

## Original Article

# Gynaecomastia correction: A review of our experience

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## ABSTRACT

**Introduction:** Gynaecomastia is a common problem in the male population with a reported prevalence of up to 36%. Various treatment techniques have been described but none have gained universal acceptance. We reviewed all gynaecomastia patients operated on by one consultant over a 7-year period to assess the morbidity and complication rates associated with the procedure. **Materials and Methods:** Clinical notes and outpatient records of all patients who underwent gynaecomastia correction at University Hospital North Staffordshire between 01/10/2001 to 01/10/2009 were retrospectively reviewed. A modified version of the Breast Evaluation Questionnaire was used to assess patients satisfaction with the procedure. **Results:** Twenty-nine patients and a total of 53 breasts were operated on during the study period. Patients underwent either liposuction alone (6 breasts - 11.3%), excision alone (37 breasts - 69.8%) or both excision and liposuction (10 breasts - 18.9%). Twelve operated breasts (22.6%) experienced some form of complication. Minor complications included seroma (2 patients), superficial wound dehiscence (2 patients) and minor bleeding not requiring theatre (3 patients). Two patients developed haematomas requiring evacuation in theatre. No cases of wound infection, major wound dehiscence or revision surgery were encountered. Twenty-six patients (89.7%) returned the patient satisfaction questionnaire. Patients scored an average 4.12 with regards comfort of their chest in different settings, 3.98 with regards chest appearance in different settings, and 4.22 with regards satisfaction levels for themselves and their partner/family. Overall complication rate was 22.6%. Grade III patients experienced the highest complication rate (35.7%), followed by grade II (22.7%) and grade I (17.6%). Overall complication rates among the excision only group was the highest (29.8%) followed by the liposuction only group (16.7%) and the liposuction and excision group (10.0%). There were high satisfaction rates amongst both patients and surgeon. Eleven patients (37.9%) had their outcome classified as 'excellent' by the operating surgeon, 16 patients (55.2%) as 'good', 1 (3.4%) as 'satisfactory' and 1 (3.4%) as 'poor'. **Conclusion:** Gynaecomastia is a complex condition which poses a significant challenge to the plastic surgeon. Despite the possible complications our case series demonstrates that outcomes of operative correction can be favourable and yield high levels of satisfaction from both patient and surgeon.

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DOI:

10.4103/0970-0358.129624

## KEY WORDS

Plastic Surgery; University Hospital North Staffordshire; Correction; gynaecomastia; surgery

## INTRODUCTION

Gynaecomastia is a common problem in the male population, particularly in young adults, with a reported prevalence of up to 36%.<sup>[1]</sup> The term refers to a benign female-like enlargement of the male breast resulting from an increase in ductal tissue, stroma and/or fat.

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.

Surgical options for gynaecomastia include liposuction, open resection and resection with skin reduction. Outcome studies of surgical correction have generally shown high levels of satisfaction.<sup>[2,3]</sup> However, Ridha *et al.* demonstrated only a 62.5% of patients within a cohort of 74 patients were 'satisfied' or 'very satisfied' with their surgery.<sup>[4]</sup> Surgery is, therefore, not a decision to be taken without careful patient assessment. Various techniques have been described over the years, but no technique has yet gained universal acceptance.

We aimed to review all gynaecomastia patients operated on under the care of one consultant in a regional unit over a 7-year period. We aimed to assess the morbidity and complication rates associated with the procedure and to determine whether certain surgical techniques produced better outcomes.

## MATERIALS AND METHODS

Operating procedure notes, clinical notes and outpatient records of all patients who underwent gynaecomastia correction at University Hospital North Staffordshire during the period 01/10/2001 to 01/10/2009 were retrospectively reviewed. For the purpose of this study, we considered each operated breast as an individual case.

The grade of gynaecomastia, the presence of skin excess, causative factors, duration of symptoms and surgical

procedure were recorded. Short-term and long-term minor and major complications, poor results and revision rates were recorded and analysed.

No validated outcome assessment questionnaire exists specifically for gynaecomastia correction. We, therefore, created a three-item questionnaire, which was sent to all patients who underwent surgery to ascertain their satisfaction with the procedure. This was based on the more comprehensive 55-item Breast Evaluation Questionnaire,<sup>[5]</sup> which is a validated assessment questionnaire designed to assess patient satisfaction with breast and quality-of-life outcomes following a variety of breast surgery procedures. A similar proforma was used by Ridha *et al.*<sup>[4]</sup> The proforma asked patients to rank their satisfaction levels with their surgery in relation to three factors. The first question related to patients' comfort with their breast/chest in different settings (intimate, social and professional). The second question related to the degree of comfort with their breast/chest appearance. The third question asked patients to rank the satisfaction level for themselves and their partner/family. Patients were asked to respond on a 5-point Likert scale (1 = very dissatisfied; 2 = dissatisfied; 3 = neither; 4 = satisfied; 5 = very satisfied).

