

Comparative Study between Peripheral Liposuction with Central Disk Excision Versus Subcutaneous Mastectomy Round Block Technique in Management of Gynecomastia

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Abstract

Background: Gynecomastia is a benign condition refers to enlargement of the male breast either due to proliferation of ductal, stromal or fatty tissue. The causes may be idiopathic, congenital, physiological, drug induced, oncological and systemic diseases. There are many methods of liposuction as conventional, power assisted, ultrasound assisted and laser assisted liposuction. The surgical management of high grades gynecomastia is considered a problematic issue as liposuction and conventional subcutaneous mastectomy without skin excision are not sufficient in most cases and need another session for redundant skin excision.

Aim of Study: To compare the surgical outcome of peripheral liposuction with central disk excision versus subcutaneous mastectomy round block technique for different grades of gynecomastia according to results, complications and patient satisfaction for operation.

Patients and Methods: This is comparative randomized prospective clinical trial that conducted on (40) patients presented to Ain Shams University Hospital & Um El Masyreen General Hospital with gynecomastia grade II & III within a period of one year, including (operation and 3-6 months follow-up). Male patients above 18 year old who have gynecomastia grade II & III, which were divided into 2 groups with closed envelop method according to the used techniques.

Results: Statistics shows to some extent the preference of liposuction with disk excision over round block technique according to incidence of hematoma, wound infection, dehiscence and patient satisfaction but Versus according to incidence of seroma. However, there is no significant difference between the two approaches in operation time and drain time.

Conclusion: Surgical management of high grades gynecomastia is a big challenge and there is no single approach is recommended between surgeons.

Key Words: *Peripheral liposuction – Central disk excision – Gynecomastia.*

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Introduction

GYNECOMASTIA is defined clinically as generalized enlargement of the male breast tissue, with the presence of a rubbery or firm mass extending concentrically and symmetrically from the nipple, accompanied by histopathological benign proliferation of the glandular male breast tissue. It usually occurs bilaterally and is the most common breast condition in males [1]. It may be idiopathic or due to drugs or pathological condition accompanied by absolute excess of estrogen and decrease in circulating androgens. In addition, increased use of anabolic steroids or environmental contamination with xenoestrogens or estrogen-like substances may stimulate glandular proliferation in male breast tissue [2].

However, a related condition, pseudogynecomastia, manifests as fat deposition without glandular proliferation and occurs most frequently in obese men, where the number of patients with pseudogynecomastia is increasing. In mild cases, simple reassurance coupled with advice on diet and exercise may be sufficient. However, in more severe cases, medical and/or surgical intervention are required [2].

Various classification schemes of gynecomastia have been proposed, incorporating evaluations of the appearance of the breast, severity, and the composition ratio between fat and glandular tissue [3].

The most frequently used classification is based on the tissue components involved in gynecomastia and distinguishes three types: True gynecomastia, when only glandular tissue is the cause of breast enlargement, Pseudogynecomastia, which refers to chest lipodystrophy, and Mixed gynecomastia,

which corresponds to a breast with hypertrophy of both fat and glandular parenchyma [4].

Alternatively, according to the breast size and redundant skin, the grade of severity of gynecomastia can be assessed using the Simon scale [4].

Depending on morphology and volume, gynecomastia is classified according to Simon (1973) in four different groups (it is the most common classification) [5].

The surgical technique used depends on the degree of the gynecomastia and the distribution and proportion of the different breast components (fat, parenchyma and looseness of the skin envelope). The most commonly used technique is subcutaneous mastectomy which involves direct resection of the glandular tissue using a peri-areolar or trans-areolar approach, with or without liposuction. More extensive surgery, including skin resection, is required for patients with marked gynecomastia and those who develop excessive sagging of the breast tissue (with weight loss). Liposuction alone may be sufficient, if breast enlargement is purely due to excess fatty tissue without substantial glandular hypertrophy [6].

Regardless of the type of gynecomastia, if it persists for more than a year the breast tissue will become more fibrous and resistant to medical treatment. At this stage, resection is the mainstay of management [7].

Aim of the work:

The aim of this study is to compare the surgical outcome of peripheral liposuction with central disk excision versus subcutaneous mastectomy round block technique for different grades of gynecomastia according to results, complications and patient satisfaction for operation.

Patients and Methods

This is comparative randomized prospective clinical trial that conducted on (40) patients presented to Ain Shams University Hospital & Um El Masryeen General Hospital from October 2019 - September 2020, including (operation and 3-6,12 months follow-up). Male patients above 18 year old who have gynecomastia grade II & III, which were divided into 2 groups with closed envelope method according to the used techniques.

The study included male patients between 18 -60 years with either unilateral or bilateral gynecomastia. While patients with proven breast cancer or with history of liver cell failure or associated cardiac or pulmonary co-morbidity, smoker

patient as well as generalized obesity patients were excluded.

