Al-Azhar International Medical Journal

Volume 2 | Issue 12 Article 4

12-1-2021

Pectoral etching in early grades gynecomastia

Elsayed Shaaban
Plastic surgery department, Azhar university,cairo,egypt, abdelbaqi1@gmail.com

Mostafa Mikki
Plastic & Reconstructive Surgery Department, Al-Azhar University., mostafamikki@hotmail.com

Hazem Dahshan
Plastic surgery department,Al-Azhar univresity, zoma3117@azhar.edu.eg

How to Cite This Article

Shaaban, Elsayed; Mikki, Mostafa; and Dahshan, Hazem (2021) "Pectoral etching in early grades gynecomastia," *Al-Azhar International Medical Journal*: Vol. 2: Iss. 12, Article 4.
DOI: https://doi.org/10.21608/aimj.2021.100305.1600

OPEN AIMJ ORIGINAL ARTICLE

Plastic Surgery and Burn

Pectoral Etching in early grades gynecomastia

Elsayed Hosni Shaaban, [1] MSc, Moustafa Sayed Meky, [1] MD, Hazem Hussein Dahshan, [1] MD.

** Corresponding Author:*
Elsayed Hosni Shaaban
abdelbaqi1@gmail.com

Received *for publication October 11, 2021; Accepted December 17, 2021; Published online December 17, 2021.*

doi: 10.21608/aimj.2021.100305.1600.

[1]*Plastic Surgery and Burn Department, Faculty of Medicine, Al-Azhar University, Cairo, Egypt.*

ABSTRACT

Background: Nowadays there is a great introduction of 3D,4D and high-definition body contouring. Applicability and evaluation of such techniques in gynecomastia surgery needs more investigation.
Aim of the study: The aim of our study was to assess high definition liposculpture to get masculinized appearance of the chest for treatment of early grades gynecomastia.
Patients and Methods: 30 patients with grade I&II gynecomastia were selected with age group between 18 and 50 years old with mean 24.73 ± 2.62. It was a prospective observational cohort study to assess the applicability of pectoral etching in early grades gynecomastia. The study was conducted at Al-Azhar university hospitals.
Results: Age group ranged from 18 to 50 with a mean on 24.73 ± 2.62. The subjective results for all patients at 6 months assessment point. Seventeen patients scored very satisfied, nine stated satisfied, three patients not satisfied, one patient Neither satisfied nor dissatisfied. The average sternal notch to nipple length pre and six months postoperative were respectively 21.08cm and 18.6cm.
Conclusion: Satisfaction for the patient and the surgeon is high in our technique. Fat survival is confirmed by MRI. Surgical Excision of glandular tissue by semicircular trans-areolar incision also adds other advantages to the maneuver as the trans-areolar incision made the scar not well defined as it become camouflaged by the color change between normal skin and the areola.

Keywords: *Pectoral Etching; Gynecomastia Grade I&II Simon`s Classification; High definition liposculpture*

Disclosure: *The authors have no financial interest to declare in relation to the content of this article. The Article Processing Charge was paid for by the authors.*
Authorship: *All authors have a substantial contribution to the article.*

INTRODUCTION

Gynecomastia in spite of its benign nature; it may lead to severe psychological problems.[1] Traditional surgical interventions although, it defeminizes the shape of gynecomastic chest however they aren't masculinized. Moreover, the traditional techniques leave the chest flat, under projected, and depressed.[2]

To date, global debulking of the chest was desired by patients to eliminate the feminine and overweight appearance. Successful contouring for gynecomastia surgery required removal of glandular component, adipose tissue and excess skin. [3]

To enhance the masculine contour of male chest and get rid of gynecomastia, selective liposuction and fat grafting to the pectoralis major may be considered. [4]

Aim of the present work was to assess high definition liposculpture to get masculinized appearance of the chest for treatment of early grades gynecomastia

PATIENTS AND METHODS

In this study, 30 patients with grade I, II gynecomastia were selected with age group between 18 and 50 years old with mean 24.73 ± 2.62, 30 patients were idiopathic and the 30 cases were bilateral. It was a prospective observational cohort study to assess the effectiveness of pectoral etching, 25 cases underwent surgical gland excision while 5 cases didn't need to. The study was conducted at Al-Azhar university hospitals

Inclusion criteria: Age group from 18 to 50 years old with grade I&II gynecomastia Simon`s classification, patients whose weight is stable for at least 6 months, and BMI >18 & <30.

Exclusion Criteria: Age group below18 or above50 years old, patients with ongoing weight loss or post bariatric surgery patients, BMI > 30, patient with excess skin requiring surgical removal or any hindering comorbid diseases.