Patients were classified as having either mild, moderate or gross gynaecomastia as per Simon's classification,<sup>[6]</sup> and the presence of skin excess was noted. Twenty-six patients returned the questionnaire (89.6%).

## Operative techniques

Pre-operatively, all patients were marked in the upright sitting position. The breast tissue was infiltrated, via a single stab incision, with a solution of normal saline, 1% lignocaine and 1:1000 adrenaline. All surgery was performed under general anaesthesia, and 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 microfoam tape. Patients were instructed to wear a pressure garment day and night for six weeks. The following surgical techniques were used singly or in combination.

## Liposuction

Liposuction was performed following a superwet/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 where this was well formed. The endpoint was determined by loss of tissue resistance, aspiration 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.

## RESULTS

Twenty-nine patients and a total of 53 breasts were operated on during the study period. Patients were referred from a variety of sources. Ages ranged from 13-39 years (Mean 24.5 years). General practitioners referred 24 (82.8%) patients, 4 (13.8%) were referred by the general surgical team and 1 (3.4%) from the paediatric team. Twenty-eight patients cited emotional problems as the reason for them seeking help, whereas one complained of pain and discomfort. The cohort characteristics, outcomes and morbidity are illustrated in Table 1.

The average time from the first outpatient clinic appointment to surgery was 25.3 weeks (range 5-156). Conservative management was attempted in 7 (24.1%) patients before they were listed for surgery. Patients underwent either liposuction alone (6 breasts-11.3%), excision alone (37 breasts-69.8%) or both excision and liposuction (10 breasts-18.9%). All but 5 (17.2%) patients had drains inserted, which were removed 1-3 days post-operatively.

Twenty-six patients (89.7%) wore some form of support garment post-operatively, with 18 (62.1%) wearing an

abdominal binder. Support garments were worn for an average of 4.6 weeks (range 3-6) following surgery.

Twelve operated breasts (22.6%) experienced some form of complication. Minor complications included seroma (2 patients), superficial wound dehiscence treated conservatively (2 patients) and minor bleeding not requiring theatre (3 patients). The only acute major complication encountered were haematomas requiring evacuation in theatre (2 patients). There were no cases of wound infection or major wound dehiscence documented within our patient group. Although one patient was noted to have skin excess post-operatively that may have benefited from revision surgery, this was not possible due to hypertrophic scarring.

Patients were followed up for an average of 6.0 months (range 1-11). One patient did not attend again after their first post-operative appointment. The time interval between patients' operations and return of the questionnaire ranged from 6-92 months (mean 52.2 months). Analysis revealed a general trend showing increased satisfaction rates as time from surgery increased.

**Table 1: Patient cohort characteristics, outcomes and morbidity**

Patient details	Results
Age at surgery; mean (range)	24.5 years (13-39)
Patient weight; mean (range)	82.7 kg (60-104)
Patient BMI; mean (range)	27.1 (20-35.1)
Duration of symptoms; mean (range)	5.3 years (1-20)
Grade of gynaecomastia	Operated breasts
I	17
II	22
III	14
Side involved	No. of patients
Left	5
Right	0
Bilateral	24
Operative time; mean (range)	76 minutes (30-180)
Operative technique	Operated breasts
Liposuction only	6
Excision only	37
Liposuction and excision	10
Weight of tissue removed; mean (range)	155 grams (10-346)
Hospital stay; mean (range)	1.6 days (1-4)
Binder use	18 patients
Morbidity	
Minor complications	7/53 <sup>a</sup>
Acute major complications	4/53 <sup>b</sup>
Unsatisfactory result	1/53 <sup>c</sup>

<sup>a</sup>(Seromas, bleeding not requiring theatre, superficial wound dehiscence); <sup>b</sup>(Haematomas, wound dehiscence requiring theatre, wound infection). All of these cases were taken back to theatre on the same admission; <sup>c</sup>Revision surgery not possible due to hypertrophic scarring

Twenty-six patients (89.7%) returned the patient satisfaction questionnaire. Patients scored an average 4.12 with regards comfort of their chest in different settings, 3.98 with regards chest appearance in different settings, and 4.22 with regards satisfaction levels for themselves and their partner/family.

## DISCUSSION

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.

