper abdomen and reduction of the redundant skin sleeve by periareolar deepithelialization and purse-string closure of the wounds around the areolae.16-20

**RESULTS**

A total of 42 patients with gynecomastia were treated during the period of study. However, 12 of them received treatment with UAL alone, at request. As “treatment by UAL alone” is not in the protocol, they were excluded from the study. The remaining 30 patients with bilateral gynecomastia between 13 and 60 years of age were treated with this protocol. Duration of breast enlargement varied from 2 to 30 years. Twelve patients (40%) were classified as type 1, 6 (20%) as type 2, and 12 (40%) as type 3. The amounts of material treated by combination of surgical excision and liposculpturing of surrounding chest wall and upper abdomen were between 100 and 550 g of breast tissue and between 200 and 1110 mL of chest wall and upper abdominal fat per side. Typical results are shown in Figures 2 through 4.

The duration of the study was 3 years (January 2005 to December 2007). Follow-up ranged from 3 to 18 months. The comorbid factors included testicular tumors in 3 patients (10%), diabetes mellitus in 16 patients (53%), hypertension in 6 patients (20%), and acetylcholinesterase deficiency in 1 patient (3%). All of the breast type- or treatment technique-related unsatisfactory outcomes associated with correction of gynecomastia were effectively prevented with the help of this new classification and the treatment strategies based on it.
COMPLICATIONS
Complications were common to all types of cases and techniques. They included 2 cases (7%) of hematoma involving a type 1 patient and a type 2 patient; 1 case (3%) of wound dehiscence caused by blunt injury in the postoperative period in a type 3 patient; 1 case (3%) of minor asymmetry of the areolae in a type 3 patient whose breasts and areolae were asymmetric preoperatively; and 1 case (3%) of scar widening caused by premature excessive stretching of the arm in a type 3 patient.

DISCUSSION
There appears to be no relationship between the type of gynecomastia and patient age, duration of gynecomastia, or breast size or contents. In type 1 cases, the breast skin seems to be elastic and retracts after excision of the underlying breast mass, suggesting that the gynecomastia can successfully be treated by simple excisional techniques followed by removal of a marginal rim of subcutaneous fat by surgery or lipoplasty. Treatment of gynecomastia with UAL alone was found to result in a high percentage (41.5%) of “residual gynecomastia,” which appears 1 or 2 months after surgery, despite measures such as palpation to verify adequacy of tissue removal, having patients sit on the operating table with their arms at their sides during surgery, and having patients wear medical-grade compression vests for a period of 3 months after treatment. The causes of residual gynecomastia require further elucidation. In the present series, treatment by UAL alone was performed at the request of the patients. Even though patients were informed of the likelihood of residual gynecomastia, they were willing either to accept this risk or to undergo “touch up” procedures at a later date. Care was taken to inform patients of the possibility of complications with respect to surgical scars, such as hypertrophy, keloid formation, and pig-

Figure 2. A, C, E, Preoperative views of a 29-year-old man with type 1 gynecomastia. B, D, F, Postoperative views 18 months after surgery.
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All patients were advised to apply Steri-Strip (3M Health Care, St. Paul, MN) on the scars for a period of 6 months in order to minimize these problems. In fact, there were no cases of scar hypertrophy, keloid formation, or permanent hyperpigmentation of scars in our patient series; there were also no complaints from those patients who had transient hyperpigmentation of their scars for a few months following surgery.

In type 2 cases, the breast skin seems to be elastic but slightly redundant or adjusts to the enlarged size of the breasts and gravitates downward along with the breast mass, resulting in formation of an IMF. The IMF sharply demarcates the chest from the abdomen, as in women. Therefore, it must be destroyed when present. The redundancy was found to respond well to ultrasound stimulation of the dermal surface of the breast skin, followed by UAL of a wide area of the surrounding chest wall and upper abdomen for redraping of the breast skin. This property of dermal stimulation appears to be unique to ultrasound energy. However, the long-term results of suction-assisted lipoplasty (SAL) and UAL are reportedly similar. This suggests that surgeons who are practicing SAL but not UAL can probably continue to treat these patients with SAL and address the skin redundancy, if required, with skin sleeve corrective techniques. Although power-assisted

Figure 3. A, C, E, Preoperative views of a 25-year-old man with type 2 gynecomastia. B, D, F, Postoperative views 6 months after surgery.
lipoplasty (PAL) has gained popularity as a means of treating such skin redundancy, the author has no experience with this technique.

Type 3 patients belong to all age groups. They have an increased tendency toward obesity, hormonal imbalance problems, and/or significant weight fluctuations. Their breasts are ptotic almost from the onset of gynecomastia, and the skin overlying their breasts tends to be inelastic. Some existing surgical techniques, such as the inverted-T technique, result in scars on the anterior chest. The use of periareolar skin reduction techniques can prevent such unsightly scars and confine scars to the circumareolar region, where they are invisible at social distances.

CONCLUSIONS

Four individual technique-related causes of patient dissatisfaction following treatment for gynecomastia—residual gynecomastia, persistence of an IMF sharply demarcating the chest from the abdomen, persistence of loosely hanging breast skin, and unsightly scars on the chest—were identified and their probable causes were analyzed. Based on the results, a new classification and treatment protocol was developed. It was found by the author to yield consistently satisfactory results in all types of gynecomastia, although the issue of residual gynecomastia after treatment with UAL alone requires further study.

Figure 4. A, C, E, Preoperative views of a 23-year-old man with type 3 gynecomastia. B, D, F, Postoperative views 6 months after surgery.
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DISCLOSURES

The author has no disclosures with respect to the contents of this article.

REFERENCES