

I. BACKGROUND/RESEARCH

Gynecomastia is a benign enlargement of the male breast that can occur at times of male hormonal change, infancy, adolescence, or old age.¹ Male breast growth can also be caused by medications, physiologic changes and medical conditions which alter the balance of androgen and estrogen.² It may also be associated with the chromosomal abnormality Klinefelter's syndrome.³ Certain HIV patients who are receiving anti-retroviral therapy may also present with this condition.^{4,5} It is a common breast lesion accounting for more than 65 percent of male breast disorders. Just one percent of male breast enlargement is caused by malignancy.^{6,7}

While the amount of subareolar tissue required for the diagnosis of gynecomastia varies among surgeons and authors, it is the patient's perception that he has too much breast tissue, and hence a feminine habitus, which usually brings the patient to see his physician. This perception of an undesirable size makes the condition clinically significant.

Histologically, the male breast contains both glandular and fatty tissue. Gynecomastia may result from proliferation of either or both.⁸ Proliferation of only fatty tissue is termed pseudogynecomastia. There is no correlation between the cause of the gynecomastia and its histology. With any enlargement of the male breast, the possibility of carcinoma should be considered.

There are several classifications of gynecomastia. That of Simon, Hoffman and Kahn⁹ is most widely known. An alternate classification proposed by McKinney and Lewis¹⁰ is also well known. More recently, Rohrich, et. al. have also developed a classification scheme.¹¹ The American Society of Plastic Surgeons® (ASPS®) has found that third-party payers prefer a classification system that is qualitative or descriptive, rather than quantitative or specific in terms of grams of tissue removed. Thus, ASPS has adapted the classification systems, as follows:

- Grade I: Small breast enlargement with localized button of tissue around the areola
- Grade II: Moderate breast enlargement exceeding areola boundaries with edges that are indistinct from the chest
- Grade III: Moderate breast enlargement exceeding areola boundaries with edges that are distinct from the chest with skin redundancy
- Grade IV: Marked breast enlargement with skin redundancy and feminization of the breast

II. DIAGNOSTIC CRITERIA

In addition to psychological distress, patients may present with the following physical symptoms: breast enlargement, asymmetry, nipple discharge, pain, and tenderness. The causes of gynecomastia may be physiologic, pathologic or pharmacologic, as follows:

1. Physiologic Gynecomastia¹²
 - a. Neonatal gynecomastia: Result of transplacental passage of female hormones.
 - b. Prepubertal gynecomastia: Occurrence rare; diagnosis includes chromosome analysis, history of contact with exogenous estrogen and evaluation of sex steroid and pituitary hormone concentrations.
 - c. Pubertal gynecomastia: Occurs in $\frac{2}{3}$ of adolescents. The peak incidence occurs around 14-14.5 years and has an average duration of 1-2 years. Enlargement to 2-2.5 cm and subareolar tenderness can be present. This condition generally disappears by age 20.
 - d. Old age: The incidence increases with age. It is related to a fall in testosterone levels and testicular involution.
2. Pathologic Gynecomastia¹³
 - a. Hypogonadism: This is caused by testicular failure and may be due to an occlusion, trauma, castration, orchitis, or Klinefelter's syndrome.
 - b. Endocrine disorders: This manifestation is commonly associated with hyperthyroidism.
 - c. Metabolic disorders: Laennec's cirrhosis or refeeding after starvation are often found to be the cause.
 - d. Neoplasms: The most common causes include testicular tumors, feminizing adrenal tumors and bronchogenic carcinoma.
 - e. Male breast cancer: This occurs in 20-60 percent of the cases of Klinefelter's syndrome and in one percent of the male population in general.
3. Pharmacologic Gynecomastia
 - a. Gynecomastia can be induced by pharmacological agents, including but not limited to, cimetidine, digitalis, methadone, marijuana, clomiphene, chemotherapeutic agents, anti-retroviral agents, herbal remedies, and chlorpromazine.^{5, 14, 15} The use of anabolic steroids may also induce male breast tissue development. Anabolic steroids are utilized to treat such medical conditions as delayed male puberty or impotence. Over the counter anabolic steroids may be misused as in the case where body builders and athletes use it to build skeletal and muscle mass.¹⁶



III. PHYSICAL EXAMINATION

The breasts should be examined and the breast tissue described in terms of volume, area, tissue consistency, skin redundancy, and areolar size. Firm (glandular) and soft (fatty) tissue may require different treatment. It should also be rated according to the classification systems noted in the Background/Research section. Further, the chest wall should be observed for obvious signs of deformity. The surrounding skin should be examined for signs of redundancy. The axillae should also be examined for the presence or absence of adenopathy. Ultrasound can be helpful in evaluating localized masses.

