

A Retrospective Analysis of Surgical Management of Gynaecomastia

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Abstract

Background: Gynaecomastia is one of the most common problems reported in male population, with a reported prevalence of 36%⁽¹⁾. Various individual surgical procedures have been described however none have become a standard, hence combination of multiple modalities has emerged over a period of time. We reviewed all gynaecomastia patients operated in our institution over a two year period to assess the morbidity and complication rates associated with different procedures.

Methods: Retrospective study of all patients operated for gynaecomastia at Vydehi Institute of Medical Sciences and Research Centre, Bangalore between January 2012 to January 2014.

Results: Twenty (20) patients were operated during this study period. Patients varied from ages 15 yrs to 35 yrs with the mean age being 26 years. Cosmetic and psychological problems (90%) was the most common cause for the patients needing care. 5 patients underwent liposuction alone (25%), 12 patients excision alone (60%) and 3 patients underwent liposuction combined with excision (15%). Four (4) operated patients experienced some form of complication which include seroma (3 patients) and minor bleeding (1 patient). None of the patients developed any major complication (major wound dehiscence, hematoma) requiring corrective surgery in the theatre. Overall complication rate was 20%. Complication rates was higher among excision and liposuction method (75%) and excision method (25%) in comparison to liposuction only (0%) and. All the patients were followed up for a period of 6 months. There was an overall outcome of high satisfaction among the patients and operating surgeons.

Conclusion: Gynaecomastia is a complex condition posing a challenge to the plastic surgeon. Despite the minor complications our case series shows that operative methods have improved drastically providing favorable results and excellent patient satisfaction.

Keywords: Gynaecomastia; male breast; mammoplasty;

I. Introduction

Gynaecomastia is a common problem in the male population with a reported prevalence of up to 36%. The term refers to a benign female-like enlargement of the male breast resulting from an increase in ductal tissue, stroma and/or fat.

It is defined as clinically by the presence of a rubbery or firm mass extending concentrically from nipples. Enlarged breasts can cause anxiety, self-consciousness and embarrassment, functional problems and psychosocial discomfort and fear of malignancy. It is not surprising, therefore, that gynaecomastia is the most common cause for seeking medical advice for a breast condition in men. The two treatment options are medical therapy and surgical removal. Medical therapy is probably most effective during the active proliferative phase of the condition. If a trial of medical treatment is unsuccessful or the gynaecomastia has been present for several years, then surgical treatment is likely to be required.

The grades of gynaecomastia are classified as having either mild, moderate or gross gynaecomastia as per Simon's classification

Simon et al. divided gynecomastia into four grades:

Grade 1: Small enlargement, no skin excess

Grade 2a: Moderate enlargement, no skin excess

Grade 2b: Moderate enlargement with extra skin

Grade 3: Marked enlargement with extra skin.

Also recently Gynaecomastia scale - American Society of Plastic Surgeons (ASPS) has been developed.

Group 1- Small breast enlargement with localized button of tissue that is concentrated around the areola.

Group 2- Moderate enlargement exceeding areola boundaries with edges that are indistinct from the chest with skin redundancy.

Group 3- Moderate enlargement exceeding areola boundaries with edges that are indistinct from the chest with skin redundancy.

Group 4- Marked enlargement with skin redundancy and feminization of the breast.

After noting the causative factors, duration of symptoms, ultrasonography of the breast region is done. Depending on the type of tissue on sonography i.e fatty/fibrous/glandular appropriate procedure was planned. Surgical options for gynaecomastia include liposuction, open resection with or without skin reduction. Outcome studies of surgical correction have generally shown high levels of satisfaction^(2,3). Various techniques have been described over the years, but no technique has yet gained universal acceptance. We aimed to review all gynaecomastia patients operated in our institution in a 2-year period. We aimed to assess the morbidity and complication rates associated with the procedure and to determine whether certain surgical techniques produced better outcome.