All the patients in the study were candidates for Preoperative:

Clinical assessment: Careful history taking and history of drug intake, general condition, local breast examination and genital examination, measurement of chest circumference, measuring nipple's positions from sternum to nipples length and measuring NAC distance from lateral border of pectoralis muscle.

Investigation: Routine preoperative investigations plus hormonal analysis.

Intraoperative and postoperatively: The markings were performed in an upright position. General anesthesia is administered while Patient was placed in supine position with arms abducted at 90 degrees. PECS block was used in some cases. The breast was infiltrated with Tumescent by small incision with 15 blades inside the lower area of the areola and another one along the anterior axillary line near the muscle's insertion. Incision is made in the umbilicus or the inner thigh if fat is taken from these areas followed by infiltration by tumescent solution.

Liposuction begun at the donor areas of fat in the deep and middle layer of fat, the amount of fat to be lipsuctioned is determined by how much augmentation of the muscle is needed usually 150-400 is lipsuctioned in a sterile container and left for sedimentation. Fat was prepared by decantation method which allow fat to separate into layers.

In the chest area liposuction begun from the inter-areolar incision by deep and superficial liposuction of lower and medial negative areas, followed by deep liposuction from the anterior axillar incision of the upper negative areas and latissimus pectoralis triangle. Liposuction is done by size 4 and 5 Mercedes or TriPort style blunt cannulas. After liposuction is done, the breast is examined for remaining glandular tissue, if present it was removed through the areola by a pull-through technique. The prepared fat is then transferred to 5 cc Luer-Lock syringe. Size 3 single port blunt cannulas is used for grafting (straight and curved cannulas). Insertion of the cannula is done from the axillary incision into the muscle which allow the cannula to run parallel to the muscle fibers. Palpation of the cannula was a must to make sure it was intramuscular or submuscular. Fat injection was done in a retrograde manner.

After injection is done closure of the incisions is done by 4-0 proline. No need for a drain. The Epifoam is cut into pieces to cover the negative areas removed at day 5. Compression garment is worn intra-operatively and for 6 weeks continuously. Post-operative lymphatic massage is a must to relieve edema. Stretch exercise for the muscle after 1 week of the surgery is a must to avoid any contracture. Heavy weightlifting not before 1 month at least. Follow up to 6 months as most patients will not attain their final contour for at least 6 months.

Statistical analysis: Data was analyzed by Microsoft office (Excel) and Statistical Package for Social Science (SPSS). Parametric data will be expressed as mean +-SD and non-parametric data will be expressed as number and percentage of the total Ethical considerations: All patients recruited in this study will give written informed consent before entering the study and the study protocol will be approved by Local Ethical Committee of Faculty of Medicine, Al-Azhar University.

RESULTS

Age group ranged from 18 to 50 with a mean on 24.73 ± 2.62 (Table 1).

	Weight	Height	BMI
N	30	30	30
Mean	96.33	185.33	28.045
Median	96.5	185	28.310
Std. Deviation	4.88	4.02	1.1152
Minimum	85	177	25.485
Maximum	105	191	30.864

Table 1: Demographic data.

Subjective evaluation:

Patient satisfaction assessment.

According to the results, the surgery was a success both in terms of aesthetics and anatomical remodeling of the pectoral muscles. At 6 months.

17 patients said they were "very satisified" with the outcome. 17 patients scored the result as "very satisfied". 9 patients as "satisfied". 3 patients as "not satisfied". 1 patient as "neither satisfied nor dissatisfied". 0 as " Somewhat dissatisfied". 0 as "very dissatisfied" (Table 2).

Patient number	Patient subjective assessment					
	Very satisfied	satisfied	Not satisfied	Neither satisfied nor dissatisfied	Somewhat dissatisfied	very dissatisfied
1	x					
2	x					
3	x					
4			x			
5	x					
6		x				

7		x						
8	x							
9	x							
10			x					
11	x							
12	x							
13			x					
14		x						
15	x							
16		x						
17				x				
18	x							
19		x						
20	x							
21	x	x						
22		x						
23		x						
24	x							
25	x							
26	x							
27	x							
28		x						
29	x							
30	x							
Total	17	9	3	1				

Table 2: Patient satisfaction.

Objective evaluation

Sternal notch to nipple length

The average SSN to nipple length pre and six months postoperative were respectively 21.08 cm and 18.6 cm (Table 3).

Chest circumference

Mean chest circumference pre and postoperative which were respectively 108.36 cm and 98.77 cm (Table 4).

Postoperative results:

According to postoperative complications, it was found that twelve patients out of thirty patients have shown excessive skin ecchymosis that resolved within two weeks before, and five cases developed nipple retraction (16.6%). two case developed hematoma which needed aspiration. Four patients developed seroma that resolved spontaneously. No infection was detected (Table 5)..

