

Liposuction with Subcutaneous Glandular Excision via Inframammary Approach for Gynecomastia Management

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Abstract

Background: gynecomastia can be identified as benign proliferation of glandular tissue of male breast. Patient with gynecomastia commonly presented with aesthetic and psychological symptoms. Surgical treatment for gynecomastia is considered now is the treatment of choice with satisfactory results. Different surgical modalities were proposed to deal with gynecomastia with greatest result gained with coupling of liposuction together with glandular excision.

Patients and Methods: 50 adolescent male patients between 18-35y ranging from grade I to early grade III gynecomastia were included in our study; they were surgically managed via combined liposuction with glandular excision through ipsilateral incision made at inframammary skin crease.

Results: Hematoma were recorded in 2 patients (n = 2), seroma in 4 patients (n = 4), unequal breast size were occurred in 3 patients (n = 3), and redundant baggy appearance of the skin were reported in 3 patients (n = 3). Forty-four (88 %) were satisfied with their cosmetic appearance, while remaining six (12 %) were not.

Conclusions: combined liposuction with glandular excision through ipsilateral inframammary skin crease incision showed promising and satisfactory results regarding; the shape of nipple areola complex, less seroma, hematoma, and more patients' satisfaction.

KEYWORDS: gynecomastia, liposuction, subcutaneous mastectomy.

INTRODUCTION:

Back ground:

GM is extracted from Greek term gynec (male) masto (breast). It can be identified as benign proliferation of glandular tissue of male breast. It may be unilateral or bilateral. It is distinguishable condition from that of pseudogynecomastia or lipomastia which is clinical condition found in obese patient due to excess deposition of fatty tissue without proliferation of glandular tissue. Prevalence of the condition varies broadly between 4%-70% in different literatures. This wide variation is a result of different systems of assessment.^(1,2) Patient with GM commonly presented with aesthetic and psychological symptoms. Frequently they are suffering from social dissociation problems and lack of self-confidence.⁽³⁾ Patients intensely seek medical advice because of anxiety and fear of cancer breast. Treatment modalities generally start with reassurance, diet regimen, and exercise which is sufficient for mild cases. But severe cases are in need for more attention using combination of pharmaceutical agents and surgical interference.⁽⁴⁾

Pathophysiology: Both estrogen and androgen receptors are encompassed within breast tissue. Estrogen motivates proliferation of breast ductules whereas androgen impedes this process. Any imbalance present between these two hormones can result in development of GM. ⁽⁵⁻⁶⁾ Different mechanisms are recorded as leading cause of this imbalance such as:

- Direct increased secretion of estrogen from (testes/ placenta/ adrenals).
- Extra glandular aromatization of precursors (testosterone and androstendion to E2&E1 respectively).
- Decreased metabolism of estrogen.
- Decreased secretion of testosterone or its breakdown increase.
- Increased binding to sex hormone-binding globulin (SHBG) with increased affinity to bind with testosterone more than estrogen thus decreasing circulating free testosterone and increasing circulating estrogen.⁽⁷⁻⁸⁾

GM showed 3 peaks of incidence:

1-fetal & neonatal mastitis: with prevalence of 60%-90%, which regress spontaneously within 2-3 weeks.⁽⁹⁾

2-pubertal mastitis: this has prevalence of 4%-69% presented by asymmetrical tender enlarged breast Spontaneous regression occurs in 95% of cases after 6-18 months. This is due to relative increased estrogen level more than androgen. Positive Family history has been elicited in more than half of these patients.⁽¹⁰⁾

3-senile GM: diagnosed at older age group (male between 50-80) years old with prevalence 24%-69% it is due to decreased testosterone caused by hypogonadism and elevation of sex hormone binding globulin (SHBG).⁽¹¹⁾

Etiology: GM could be 1ry (idiopathic) which is commonly diagnosed clinical type or secondary due to Multiple etiological factors such as; endocrinal diseases, non-endocrinal dysfunctions, metabolic dysfunction, organ failure, and some medications.⁽¹²⁾

Idiopathic GM: More than 50% of the cases are idiopathic, in spite of presence of different clinical conditions and different medications implicated in incidence of GM.⁽¹³⁾

Endocrinal tumors: Different endocrinal tumors could be presented with GM, as Pituitary adenomas and adrenocortical tumors. sertoli or leydig cell tumors, and HCG secreting tumors (carcinoma of lung, liver, and kidney, and choriocarcinoma) which are characterized by excess secretion of estradiol.⁽¹⁴⁾

Endocrine dysfunctions: GM are found in Klinefelter syndrome, pseudohermaphroditism, type 1 DM, and hyperthyroidism. GM is found with Kennedy's syndrome which is common between Bodybuilders who abuse anabolic steroids to increase muscle bulk.⁽¹⁵⁾

Non-endocrine diseases: Cirrhotic patients develop GM due to decreased serum level of testosterone with increased level of estradiol. hypogonadism is elucidated in patient with chronic renal failure with diminished testicular steroidogenesis.⁽¹⁶⁾

Drugs: Drug induced GM accounts for 25%. Medications frequently associated with GM are: Ketoconazole, Metronidazole, Spironolactone, cancer chemotherapy, Spironolactone, Cimetidine, Marijuana, Antipsychotic agents, Metoclopramide, Verapamil, Human GH, Proton pump inhibitors, highly active retroviral therapy.⁽¹⁷⁾

Obesity and gynecomastia: GM occurred in obese personnel due to increased adipose tissue within breast and increased activity of aromatase enzyme conversion of testosterone to E2 and androstendion to E1 with plasma estradiol concentration is increased and plasma testosterone concentration is decreased.⁽¹⁸⁾

Clinical classification: Multiple classification systems such as Rohrich, and Cordova classification are known but the most commonly used and clinically applicable is Simon classification.

