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Original Research Article

PATIENT SATISFACTION AND OUTCOMES AFTER LIPOSUCTION AND EXCISION VS LIPOSUCTION ONLY FOR GYNECOMASTIA TREATED IN CMH RAWALPINDI

QADEER A, HAMEED S*, AHMAD S, JAMSHED I, NAYEED KU, ALAM K

Department of Plastic Surgery, Combined Military Hospital, Rawalpindi, Pakistan
**Correspondence author email address: shahidhameed661@hotmail.com*

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Abstract: *This study aimed to compare the effectiveness of two liposuction techniques for treating gynecomastia. The study focused on patients with Simon's grades I and II gynecomastia. The two techniques were liposuction without a periareolar incision (Group A) and liposuction with an incision created near the areola (Group B). The study was conducted between 2022 and 2023 at CHM Rawalpindi and included 58 male patients. The study evaluated various clinical parameters, including skin removal, bleeding, hematomas, seromas, infections, scarring, patient satisfaction, and post-operative complications. The results showed that patients in Group B, who had liposuction with an incision, required significantly more skin removal than those in Group A, who had liposuction without an incision. Patients in Group A reported higher satisfaction and had a lower incidence of unfavorable scarring. However, no significant differences were found between the two groups regarding other post-operative complications. In conclusion, both liposuction techniques are effective for treating gynecomastia. However, liposuction without a periareolar incision offers advantages such as reduced scarring and higher patient satisfaction. The choice of technique should be based on the individual patient's condition and preferences. Further research with larger sample sizes is recommended to validate these findings and determine the optimal surgical approach for gynecomastia treatment.*

Keywords: Gynecomastia, Liposuction, Periareolar Incision, Male Breast Reduction, Surgical Technique, Scarring, Patient Satisfaction, Post-Operative Complications

Introduction

Gynecomastia (GM) is diagnosed when there is an overabundance of fibroglandular tissue in the male breast that is palpable under the nipple and around the areola. The current prevalence of GM has climbed to 50%-70%, although the global incidence of GM is only 32%-36% and is more common in adolescents and older people. (Samdal et al., 1994; Sim et al., 2020). Therefore, breast reduction has quickly risen from one of the top five cosmetic surgery treatments. Adolescents and young men, in particular, may experience mental discomfort, embarrassment, and disruptions in their social lives (Petty et al., 2010). Despite the decades-long development of various categories and treatments for GM surgery, there is still no evidence-based methodology for its treatment. Hypertrophied glandular tissue, extensive scars on the chest, Excess redundant skin, loss of skin elasticity, nipple-areola complex necrosis, and hypoesthesia are all symptoms of GM that can be difficult to treat (Kim et al., 2016). Based on size and shape, Simon (1973) divided it into four categories (Prasetyono et al., 2022). I) Minimal breast enhancement with no excess skin. IIa) Reduced skin redundancy and moderate breast enhancement. IIb) Small to moderate extra skin due to breast growth. III) Extreme breast growth with excess skin that looks like ptosis in women. Simon's categorization offers a straightforward framework for assessment and treatment. When choosing patients and developing surgical plans, the redundancy of skin, parenchyma, and adipose tissue play critical roles (Abdali et al., 2023). The goals of breast reduction surgery should include achieving an aesthetically pleasing form, eliminating unneeded glandular tissue, fatty tissue, and skin, and minimizing or eliminating scarring. 7,8 For severe GM, surgeons may choose from various procedures, including reduction mammoplasty with free grafting, subcutaneous mastectomy with periareolar concentric skin excision, or altered breast reduction methods (no vertical scar or T-shaped scar pattern). 6 These operations have the potential to successfully reduce breast size. However, significant adverse consequences have been reported (Boljanovic et al., 2003). This research set intended to evaluate the differences between the efficacy of liposuction for gynecomastia and whether or not there was a periareolar incision. The innovative aspect of our research was where and how the liposuction was performed.

Methodology

Patients who were referred to a plastic surgeon for treatment of Gynecomastia (GM) were enrolled in this controlled clinical study done during the period between 2021 and 2022 in CMH Rawalpindi. Initially, the research included 28 patients in each group, but that number was expanded to 32. This improvement was made with numerous important factors in mind, including a 95% confidence interval, 80% research power, 7% statistical accuracy for pain score evaluations, and an expected 10% dropout rate. Patients were included in the trial if they had gynecomastia that fell into grades I and II on Simon's scale.

One expert surgeon handled all of the operations. Patients were divided into two groups based on their first exams and

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diagnoses. 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. A generated by computers random list was used to assign patients to these groups, guaranteeing an even distribution of cases. As a result of this distribution, there were exactly 45 patients in Group A and 50 patients in Group B.