	SN-Nipple length			
Patient number	Before		After	
	Right	Left	Right	Left
1	22	21	20	19
2	20	21	19	19
3	21	21	19	19
4	22	22	20	19
5	22	23	18	18
6	20	21	18	19
7	21	21	19	18
8	19	20	18	18
9	22	22	19	18
10	23	23	20	19
11	20	19	18	18
12	22	21	19	19

13	20	22	18	19
14	21	22	18	19
15	24	23	19	18
16	23	23	19	18
17	22	21	18	19
18	21	20	18	19
19	22	22	19	18
20	20	20	18	19
21	22	21	18	18
22	22	22	19	19
23	21	22	19	18
24	24	23	19	20
25	23	23	19	19
26	19	20	18	19
27	21	20	18	18
28	22	21	19	18
29	21	21	18	19
30	20	20	18	18

Table 3: SNN-Nipple length.

`	**Chest circumference**	
	Before	After 6 months
1	105	96
2	111	100
3	120	119
4	118	106
5	121	110
6	110	100
7	99	92
8	122	110
9	95	89
10	111	100
11	118	102
12	98	90
13	100	90
14	104	93
15	108	95
16	97	89
17	115	105
18	109	93
19	94	89
20	97	90
21	106	95
22	110	100
23	120	105
24	115	104
25	110	100
26	112	103
27	115	106
28	120	110
29	99	90
30	100	92

Table 4: Chest circumference

Complication	**No**	**Percent**
Skin ecchymosis	12	40%
Nipple retraction	5	16.60%
Contour irregularity	6	20%
Hematoma	2	6.67%
Seroma	4	13.30%
Infection	0	

Table 5 Complication rate.

DISCUSSION

The gold standard for treatment of gynecomastia is surgical intervention, however; choosing the appropriate technique is challenging as there is a wide range of surgical interventions. Minimal scarring and obtaining masculine looking chest is the most determinant of the surgical technique.[5] In this study, we tried to evaluate to assess high definition liposculpture to get masculinized appearance of the chest for treatment of early grades gynecomastia (grade I &II) Simon classification.

Our study was held on thirty patients with average age 24.73, classified to three bilateral Grade 1, seventeen case grade 2A and ten cases grade 2B according to Simon ‘s Classification.

On postoperative assessment, Patients showed great satisfaction about their final appearance, only twelve patients had postoperative skin ecchymosis that resolved within two weeks, that contributes to 40% of the cases. five patients had nipple retraction due to excess glandular tissue excision that contributes also 16.6% of the cases. Only One patient suffered from contour irregularity due to asymmetric liposuction which forms 3.3% of the cases. Five patients show hematoma formation while 4 patients show seroma formation which resolved spontaneously. No nipple necrosis or infection.

Geddes CR et al studied the arterial supply of the pectoral branch of the TAA has an average diameter of 1.7±0.6 mm. This artery predominantly (60%) gave rise to three secondary branches that traveled obliquely, medially and inferiorly on the deep surface of the PM muscle.

These results are coinciding with our results as we never faced any complications related to fat embolism which makes fat grafting in PM a safe technique. [6]

Between 2004 and 2007, A. Mentz et al operated on 200 patients, two of whom developed a small hematoma that required evacuation. Another two patients needed corrections; one thought the initial technique was too conservative and needed a second etching process to make deeper pectoral indentations. Following gland removal, a second patient with significant gynecomastia developed excess areolar skin, necessitating a little in-office repair. In our study, we had two patients with hematomas that required one-time aspiration, and skin retraction was satisfying for both patients and surgeons. [7]

Between 2010 -2013 Pilanci et al treated 26 cases, On the first postoperative day, one patient out of a total of 26 had a hematoma, which was cleared by secondary hemostasis. During the follow-up period, two patients complained of a bump that went away with simple massage. Late in the monitoring period, one patient developed a depression beneath the areola. During the 11th postoperative month, he received further lipografting, which resulted in a positive outcome. [8]

Regarding our study we had two patients with hematomas which needed evacuation only once, another five patients developed nipple retraction and none of the cases needed additional fat grafting.

Alfredo Hoyos and Mauricio Perez operated on 154 consecutive male patients between 2005 and 2012, with only three serious complications (2%) noted, all of which were connected to the surgery. One abscess was treated with antibiotics and sonographically guided aspiration. Two hematomas were manually drained through the open nipple incision. As modest difficulties, asymmetry was reported by 15 patients (9.7%), residual skin laxity by 4 patients (2.6%), low definition by 4 patients (2.6%) who may need a second "refinement operation," and oblique form of the inferior pectoral border by 5 patients (3.2 %). [9]

A.mowlavi agrees with our results as regard patient satisfaction through fat grafting surgeons are able to achieve the pentagonal shape achieving a well-defined masculine chest although his mean age was 37.5 on 38 patients. [10]

Regarding our study we were able to achieve masculine appearance using fat grafting. Our mean age was 24.73 in 30 patients.

