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Comparative Study in the Management of Gynaecomastia: The Combination of Liposuction and Gland Excision Compared with Liposuction Alone

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ABSTRACT

Gynaecomastia (GM) refers to any condition in which the male breast volume enlarge due to an increase in ductal tissue, fat or stroma and the condition mostly occurs during times of hormonal change such as birth, adolescence and old age. This prospective study aims to compare the two management techniques for the treatment of gynaecomastia and analyses the aesthetic and functional outcome of Stage 2B gynaecomastia management by combined liposuction and gland excision and liposuction alone. The comparison between the liposuction alone with the liposuction and glandular excision method of tissue excision was the basis of our study. The study was conducted among 40 patients, presented at the outpatient department of Patna Medical College and Hospital, Patna, Bihar, India. The combination of liposuction with surgical excision of the glandular tissue offers various advantages compared to surgical excision alone. The operation is performed through a shorter incision and liposuction ensures accurate contouring of the periphery. All patients were discharged on the day of operation, with a mean (SD) hospital stay of 6.6 (2.1) h. Patients who underwent liposuction alone showed high satisfaction rate post operatively as compared to the patients who underwent liposuction with gland excision. The mean (SD) ratio of infiltrated fluid-aspirated fat was 1.9 (0.3). The patients' mean (SD) overall satisfaction score was 4.7 (0.7), in which most of the responders (92%) were satisfied or very satisfied.

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Key Words

Stage 2B gynaecomastia, liposuction, gland excision, male breast volume

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INTRODUCTION

Gynecomastia is derived from the Greek terms gyne and masto, gyne meaning feminine and masto meaning breasts. This condition is mostly predominant during hormonal change such as birth, adolescence and old age. Other aetiology includes extreme obesity, frequent steroid use and medical conditions including hypogonadism, liver and kidney failure. Use of certain recreational drugs such as marijuana has also been associated with this disease. Other drugs known to cause gynecomastia include methotrexate, alkylating agent and imatinib. However, the most cases of Gynaecomastia is idiopathic. Previous studies has associated this with imbalances in the hormones estrogen and testosterone[1,2]. We designed this study to evaluate the outcome of combining liposuction with glandular excision and liposuction alone. Minimal scarring can be achieved by liposuction alone, but the result is known to have a limited effect on the dense glandular and fibro connective tissues. These tissues prevent liposuction cannula to be able to penetrate and reduce the projection in the subareolar area and therefore create a normal-looking chest wall with a dramatic retraction of the skin envelope. The combination of liposuction with surgical excision of the glandular tissue offers various advantages compared to surgical excision alone. The operation is performed through a shorter incision and liposuction ensures accurate contouring of the periphery. This contributes to achievement of a better cosmetic result using a minimally invasive technique. Liposuction before glandular tissue excision facilitates the resection of the glandular tissue.

Review of Literature: Although several surgical techniques have been published previously, but many lack clear guidelines for treatment. We searched databases of Medline, EMBASE, Cochrane and PubMed to help better understand in our study. A detailed search was performed starting from the general topics in the databases. Based on this, the keywords used for detailed investigation were “gynecomastia,” “liposuction alone”, “liposuction with gland excision”. Several classification systems have been described in the literature that characterize the severity of male breast hypertrophy. Of these, the 2 most often cited are those described by Simon[3] and Rohrich[4]. Rohrich et al. proposed a new classification system in 2003, which focused on estimates of total mass requiring excision-these categories were then further divided based upon tissue-type predominance. Wyrick[5], used MSR using a concentric circumareolar (CC) incision in 6 patients with grade I gynecomastia. While the author agreed MSR is not usually indicated in patients with grade I gynecomastia, Wyrick *et al.* advocated for use of this technique when reduction of NAC size is desired. Varlet[6] and Fan[7] used ESCM for treatment of patients with grade IIb and III Gynaecomastia via an incision made at the intersection of the mid-axillary and trans-areolar lines. Several techniques have been proposed in the literature to address Gynaecomastia, with the potential to greatly improve the overall appearance of the affected patients. However, the combined use of surgical excision and aspiration techniques seems to reduce the rate of complications compared to surgical excision alone, unfortunately, lack of unique classification and the presence of several surgical techniques still represents a bias in the literature review.