Appropriate laboratory testing may include:

1. CBC
2. SMA-20: if medically indicated, i.e., diabetes, hypertension
3. Estrogen, testosterone, prolactin, growth hormone
4. Chest X-ray: history of smoking, suspicion of cancer
5. EKG for patients over 40 years
6. Mammogram: large breast and suspicion of cancer

Consultation with other medical specialists may be indicated, as follows:

1. Medical consultation: general for associated illness in older patient
2. Endocrine: history compatible with pathologic gynecomastia
3. Urologic: cryptorchidism, testicular neoplasm
4. Psychiatry/Psychology: for evaluation of anxiety/depression or expectations of surgical outcome¹⁷

IV. TREATMENT

Non-operative

Treatment options vary depending on the cause. Gynecomastia may not require treatment unless the breast enlargement causes embarrassment or distress to the patient. Certain cases of physiological gynecomastia will resolve without intervention. These include gynecomastia in the neonate and, often times, the adolescent. Surgical resection for adolescent gynecomastia may be withheld for at least one year as many of these cases will spontaneously resolve. Patient and parent reassurance may be sufficient for these cases. Pharmacological gynecomastia will often respond to modification or elimination of the medication regimen. Metabolic gynecomastia may be treated with restoration of proper nutrition or treatment of the underlying cirrhosis. Patients whose condition is endocrine-dependent should receive treatment for the endocrine disorder first. Further decisions regarding surgery would be dependent on the outcome of treatment for the underlying disorder. Patients with cirrhosis are poor surgical candidates.

Operative

Patients would be considered candidates for surgical intervention if they are rated as Grade II, III or IV and systemic conditions have been ruled out. There are various surgical techniques that have been used. The technique employed depends on the consistency of the tissue and the amount of redundant skin. Tissue may be removed by either direct excision or liposuction or a combination of both. Fatty tissue, usually present in the periphery of the chest, is amenable to liposuction through a periareolar or an inframammary crease approach. Fibrous, glandular tissue resides deep to the areola and may require direct excision through a periareolar incision.

Grade II, III and IV have redundant skin which must be addressed. Hall, et. al.¹⁸ de-epithelializes skin inferior to the areola and place the de-epithelialized skin deep to the areola. Areolar adhesion to the pectoralis fascia is prevented while a small amount of redundant skin is excised. Coskun, et. al.¹⁹ recommend excising a semi-circular piece of skin inferior to the areola for Simon grade 2B patients, equivalent to Grade III on the above scale. For Simon grade 2B and grade 3 patients, equivalent to Grade III and IV on the above scale, Smoot²⁰ and Persichetti et al²¹ recommend de-epithelializing skin circumferentially around the areola and placing a purse string suture in the outer edge to narrow the diameter to a distance equal to the diameter of the areola. For pendulous breasts, Grade IV on the above scale, techniques similar to reduction of the female breast may be required. That would include free nipple skin, etc. (See related Practice Parameter on Reduction Mammoplasty.) The exact procedure needs to be individualized based on a case-by-case basis (surgical goals).

Most recently it has been reported that ultrasound assisted liposuction has been used successfully in the treatment of gynecomastia. Rohrich et al have used this technique since 1987 in a series of 61 patients with all grades of gynecomastia.¹¹ Ultrasound assisted liposuction has several advantages over suction-assisted liposuction in that it emulsifies the fat leaving higher density structures relatively intact. This is particularly desirable in areas of the breast that have significant fibrous tissue. It may also enhance skin retraction during the healing process.

Complications include wound infection, wound dehiscence, hematoma, and seroma. Other complications that can occur include undercorrection, overcorrection, contour irregularities, and scarring or keloid formation.

Overall, there is high patient satisfaction and improvement in self-image for patients undergoing treatment for gynecomastia.

Provider Qualifications

The individual performing this procedure, regardless of the location of the surgical facility, should have fully approved hospital privileges for this procedure and be qualified for examination or be certified by a surgical board recognized by the American Board of Medical Specialties®, such as The American Board of Plastic Surgery, Inc.®

V. DISCLAIMER

Practice Parameters are strategies for patient management developed to assist physicians in clinical decision-making. This Practice Parameter, based on a thorough evaluation of scientific literature and relevant clinical experience, describes a range of generally acceptable approaches to diagnose, manage or prevent specific diseases or conditions. This Practice Parameter attempts to define principles of practice that should generally meet the needs of most patients in most circumstances.

However, this Practice Parameter should not be construed as a rule, nor should it be deemed inclusive of all proper methods of care or exclusive of other methods of care reasonably directed at obtaining the appropriate results. It is anticipated that it will be necessary to approach some patients' needs in different ways. The ultimate judgement regarding the care of a particular patient must be made by the physician in light of all the circumstances presented by the patient, the diagnostic and treatment options available and available resources.

This Practice Parameter is not intended to define or serve as the standard of medical care. Standards of medical care are determined on the basis of all of the facts or circumstances involved in an individual case and are subject to change as scientific knowledge and technology advance and as practice patterns evolve. This Practice Parameter reflects the state of knowledge current at the time of publication. Given the inevitable changes in the state of scientific information and technology, periodic review, updating, and revision will be done.

VI. CODING

This coding is provided as a guideline for the physician and is not meant to be exclusive of other possible codes. Other codes may be acceptable depending on the nature of any given procedure.

Diagnosis	ICD-9 Code
Hypertrophy of breast	611.1
Mastodynia	611.71
Lump/mass in breast	611.72

Procedure	CPT Code
Biopsy of breast – incisional	19101
Excision of breast mass	19120
Mastectomy for gynecomastia	19140
Subcutaneous mastectomy	19182
Breast reduction	19318
Suction assisted lipectomy, trunk	15877
Bilateral cases will be coded with the –50 modifier.	

VII. REFERENCES

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