All patients sharing in the study were fully informed about the procedure they had with a written informed consent approved by ethical committee of Ain Shams University.

Pre-operative assessment: Detailed history was taken from all patients included in the study & general examination was done to exclude possible causes of gynecomastia. Local examination performed of the breast to detect predominance of fatty and/or glandular tissues, the laterality, presence of ptosis or skin excess & elasticity. Presence of masses aiming mainly to exclude malignancy then differentiating true gynecomastia from pseudogynecomastia. Patients were classified according to Simon (1973) in four different groups: I-Minor breast enlargement without skin redundancy, IIa-Moderate breast enlargement without skin redundancy, IIb-Moderate breast enlargement with minor skin redundancy, and III-Gross breast enlargement with skin redundancy that mimics female breast ptosis [4]. Routine investigations including full blood picture, liver function, renal function, breast U/S and mammography (if needed) was obtained. And all patients were informed about the technique used & complications. Preoperative marking according to used technique & zones of liposuction were obtained as needed. Preoperative photos were taken, before and after the marking.

Study procedures: Preoperatively all patients with grade II & III gynecomastia were treated under general. Where, concentric topography-type marks centered on the most prominent portion of the breast in the upright position were made preoperatively. The inframammary fold, breast boundary, and planned incision sites were drawn on each breast.

Surgical technique:

Liposuction with disk excision: Tumescence solution prepared, which contained 1ml of 1:1000 solution of adrenaline per liter. After induction of anesthesia, breast was infiltrated with a wetting solution through a stab incision located inferolaterally in the inframammary crease. Each breast was infiltrated with tumescence solution to a volume equal to the estimated volume of fat to be evacuated. Then, a small cannula is inserted through the small incision, which is attached to a vacuum device. The surgeon pushes and pulls it carefully through the fat layer, breaking up the fat cells and drawing them out of the body by suction. Removal of glandular tissues was done through peri areolar

incision. Dissection with sharp scissors starts inferior to the border of the breast proceeding to a deep plane to the upper border of the breast

leaving about one cm of breast tissue below areola to prevent saucer deformity. The dissected breast tissue is excised through the incision.