MATERIALS AND METHODS

The study was conducted among 40 patients, presented at the outpatient department of Patna Medical College and Hospital, Patna, Bihar, India for 2 years between May 2022 and May 2024. Inclusion criteria included all patients presented with gynaecomastia, especially Stage 2B in whom gynaecomastia was non-progressive for last 1 year. Exclusion criteria included patient with obesity, pseudogynaecomastia, hormonal imbalance and comorbid conditions. All the patients aged 11-41 years old were tested for the levels of serum prolactin, luteinizing-hormone, follicle-stimulating hormone, estradiol, testosterone and cortisol. Patients were divided into two groups. Patients in group A had liposuction performed without an incision near the areola, while those in group B had an incision created in that location. Liposuction alone was performed in 10 patients and combined liposuction and semicircular periareolar incision glandular excision were conducted in the other 30 patients. The aesthetic and functional outcomes of both the procedures were compared. All surgeries were performed under general anesthesia. The primary target was patients with Gynaecomastia stage 2B. Patients were categorized on the basis of Simon's grading system for Gynaecomastia. These patients were randomly allocated to one of two groups mentioned above. All the patients were briefed about the dangers of the procedures. Patients were prepared for the subcutaneous mastectomy only after they signed the informed consent form. Firstly, the breasts' borders were delineated while the patient was still standing. In the next step, 320-550 units of tumescence solution were introduced for the infiltration. For every subcutaneous mastectomy, we used 1 liter of normal saline, 10 milliliters of bicarbonate, 1 milligram of adrenaline dissolved in 1 liter of salt and 20 milliliters of 2% lidocaine to create this solution. After 15-20 minutes, tiny incisions were made along the breast crease's lateral and medial sides, then four liposuction cannulas were first placed through these incisions. The gland was clamped with a Kocher-Clamp during mobilization to remove the glandular tissue. In the second set of patients,

liposuction was all that was done. Patients were observed for hematoma and any ischemic symptoms during the first post-operative day. Patients were examined at 3 or 6 months follow-up for infections, seroma and skin necrosis. All the required data were then analysed using Chi-square test.

RESULTS AND DISCUSSIONS

This study was performed on 40 patients attending at the outpatient department of Patna Medical College and Hospital, Patna, India. Group A (10 patients) patients had liposuction performed without incision while the Group B patients (30 patients) had liposuction performed using an incision. The (table 1 and 2) contrasts two patient groups. The range of lipoaspirate recovered from one side was 320–560 mL, averaging 440mL. Patients in Group A were more likely to bleed than those in Group B, but the probability of bleeding was still significant at 58% (p=0.58). There was no statistically significant difference in the occurrence of hematomas or seromas between the groups (P=0.6 and P=0.19, respectively).

Table 1: Comparison of Patient Characteristics

Variable	Liposuction alone (Mean±SD)	Liposuction with incision (Mean±SD)	P-value
Age	26.2±3.79	22.4±3.54	0.15
Gynaecomastia grade, n(%)			
I	3 (30.0%)	7 (23.33%)	0.09
II	7 (70.0%)	23 (76.66%)	

Table 2: Comparison of Surgical Outcomes of Continuous Variables

Variable	Liposuction alone (Mean±SD)	Liposuction with incision (Mean±SD)	P-value
Pain	4.1±2.32	4.6±1.97	0.42
Satisfaction	6.7±1.97	5.4±2.04	0.01
Tissue volume	879.9±164.31	876.4±168.43	0.14
Tissue weight	62.1±19.18	66.60±20.61	0.65

Table 3: Comparison of Complications Outcomes with Categorical Variables

Complications	Liposuction Alone	Liposuction with gland excision
Seroma	0	1
Superficial skin necrosis	1	1
Adherence of nipple areola complex (NAC)	0	1
Hematoma	1	0
Puffiness	1	1
Cellulitis	0	1
Total	3	5