Gynaecomastia has peaks in incidence within three age groups. Although the highest prevalence is among middle-aged and older men (50-80 years old), the oldest patient in our cohort was 39 years old. This may relate to the fact that the most common trigger for surgery was emotional distress, and middle-aged/older men may be less affected by this stimulus compared to the younger age group.

Studies have demonstrated overall complication rates for gynaecomastia surgery as being approximately 15.5%, with the highest rate in grade I patients (21.6%).<sup>[7]</sup> Our overall complication rate was slightly higher than this (22.6%). However, these were mainly minor acute complications that did not significantly affect the final result. There were no cases of nipple-areola complex necrosis or areolar tethering.

Complication rates between different surgical techniques varied significantly. Overall complication rates among the excision only group was the highest (29.8%) followed by the liposuction only group (16.7%) and the liposuction and excision group (10.0%). Conventional liposuction combined with open excision was first described as a treatment for gynaecomastia by Teimourian<sup>[8]</sup> 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.

In our series, grade III patients experienced the highest complication rate (35.7%), followed by grade II (22.7%) and grade I (17.6%). Previous studies have quoted overall revision surgery rates as 17.4%, with the highest rate in grade II patients (34.8%).<sup>[7]</sup> None of the patients in our series underwent revision surgery. Two patients in our series returned to theatre for evacuation of a haematoma.

Sophocles *et al.*<sup>[9]</sup> found that the weight of the specimen excised was not a significant predictor of minor or acute major complications. This is also confirmed by our series of patients. It is not possible to examine whether any factors contribute to a poor cosmetic result within our series as only one patient had an unsatisfactory result.

Financial constraints within the NHS have led to stricter selection criteria for patients undergoing surgery. The average BMI of patients in our series was 27.1. Although this falls within acceptable limits for listing patients, our average patient would be classed as 'overweight' thus increasing the likelihood of complications.

Outcome studies of gynaecomastia correction have shown varying levels of satisfaction with the results of surgery with Fruhstorfer *et al.*<sup>[2]</sup> showing high levels of satisfaction while Ridha *et al.*,<sup>[4]</sup> showed much lower levels. Our series demonstrated generally high satisfaction rates amongst both patients and surgeon. Eleven patients (37.9%) had their outcome classified as 'excellent' at their second follow up appointment by the operating surgeon, 16 patients (55.2%) as 'good', 1 (3.4%) as 'satisfactory' and 1 (3.4%) as 'poor'.

Patients too were generally 'satisfied' with their outcome with regards comfort and appearance. Two patients in the liposuction only group were left with a small residual lump. Despite the contour of their chests being satisfactory, they were not satisfied with the result. In contrast, patients who underwent excision were generally very satisfied, returning the highest overall scores for satisfaction, chest shape and self-confidence levels. 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 should be low because it is not associated with a significant disadvantage to the patient, but rather leads to a high degree of satisfaction.



## CONCLUSION

Gynaecomastia is a complex condition, which poses a significant challenge to the plastic surgeon. The initial treatment should aim to correct any underlying abnormality or discontinuing any medications that may be contributing to the condition. Although the efficacy of medical treatment has not yet been well established, conservative measures should be considered prior to surgery.

Gynaecomastia present for more than two years is unlikely to regress spontaneously or with medical treatment due to the tissue becoming irreversibly fibrotic.<sup>[3]</sup> In these cases, surgery remains the mainstay of treatment. Despite many operative techniques being described, the principal aims of surgery remain to correct the deformity, restore normal body contour and image, maintain the viability of the nipple-areola complex and avoid excessive scarring.<sup>[8]</sup>

The surgeon needs to retain flexibility, because often a final assessment of consistency, skin excess and quality is possible only during surgery. Liposuction should always be used in diffuse or large breasts. Following liposuction, the consistency of the breast should be examined, and open excision is performed if a residual lump or firmness is present. Following liposuction and open excision, the skin excess settles to some degree depending on the skin quality. Skin excision is indicated if there is still noticeable skin excess. The choice of concentric or Lejour mastopexy depends on the amount of skin excess. The larger the skin excess, the more likely it is that a Lejour pattern skin resection will be needed.

Although there are significant possible complications associated with surgery, our case series demonstrates that with careful planning and shrewd patient selection, outcomes of operative correction can be favourable and yield high levels of satisfaction from both patient and surgeon.

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**How to cite this article:** Arvind A, Khan MA, Srinivasan K, Roberts J. Gynaecomastia correction: A review of our experience. *Indian J Plast Surg* 2014;47:56-60.

**Source of Support:** Nil, **Conflict of Interest:** None declared.

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