Simon classification for GM grading system :⁽¹⁹⁾

- ❖ **Grade I:** Increased diameter and slight protrusion limited to the areolar region.
- ❖ **Grade II:** Moderate hypertrophy of the breast with the NAC above the inframammary fold.

- ❖ **Grade III:**Major hypertrophy of the breast with glandular ptosis and the NAC situated at the same height as or as much as 1 cm below the inframammary fold.
- ❖ **Grade IV :**Major breast hypertrophy with skin redundancy, severe ptosis and the NAC positioned more than 1 cm below the inframammary fold.(**fig.1**)

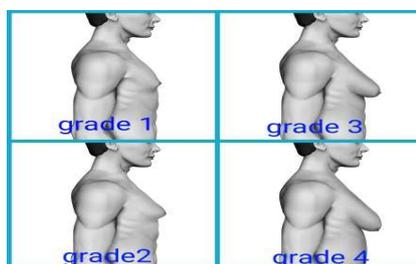


fig.1:simon`s classification

Aim of the work:

Our aim is to evaluate the results of our surgical technique for treatment of gynecomastia which is formed of subcutaneous liposuction with glandular excision through inframammary incision.

Patient and methods:

Fifty adolescent male patients were included in our study aged between 18-35yrs with gynecomastia ranging from grade I to early grade III. All patients were operated by experienced consultants with the help of plastic specialists. The study was conducted between April 2018 to May 2019 at **Banha teaching hospital, Shebin-elkom teaching hospital, Dar-elteb** medical center and **Ezabella** cosmetic clinic. The study was proceeded by 6 months follow up. Data were analyzed retrospectively. Chart review was designed including personal information and telephone number to communicate with our patients assessing their satisfaction.

❖ **Inclusion criteria:**

- Age between 18-35yrs.
- Grade I to early grade III.

❖ **Exclusion criteria:**

- Age above 35 or below 18 yrs.
- Cases with co morbidity as; diabetes mellitus, CRF, liver cirrhosis, cardiac and hypertensive patients.
- Late grade III or grade IV.
- Patients under hormonal therapy.
- Athletics with supplementation intake.
- Psychologically unstable patients.

Methods:

Pre-operative assessment and preparation:

Patients were evaluated by; A) Detailed history taking B) Full physical examination C) laboratory investigations including (complete blood count and coagulation profile, HIV, Hepatitis B and C virus serology).D)imaging in the form of breast ultrasound to assess gynecomastia extension. All inquiries and questions were answered with detailed explanation of the operative steps. Informed consent was obtained from patients with acceptance for pre and post-surgery photos.

Technique: markings are implemented in preparation room while patient is in upright position.2gms of 3rd generation cephalosporin were given 2 hrs before induction of anesthesia. Sedation was given at preparation room while analgesia at time of induction. Our patients are operated under general anesthesia with endotracheal tube while they are placed supine on operating table. Skin is scrubbed then draped. Standard Tumescant

Solution consists of (50 ml xylocaine 1%, 1 ml epinephrine (1: 1,000), 8 ml sodium bicarbonate 8.4%, , and 1,000 ml physiological saline) is used for breast local infiltration. Our initial incision is made at inframammary skin crease using blade no 15 to fashion a 5-mm stab at the 6'o clock position (**fig.2**).Through the same incision Pre-tunneling is carried out using infiltrating cannulathen tumescent anesthesia infiltration is injected by pump system. Vacuum assisted systemis used to complete liposuction of the ipsilateral breast with targeting to leave a suitable layer of fat underneath skin foldwithout evident skin tethering.



fig.2: demonstrate our technique of inframammary liposuction then glandular excision.

The same steps are employed on the other breast. Patients with prominent glandular tissue are in need for glandular excision which is excised through the same ipsilateral stab after wound extension for 2mms extra length. Half-buried vertical mattress sutures are used for wound closure (**fig3**). Pressure garment is dressed from the immediate post-operative period. Patients are allowed to go home on the same day of surgery. Dressings are changed on the second post-operative day at outpatient clinics. We followed our patients at regular intervals at 1, 3, and 6 months post-surgery.



fig. 3: shows amount of liposuction, size of extracted gland, and post-operative result

Results:

Study was evaluated regarding the following points:

- Patient satisfaction.
- Seroma accumulation.
- Post-operative bleeding.

- Mean operative time.
- Mean hospital stay.
- Infection.
- Recurrence.
- Bilateral symmetry.