There was no statistically significant difference in the infection rates between the groups (P=0.23), with neither Group A nor Group B experiencing any infections. No statistically significant differences could be seen between the groups regarding other problems, including breast skin discoloration, nipple paresis, breast form irregularity, edema, asymmetry, patient satisfaction. Both groups had a comparable risk of bleeding, with 51.3% in Group A and 48.7% in Group B. No statistically significant changes were seen regarding breast irregularity following surgery, edema, post-operative discomfort, or asymmetry. Patients who underwent liposuction alone reported an average pain score of 4.1, with a standard deviation 2.32. In comparison, those who had liposuction with an incision reported a slightly higher average pain score of 4.6 with a standard deviation of 1.97. The difference in pain scores between the two groups was not statistically significant, as indicated by a P-value of 0.42. The satisfaction level for the group A-patients had an average score of 6.7 with a standard deviation of 1.97, while the group B-patients reported an average satisfaction score of 5.4 with a standard deviation of 2.04. This difference was statistically significant, with a P-value of 0.01, suggesting patients without incisions were generally more satisfied. The average tissue volume removed in the group A was 879.9mL (with a standard deviation of 164.31mL). The group B was slightly lower at 876.4mL (standard deviation of 168.43mL). The difference between these two averages was not statistically significant, as reflected by a P-value of 0.14. The group a method had an average tissue weight of 62.1 grams with a standard deviation of 19.18 grams, whereas the method with an incision resulted in an average of 66.60 grams and a standard deviation of 20.61 grams. The weight difference between the two methods was also not statistically significant, with a P-value of 0.65.

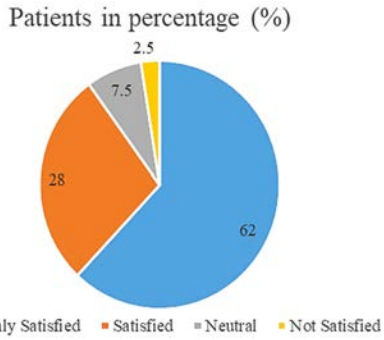

Fig 1: Satisfaction Rating After Surgery

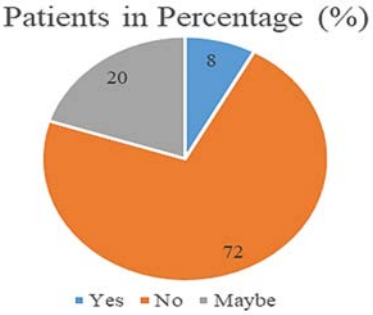

Fig 2: Rating of Desire for Revision Surgery

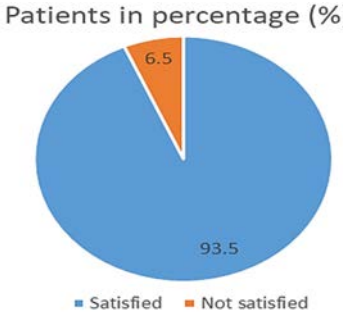

Fig 3: Scar Rating After Surgery

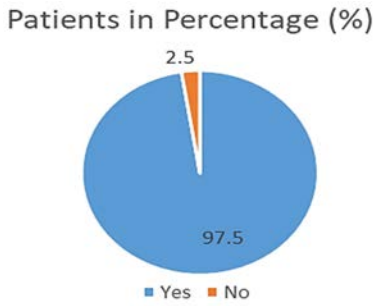

Fig 4: Confidence Rating After Surgery

Plastic surgeons often see male patients with GM since it is a frequent issue. Medical intervention begins during the proliferative phase. Different methods of reconstructing the chest wall have been documented, each with its own incision course, incision site and potential for use in other surgeries[8]. Excess skin and the resulting scar pose a significant challenge while treating GM[9]. In this study, we assessed and compared the effectiveness of liposuction alone and liposuction with periareolar incision. Liposuction and a periareolar incision were used by researchers for mastectomy in different research. Only 7.4% of patients were found to have extra skin on their chest and to be dissatisfied with this[10]. Consistent with the findings of several researchers, we found no significant differences between the two groups in either early or late post-operative problems (P>0.05). No prior research has assessed the use of liposuction without incision in males with Gynaecomastia, despite previous studies on breast reduction in this population using various incision procedures to remove glandular tissue. Limitation of this study include lower sample size with only 40 patients. Therefore, it is advisable to do more research with a more extensive sample size to determine the optimal surgical method.

CONCLUSION

The care of Gynaecomastia with liposuction, utilizing either the periareolar excision technique or a method that does not involve cutting the skin, enables the efficient elimination of both the adipose tissue and the glandular tissue in the male breast. There was no substantial disparity regarding serious post-operative problems between the two groups.

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