Patients with gynecomastia of grade III or higher were not included in the study, nor were those whose gynecomastia result from a medical condition such as liver illness, thyroid cancer, or an imbalance in hormones. The primary target was patients with Gynecomastia grades I and II, who were mostly concerned with how their breasts looked. Initial patient appointments, surgical case summaries, and discharge summaries were all meticulously recorded.

Patients were carefully observed and assessed on the seventh and twenty-first post-operative days and during the three and six-month periods. These check-ins were essential for reevaluating the patients' clinical state and identifying post-operative problems. Patients were requested to rate their level of discomfort and their opinion of the look of their chests during these visits. Patients were also checked for signs of nipple hypopigmentation, surgery site infections, and hematomas and seromas.

The same scientist took all measurements to reduce intraobserver variability and ensure precision and consistency in the findings. Additionally, an independent third party analyzed the data, guaranteeing a fair comparison of the two groups' results.

Simon's grading system for gynecomastia (GM) [Figure 1] categorizes instances into two different subcutaneous mastectomy (SCM) subtypes: grade 1 and 2b. These patients were randomly allocated to one of two groups. Group A had liposuction performed without incision in the skin surrounding the areola, while Group B had an incision created around the areola.

After informing patients of the potential dangers of the procedure, certain measures were taken to prepare them for the subcutaneous mastectomy. At first, the breasts' borders were delineated while the patient was still standing. The next step was infiltration, during which 300-500 units of tumescence solution were introduced. For every subcutaneous mastectomy, 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 were used to create this solution. After waiting for 15 minutes, tiny incisions were made along the breast crease's lateral and medial sides at 5 and 7 o'clock, respectively. 4 liposuction cannulas were first placed through these incisions. Fibrotic tissue under the skin was attacked with a rough, powerful tool. Further incisions were done to gain accessibility to the glandular tissue in one set of patients. The semilunar shape of these incisions at the areolar crease was chosen so that the subsequent scar wouldn't detract from the natural beauty of the nipple and areola. Cooper's ligaments might be released palpatory, and a progressive preparation procedure employing scissors or bipolar scissors could be used to access the pectoral fascia. 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 formation and ischemic symptoms during the first post-operative day. After the incisions were cleaned, dressed, and bandaged, the surgeon set up follow-up appointments for the third and sixth months after the operation to check for bleeding, skin necrosis, seroma, and infection.

The data analysis was conducted using the Chi-square test for qualitative variables and the independent sample t-test. This analysis was performed with the IBM Statistical Package for the Social Sciences (SPSS) version 20 for Windows, developed by IBM Corp. in Armonk, New York, USA.

Results

A total of 58 patients, ranging in age from twenty to twenty-seven, were enrolled in the study. The range of lipoaspirate recovered from one side was 350–550 mL, averaging 450 mL. Group A patients had liposuction performed without incision in the skin, while Group B patients had liposuction performed using an incision.

The table 1 contrasts two patient groups who underwent liposuction: one without an incision and one with an incision. In the no-incision group, patients had an average age of 24.8 years (with a standard deviation of 3.81 years), and in the incision group, the average age was 23.4 years (standard deviation of 3.74 years), with the age difference not being statistically significant (P-value of 0.15). The table also classifies patients based on their gynecomastia grade, a measure of enlarged male breast tissue. For Grade I gynecomastia, 48.3% of the no-incision group and 44.8% of the incision group were diagnosed. For Grade II, the numbers were 51.7% and 55.2% respectively. The distribution of gynecomastia grades between the two liposuction methods was statistically similar (Figure 1).

When we look at the surgical outcomes, we can see that the amount of skin that needed to be removed varied widely. No patients in Group A needed skin removed, whereas in Group B, 100% of patients did (P = 0.01*). Patients in Group A were more likely to bleed than those in Group B, but the probability of bleeding was still significant at 60% (P = 0.6). 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 2, 3)

Table 1: Comparison of Patient Characteristics

Variable	Liposuction without incision (Mean ±SD)	liposuction with incision (Mean± SD)	P-Value
Age	24.8±3.81	23.4±3.74	0.15
Gynecomastia grade, n (%)			
- I	14 (48.3%)	13(44.8 %)	0.09
- II	15 (51.7%)	16 (55.2%)	