Yue D et al In a study to make suggestions for NAC position, it was advised that the male internipple distance be 22 cm and the SN to nipple distance be 21 cm. According to Murphy, Coleman measured the chests of several US army soldiers and discovered that the SN to nipple distance was 19 cm. Beckenstein et al. recommended an SNND of 20 cm, citing earlier NAC placement suggestions that resulted in nipples that were too inferior and medial. Beer et al. suggested an SNND of 20 cm and an 11.2 cm distance between the midsternal line and the nipple. The SNND was 18.4 cm and the IND was 20.6 cm, according to Shulman et al.[12]

Regarding our study, the average sternal notch to nipple length pre and six months postoperative were respectively 21.08 cm and 18.6 cm which agrees with previous studies

In study conducted by Ridha.H et al on the level of patient satisfaction Only 62.5 percent of all gynecomastia patients treated for gynecomastia were satisfied to very satisfied, according to a 64-questionnaire approved out of 74 submitted to various patients. Three patients suffered hematomas, four got seromas, and four developed abnormal scarring.[13]

In our study 2 patients developed hematoma, 4 patients seroma and 1 patient contour irregularity. regarding patient satisfaction 23 % scored satisfied and 77% scored very satisfied

Our overall success rate is easily explained by several factors. Liposuction combined with pectoral etching improves the esthetic outcome because of muscle augmentation and skin contraction. pectoral augmentation improves the masculine appearance of male chest known as gladiator chest.

Surgical excision by semicircular periareolar incision also adds other advantages to the maneuver, the glandular tissue is removed completely which prevents under correction present in suction-only procedures. The periareolar incision makes the scar not well defined as it becomes camouflaged by the color change between normal skin and the areola.

CONCLUSION

To achieve masculine appearance of the male chest is the ultimate goal of male breast surgery, however, patients' expectations must meet with surgeons' expectation. High-definition gynecomastia surgery brings high satisfaction to the surgeon, but patient selection is a must for this kind of surgery to maintain long term results. The patient must understand the details of the procedure and realize he has to keep up with a healthy lifestyle including sport and diet to keep these results.

REFERENCES

1. Nuzzi LC,Cerrato FE, Erikson CR, et al. Psychosocial impact of adolescent gynecomastia: a prospective case control study. *Plast Reconstr Surg.* 2013; 131:890-6.

2. Johnson RE and Murad MH. Gynecomastia: pathophysiology, evaluation, and management. *Mayo Clin Proc*. 2009;84(11):1010–5.

3. Bailey SH, Guenther D, Constantine F, et al. Gynecomastia Management: An Evolution and Refinement in Technique at UT Southwestern

Medical Center. *Plast Reconstr surgery Glob open*. 2016;4(6): 734.

4. Fruhstorfer BH and Malata CM. A systematic approach to the surgical treatment of gynaecomastia. *Br J Plast Surg*. 2003; 56(3):237–46.
5. Rohrich RJ, Ha RY, Kenkel JM, et al. Classification and management of gynecomastia: defining the role of ultrasound-assisted liposuction. *Plast Reconstr Surg.* 2003; 111(2):905–9.
6. Geddes CR, Tang M, Yang D, et al. An assessment of the anatomical basis of the thoracoacromial artery perforator flap. *Can J Plast Surg*. 2003; 11(1):23–7.
7. Mentz HA, Ruiz-Razura A, Newall G, et al. Pectoral etching: a method for augmentation, delineation, and contouring the thoracic musculature in men. *Plast Reconstr Surg*. 2007; 120(7):2051–5.
8. Pilanci O, Basaran K, Aydin HU, et al. Autologous fat injection into the pectoralis major as an adjunct to surgical correction of gynecomastia. *Aesthetic Surg J*. 2015; 35(3):54-61.
9. Hoyos A and Perez M. Dynamic-definition male pectoral reshaping and enhancement in slim, athletic, obese, and gynecomastic patients through selective fat removal and grafting. *Aesthetic Plast Surg*. 2012;36(5):1066–77.
10. Mowlavi A, Rashid W, Berri M, et al. Masculinized Male Chest Contouring: Creating the Armor Plate. *Aesthetic Surg J Open Forum*. 2019;2(1).
11. Yue D, Cooper LRL, Kerstein R, et al. Defining normal parameters for the male nipple-areola complex: A prospective observational study and recommendations for placement on the chest wall. *Aesthetic Surg J*. 2018; 38(7):742–8.
12. Ridha H, Colville RJI and Vesely MJJ. How happy are patients with their gynaecomastia reduction surgery? *J Plast Reconstr Aesthetic Surg*. 2009; 62(11):1473–8.