II. Methods

Retrospective study of twenty patients (40 breasts) operated for gynaecomastia at Vydehi Institute of Medical Sciences and Research Centre, Bangalore between January 2012 to January 2014. All the patients were treated for bilateral breast disease. All the patients were evaluated for underlying cause and only patients with idiopathic cause were included in our study. Ages ranged from 15 - 35 years with the mean age being 26 years. Eighteen patients (18) cited cosmetic and psychological problems as the reason for them seeking help, whereas one (1) patient each complained of pain and discomfort and fear for cancer. Ultrasound of the breast tissue was done in all 20 patients. Depending on the type of tissue i.e fatty/fibrous/glandular

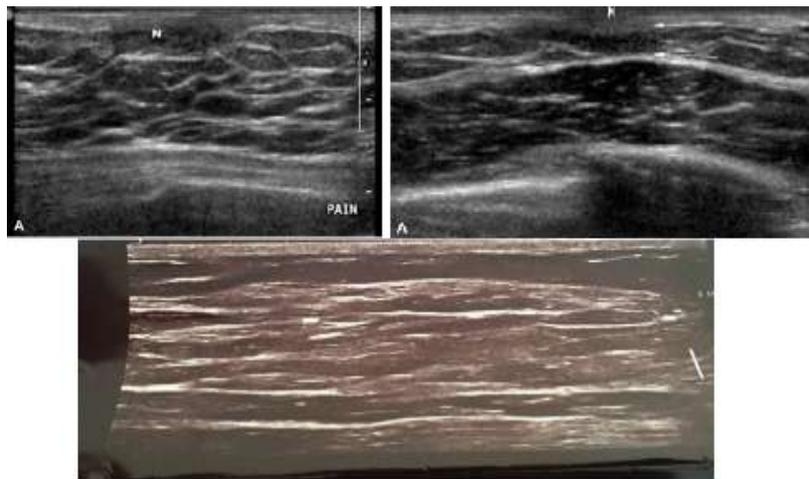


Figure 1: Fatty architecture-multiple lobules of fat with a homogeneously hypoechoic echo structure. The lobules are separated by thin branches of hyperechoic fibrous tissue posterior to the nipple

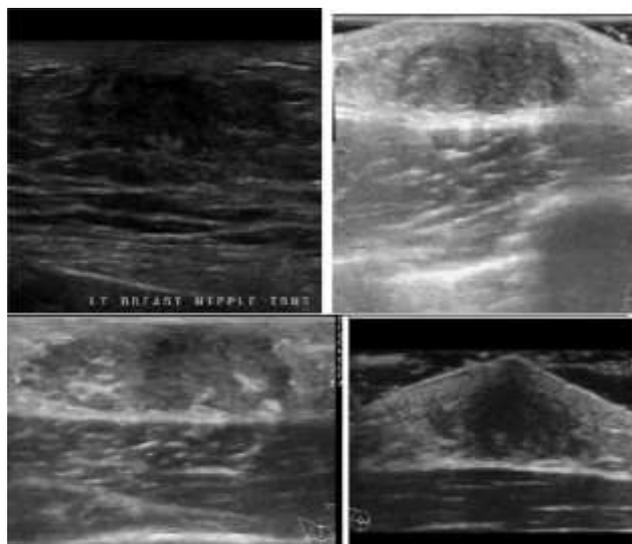


Figure 2: Fibrous architecture- The lesion appears as a solid, retroareolar mass with a homogeneously hypoechoic echo texture and well-defined margins.

and the grade of gynaecomastia, patients were classified as having either mild, moderate or gross gynaecomastia

as per Simon's classification.

The procedures were standardized and performed and evaluated by the same surgical team. All patients were operated under General Anaesthesia. Pre-operatively, all patients were marked in the upright sitting position. The breast tissue was infiltrated with tumescent solution containing lactated Ringer solution (500ml), 1 mL of 1:1,000 epinephrine solution, and 20 mL of 2% lidocaine solution. The infiltration is about 1:1 with the expected aspiration volume, and covers a wide area of the chest from the clavicle to below the inframammary fold.

All patients received one dose of intra-operative intravenous antibiotics. Following the procedure, a pressure dressing consisting of gauze was applied and held in place with elastic compression dressing. Patients were instructed to wear a pressure garment day and night for six weeks following suture removal. Patients were followed up for an average of 6 months. The following surgical techniques were used singly or in combination based on USG findings: Liposuction/Open excision/Skin reduction.

III. Results

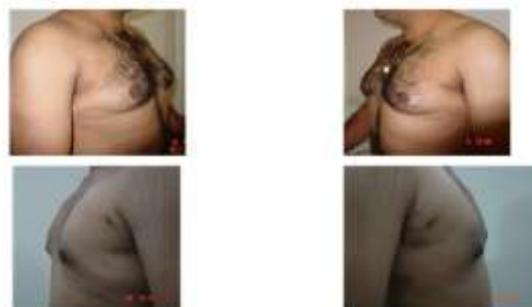
Twenty (20) patients and 40 breasts were operated during this study period. 12 patients were treated with excision alone (60%),out of which 1 patient each underwent free nipple graft and nipple areola reduction,5 patients underwent liposuction alone (25%), and 3 patients underwent both liposuction and excision(15%). Four (4) operated patients experienced minor complications which included seroma (3 patients) and minor bleeding (1 patient).