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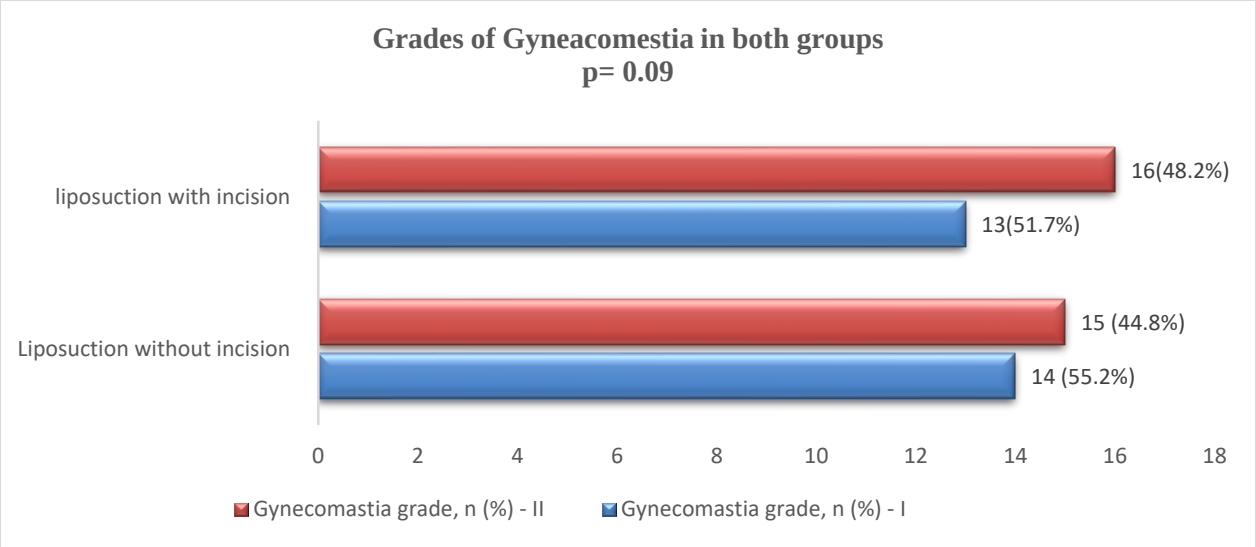

Figure 1 : Grades o f gynecomastia between the groups

Table 2: Comparison of Surgical Outcomes of categorical variables

Variable	Contrast	Liposuction without incision (n, %)	Liposuction with incision (n,%)	P-Value
Skin removal	Yes	0 (0%)	7 (100%)	0.01
	No	29 (56.9%)	22 (43.1%)	
Bleeding	Yes	9 (42.9%)	12 (57.1%)	0.6
	No	20 (54.1%)	17 (45.9%)	
Hematoma	Yes	1 (25%)	3 (75%)	0.6
	No	28 (51.9%)	26 (48.1%)	
Seroma	Yes	4 (80%)	1 (20%)	0.19
	No	24 (46.2%)	28 (53.8%)	
Infection	Yes	4 (80%)	1 (20%)	0.55
	No	24 (46.2%)	28 (53.8%)	
Infection	Yes	0 (0%)	2 (100%)	0.23
	No	29 (52.7%)	26 (47.3%)	
Need for reoperation	Yes	3 (50%)	3 (50%)	0.71
	No	30 (57.7%)	22 (42.3%)	
The existence of undesirable scars	Yes	0 (0%)	12 (100%)	>0.0001
	No	29 (63%)	12 (100%)	
Paresis of nipple	Yes	2 (66.7%)	1 (33.3%)	0.9
	No	27 (49.1%)	28 (50.9%)	
Irregular breast shape	Yes	7 (46.7%)	8 (53.3%)	0.7
	No	22 (53.7%)	19 (46.3%)	
Breast skin discoloration	Yes	0 (0%)	1 (100%)	0.22
	No	33 (60%)	22 (40%)	
Nipple hypopigmentation	Yes	0 (0%)	1 (100%)	0.4
	No	29 (52.7%)	26 (47.3%)	
Edema	Yes	2 (66.7%)	1 (33.3%)	0.9
	No	27 (49.1%)	28 (50.9%)	
Asymmetry	Yes	3 (42.9%)	4 (57.1%)	0.9
	No	26 (51%)	25 (49%)	

Table 3: Comparison of Surgical Outcomes of continuous variables

Variable	Liposuction without incision (Mean±SD)	Liposuction with incision (Mean±SD)	P-Value
Pain	4.2±2.35	4.7±1.99	0.43
Satisfaction	6.9±1.99	5.6±2.09	**0.01**
Tissue volume	887.9±168.31	882.4±171.43	0.14
Tissue weight	68.1±21.18	65.60±20.64	0.66

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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. Fifty percent of patients in each group required reoperation (P = 0.71), which was statistically indistinguishable from zero. Patients in Group A did not have any unfavorable scarring, but all in Group B did (P 0.0001**). No statistically significant differences could be seen between the groups regarding other problems, including nipple paresis, breast form irregularity, breast skin discoloration, nipple hypopigmentation, edema, asymmetry, discomfort, or patient satisfaction.