		N	%
Grade	I	20	40
	II	25	50
	III	5	10
Side operated	Unilateral	5	10
	Bilateral	45	90

Table 1: grade, and operated sides of involved cases

	Range	Mean \pm SD
Age (years)	18 – 35	26.60 \pm 5.13
Time of operation (minutes)	25 – 60	43.60 \pm 11.38
Hospital stay (hours)	2 – 6	3.87 \pm 1.24

Table 2: age, operative time, and hospital stay variations

In our study, Forty-five patients (90 %) were bilaterally operated and five candidates (10 %) were unilaterally operated. 20 patients (grade I =20) with grade I gynecomastia while 25 and 5 in grade II and III respectively (gradeII =25) (gradeIII =5) (**table 1**). Mean operative time was 43mins with all patients were home discharged after complete recovery from anesthesia about 6hrs after the procedures (**table 2**). The scare was hardly visible at the inframammary site even immediately after surgery and on long-term follow-up after six months .No intraoperative mishaps were recorded in any of our cases. None of the 50 patients reported any alteration of sensation in the nipple areola region after 6 months. Early postoperative complications in the form of hematoma were recorded in 2 patients (n = 2) which managed by surgical evacuation of the clots and antibiotic coverage, seroma formation in 4 patients (n = 4) this was aspirated by syringe at outpatient clinic, and wound infection wasn't noticed in any patient (n = 0). Late complications including skin dimpling were reported in 2 cases (n=2) unequal breast size were occurred in 3 patients (n = 3) which required another liposuction session, and redundant baggy appearance of the skin were reported in 3 patients (n = 3) that managed by exercise and garment application. With contacting our patients to assess their satisfaction with the cosmetic results of the procedure, Forty-four (88 %) were satisfied with their cosmetic appearance, while remaining six (12 %) were not satisfied. (**Table3**)& (**fig 4**).

Post-operative complications		N	%
Skin dimpling	Yes	2	4
	No	48	96
Seroma	Yes	4	8

accumulation	No	46	92
Post-operative hematoma	Yes	2	4
	No	48	96
Infection	Yes	0	0
	No	50	100
Recurrence	Yes	3	6
	No	47	94
Bilateral asymmetry	Yes	3	6
	No	47	94

Table 3:post-operative complications

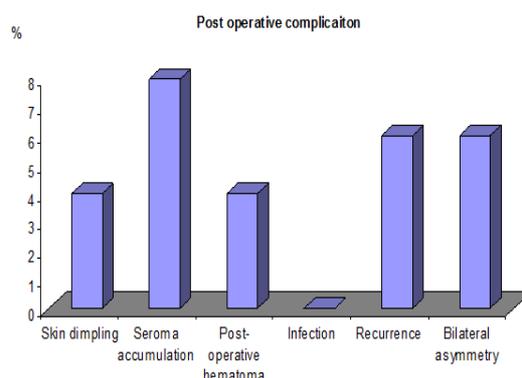


fig.4:percentage of post-operative complications

Discussion:

GM represents an embarrassing condition for male adolescent.it shows increased incidence in the last few decades. This is due to increased incidence of obesity with its associated pseudogynecomastia. Other causes as increased usage of anabolic steroids and environmental contamination with xenoestrogens are responsible for stimulation of glandular proliferation of breast tissue. (20)Incidence of GM is 60% between middle age males who usually seek medical advice because of psychological stress rather than tender breast. This presentation is less common between elder males above 40 yrs. who are less carious about such condition.(21)Treatment modalities are variable and include the following; reassurance, diet regimen with weight reduction, exercise, medications as tamoxifen, and surgical approach. Allmodalities except surgical approach could hardly gain successful results with unacceptable patient satisfaction. (22)Surgical treatment for pubertal GM is considered now the treatment of choice with satisfactory results. Different surgical modalities were proposed to deal with gynecomastia with greatest result gained with coupling of liposuction together with glandular excision. Even this technique can be applied with different approaches. (23)Obesity isn't CI for surgical treatment, but it is worth wise for obese patient to reduce his weight 1st then to care about his breast.(24)in our study we employed the technique of liposuction with glandular excision through ipsilateral inframammary incision. In comparison to other techniques such as cross-chest liposuction through circum-areolarincision, and that of circum-areolar incision with ipsilateral liposuction through lateral chest wall incision; both are associated with considerable complications e.g. theformer is usually associated with incidence of hematoma and seroma in addition it cause visible skin dimpling with absent dome shape appearance of NAC that resulted in embarrassment especially in bodybuilders. The latter is associated with visible scare as there are two incision one circum-areolar

and the other at ant chest wall. In both technique drains are used which resulted in visible scar after their removal. Our study showed satisfactory results especially in athletes with hardly visible scar, no drains, and no incidence of skin dimpling at nipple areola complex with proper gain of dome shape appearance of NAC in athletic people especially bodybuilders.

Conclusion:

Inframammary approach is an easy, innovative approach in gynecomastia surgery that removes all the tough fibro-glandular tissue with leaving hardly visible scars over the initial incisional site. Satisfactory results regarding the cosmetic shape of NAC especially in athletics, with less seroma and hematoma formation are achieved.

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