None of the patients developed any major complication (major wound dehiscence, hematoma) requiring corrective surgery in the operating theatre.

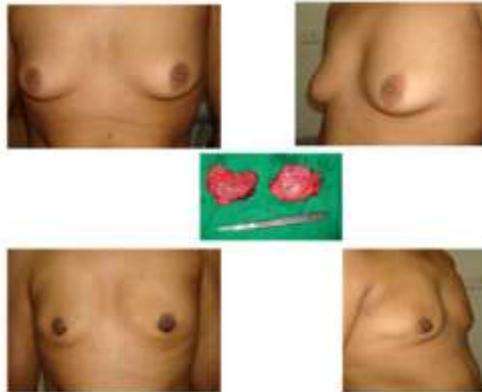
Overall complication rate was 20% . Complication rate was higher among excision with liposuction method (75%) and excision alone method (25%) in comparison to liposuction only (0%). There was an outcome of high satisfaction among the patients particularly in relation to scars by treatment type; shape of chest by treatment type; self confidence by treatment type.

Type	Ultrasound findings	Surgical procedure	No. of patients	Outcome
Group 1	fibrous	Open excision	4	Scar- 3/5 Shape- 4/5 Self conf- 5/5
Group 1	fatty	Liposuction	1	Scar- 5/5 Shape- 3/5 Self conf- 4/5
Group 2	fibrous	Open excision	6	Scar- 3/5 Shape- 5/5 Self conf- 5/5
Group 2	fatty	Liposuction	4	Scar- 3/5 Shape- 4/5 Self conf- 5/5
Group 3	Fibrous	Excision +/- NAC ?	1	Scar- 2/5 Shape- 4/5 Self conf- 5/5
Group 3	Fatty	Lipo + excision	3	Scar- 3/5 Shape- 4/5 Self conf- 5/5
Group 4	-	Excision +/- NAC ?	1	Scar- 2/5 Shape- 4/5 Self conf- 5/5

*1 being the lowest
5 being highest level of score



Case 1- Liposuction done for grade 1 gynaecomastia



Case 2- excision done for grade 2 gynaecomastia



Case 3- liposuction and excision done for grade 3 gynaecomastia



Case 4- excision done with free nipple graft for grade 4 gynaecomastia



Case 5- excision and NAC reduction done for grade 3 gynaecomastia

IV. Discussion

The term gynecomastia was introduced by Galen during the 2nd century A.D. and the surgical resection was first described by Paulis of Aegina in the 7th century A.D.⁽²⁾. The most common cause for gynecomastia is idiopathic.

Gynaecomastia has peak in incidence within three age groups i.e infants, puberty and old age (trimodal

distribution). Infant's symptoms seen due to the circulating maternal oestrogens, whereas during puberty there is a transient relative imbalance between oestrogen and testosterone leading to gynaecomastia. In old age due to decreasing levels of testosterone leads to the same. Prevalence of asymptomatic gynaecomastia is 60%-90% in infants, 50%-60% in puberty and upto 70% in men aged between 50 to 69 yrs^(3,4).

Other pathological causes for gynaecomastia include endocrine disorders of Testis: hypogonadism, Klinefelter syndrome

Adrenal : Cushing syndrome, congenital adrenal hyperplasia

Thyroid : hypothyroid, hyperthyroid

Pituitary : pituitary failure

Neoplasms of adrenal, testis, pituitary, lung. Systemic diseases like renal failure, cirrhosis, adrenal gland involvement Drug-induced due to Hormones like estrogens, androgens & antiandrogens: eg: spironolactone, cimetidine, ketoconazole, ranitidine, flutamide Cardiovascular drugs: amiodarone, digoxin, nifedipine, reserpine, verapamil Drug abuse: Alcohol, heroin, marijuana

Unilateral gynaecomastia may actually represent a stage in the development of bilateral disease. The histologic picture is similar in male and female breast after exposure to oestrogen⁽⁵⁾. Medical therapy is probably most effective during the active proliferative phase of the condition. Commonly used drugs include Danazol, Clomiphene, Testolactone, and Tamoxifen.

Surgery is the mainstay of treatment for gynaecomastia and although a wide range of surgical techniques have been described, surgeons often find it difficult to choose the technique that will achieve the best results for a given patient.