Three patients in each group experienced serious problems that necessitated further surgery. Both groups had a comparable risk of bleeding, with 52.4% in Group A and 47.6% in Group B. No statistically significant changes were seen regarding breast irregularity following surgery, edema, post-operative discomfort, or asymmetry.

These findings point to the potential benefits of liposuction without skin incision (Group A) over liposuction with skin incision (Group B), such as a lower chance of unsightly scars and greater satisfaction among patients. However, in terms of severe problems and other post-operative issues, there was no significant difference between the two groups.

Patients who underwent liposuction without an incision reported an average pain score of 4.2, with a standard deviation 2.35. In comparison, those who had liposuction with an incision reported a slightly higher average pain score of 4.7 with a standard deviation of 1.99. The difference in pain scores between the two groups was not statistically significant, as indicated by a P-value of 0.43.

The satisfaction level for the no-incision group had an average score of 6.9 with a standard deviation of 1.99, while the group with an incision reported an average satisfaction score of 5.6 with a standard deviation of 2.09. 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 no-incision group was 887.9 mL (with a standard deviation of 168.31 mL). The incision group was slightly lower at 882.4 mL (standard deviation of 171.43 mL). The difference between these two averages was not statistically significant, as reflected by a P-value of 0.14.

The no-incision method had an average tissue weight of 68.1 grams with a standard deviation of 21.18 grams, whereas the method with an incision resulted in an average of 65.60 grams and a standard deviation of 20.64 grams. The weight difference between the two methods was also not statistically significant, with a P-value of 0.66

Discussion

Plastic surgeons often see male patients with GM since it is a frequent issue. Medical intervention begins during the proliferative phase. Surgical operations would be required to rectify GM if it were resistant to medication therapy or lasted longer than 6-12 months (Fruhstorfer and Malata, 2003). 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 (Schröder et al., 2015). Excess skin and the resulting scar pose a significant challenge while treating GM (Klinger et al., 2021). In this study, researchers assessed the effectiveness of liposuction with and without a periareolar incision.

The necessity for skin excision following surgery significantly differed between the two research groups (P = 0.03). One patient in the liposuction-only group and six individuals in the liposuction/incision group had skin retention. 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 (Boljanovic et al., 2003).

Furthermore, this study found that 2 (16.7%) of the just liposuction group and 10 (83.3%) of the liposuction/incision group experienced unfavorable scares. There was a significant (P = 0.002) gap between the groups. In research by Ayman et al., liposuction with periareolar skin reduction was utilized to restore GM. According to their findings, one patient out of eighteen had a hypertrophic scar. In our study, patients who underwent simple liposuction were more satisfied than those who underwent liposuction and an incision (P = 0.04). In contrast to our findings, 9's mixed-method results indicated greater happiness (8.1 1.39). In a separate trial by Wolter et al., liposuction was used alongside periareolar mastectomy and circumferential mastopexy to improve male breasts. Based on such numbers, 88% of patients felt satisfied.[20] The satisfaction rate for the combination of liposuction and periareolar inferior incision vs circumareolar incision for the treatment of GM was 8.2 out of 10 in a study conducted by the researcher. 10

Nine people in the liposuction-only group and twelve in the combo group had bleeding during this trial. However, Mett et al., who combined liposuction with an incision for individuals with varying degrees of GM, reported three episodes of hemorrhage.

Consistent with the findings of several researchers, we found no significant differences among the two groups in either early or late post-operative problems (P > 0.05). Taheri et al.'s breast reduction method was comparable to our liposuction/incision group. Twenty-seven GM patients participated in the study, and the results showed that seven had sensory modifications. Two patients expressed concerns about the appearance of their areolas. Patients reported a lack of excessive chest wall in 92.6% of cases.

In a separate analogous investigation, a small number of patients experienced short-term problems, including hematoma, partial necrosis, and seroma, with two patients reporting hematoma, one patient reporting partial necrosis, and two reported seroma. Eight patients reported experiencing nipple asymmetry, while one had a hypertrophic scar. No prior research has assessed the use of liposuction without incision in males with gynecomastia, despite previous studies on breast reduction in this population using various incision procedures to remove glandular tissue. Based on the findings, it is advisable to do more research with a more extensive sample size to determine the optimal surgical method.

Conclusion

The care of gynecomastia 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. Nevertheless, there was no substantial disparity regarding serious post-operative problems between the two types of operations. Hence, the advantages for patients should be taken into account.

Declarations

Data Availability statement
All data generated or analyzed during the study are included in the manuscript.
Ethics approval and consent to participate
Approved by the department Concerned.
Consent for publication
Approved
Funding
Not applicable

Conflict of interest

The authors declared absence of conflict of interest.

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