The ultrasound examination of the affected breast reveals a subareolar hypoechoic mass, which may have typical nodular features and a long axis that is parallel to the skin (nodular gynecomastia), or it may be triangular with extensions that radiate into the subareolar fat (dendritic gynecomastia), or it may resemble a female breast (diffuse gynecomastia). The color-Doppler evaluation reveals moderate, harmonious intralesional vascularization.

Surgical techniques have evolved from the era of Paulus Aegineta (625-690AD) who first reported excision by a lunate incision below the breast and, for larger breasts, two convening lunate incisions to enable the excision of excess skin. Such extra areolar skin incisions with their unsightly scar continued to be used until Webster, in 1946, described an operation with a semicircular intra-areolar incision, which has become the standard operation for excision of gynaecomastia. This technique, however, is of limited use in larger breasts, notably those with skin excess. Approaches to resect the excess skin:

- Skin has been removed as an ellipse, and the nipple transposed on a pedicle or repositioned as a full thickness graft.
- To avoid extra areolar scars the redundant skin has also been excised concentrically around the nipple, leaving it on a superior or central pedicle.

The introduction of suction-assisted lipectomy by Illouz in the late 1970s improved the treatment of gynaecomastia, as it enabled the contouring of diffusely enlarged breasts, with only small scars. In the late 1980's Zocchi developed ultrasound assisted liposuction, a technique that allows selective destruction of adipose tissue.

Commonly performed surgeries are:

Liposuction:

Liposuction was performed following a tumescent infiltration of the previously mentioned infiltrate. The cannula was continuously moved in fanlike long strokes, starting deep and working superficially. Special effort was made to disrupt the inframammary fold. The endpoint was determined by loss of tissue resistance, aspirate volume, appearance of the aspirate and treatment time.

Open excision:

A semi-circular incision was made along the inferior margin of the nipple-areola complex. Dissection with scissors commenced inferiorly to the border of the breast, then proceeded in a deep plane to the upper limit of the breast. Dissection was continued superiorly to the incision leaving a 1 cm disc of breast tissue on the undersurface of the areola. Subsequently, the breast tissue was excised through the semi-circular incision.

Skin reduction:

The skin around the nipple was marked in a concentric or Lejour pattern and de-epithelialised. If the position of the nipple needed to be elevated, the concentric pattern was changed to a more eccentric one. With the Lejour reduction pattern, the breast tissue including the skin in the vertical limb was resected, leaving the two Lejour pillars, which were then approximated.

Conventional liposuction combined with open excision was first described as a treatment for gynaecomastia by Teimourian⁽⁶⁾ and Perlman in 1983, and has become a widely accepted method, because of the frequent difficulty of removing breast parenchyma by suction alone. In addition, liposuction alone often requires

specialised cutting cannulas, which are traumatic and increase the risk of damage to blood vessels and nerves. Pre-tunnelling and suction achieved with liposuction prior to open excision helps to taper the peripheral contour, define the glandular tissue and make the excision easier.

Studies have demonstrated overall complication rates for gynaecomastia surgery as being approximately 15.5%, with the highest rate in grade I patients (21.6%)^(7,8). Our overall complication rate was slightly higher than this (20%). However, these were mainly minor acute complications that did not need re surgery. There was no case of nipple-areola complex necrosis. Complication rates between different surgical techniques varied significantly. Overall complication rates among the excision with liposuction group was the highest followed by excision only group. Outcome studies of gynaecomastia correction have shown varying levels of satisfaction with the results of surgery with Fruhstorfer et al⁽⁹⁾ showing high levels of satisfaction while Ridha et al.⁽¹⁰⁾, showed much lower levels. Our series demonstrated generally high satisfaction rates amongst both patients and surgeon. The peri-areolar scar was well accepted and faded with time. Therefore, during correction of gynaecomastia with liposuction, the threshold for conversion to an open procedure show be low because it is not associated with a significant disadvantage to the patient, but rather leads to a high degree of satisfaction.

V. Conclusion

Gynaecomastia is a complex condition posing a challenge to the plastic surgeon in terms of selection of the correct procedures, aesthetic results and patient satisfaction. Despite the minor complications, our case series shows that with proper investigations, and selection/combination of proper operative methods have provide favorable results and excellent patient satisfaction. Use of ultrasonography in pre-operatively assessing the nature of the breast tissue and then using the information in planning the appropriate method of treatment proved very beneficial in this case series

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