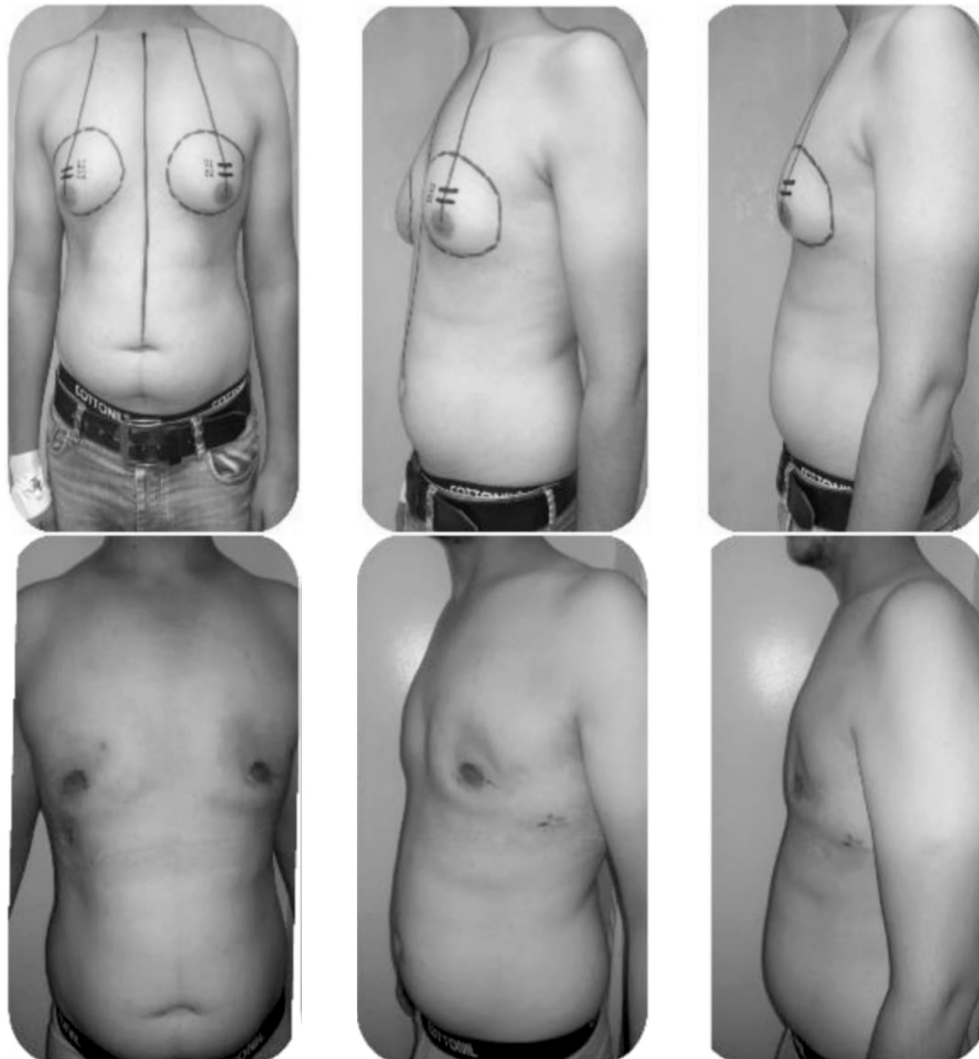


Fig. (1): Pre-operative and two weeks post-operative.

Round block technique: A complete concentric circum-areolar incision of skin, Followed by outer circular incision according to skin redundancy then de-epithelialization of the "doughnut" shaped epidermal ring. Hemicircumferential incision from 9 to 3 o'clock position was made in middle of the de-epithelialized ring. Dissection and excision of the glandular tissue was done through that incision with good haemostasis. An adequate thickness from breast tissue under the nipple was left to avoid areolar retraction or ischemia. Closure was done by approximation of the skin edges after doing intradermal circumareolar purse-string suture.

Postoperative assessment: Postoperative follow-up at the outpatient clinic. The 1st dressing was done after 2 days then every 3 days. Drains were

removed in 24-48h. or when the output is 30ml/day or less. Wound stitches removed within 14 Days. At every visit patient was examined well for any seroma, hematoma, wound dehiscence or infection.

Statistical analysis: Data were collected, revised, coded and entered to the Statistical Package for Social Science (Released 2015. IBM SPSS Statistics for Windows, Version 23.0. Armonk, New York: IBM Corp.). The quantitative data with parametric distribution were presented as mean, standard deviations and ranges. Also qualitative variables were presented as number and percentages. Then the appropriate statistical analysis were applied. The confidence interval was set to 95% and the margin of error accepted was set to 5%.

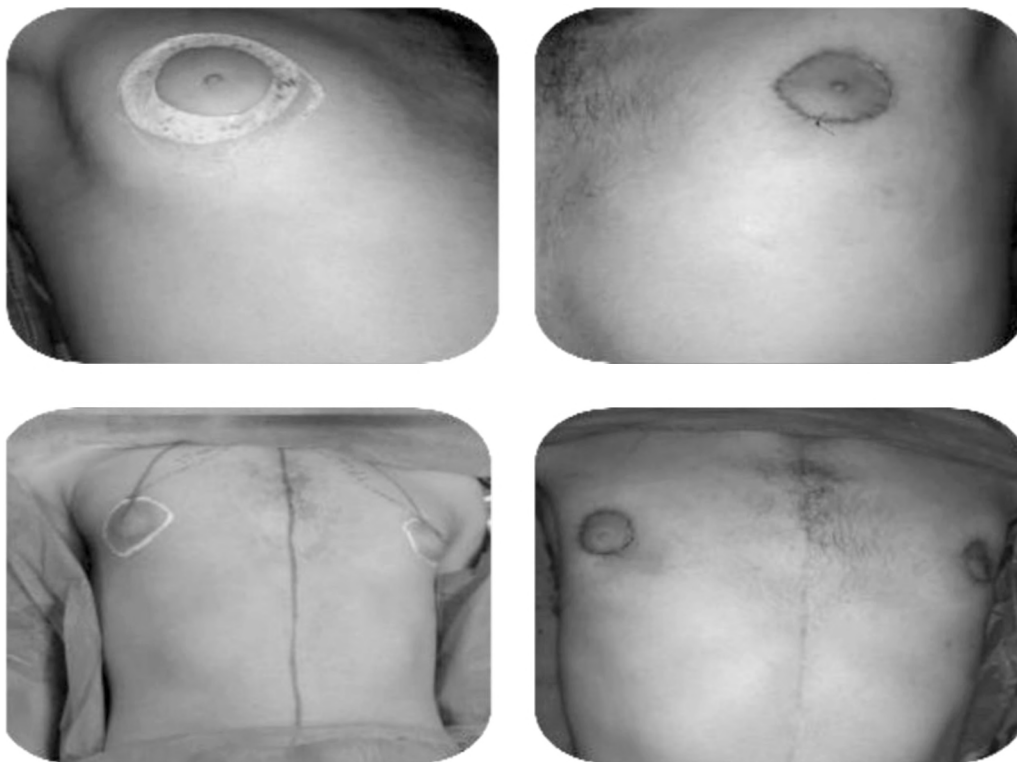


Fig. (2): Intra-operative depithelization and skin closure.

Results

Table (1): Comparison between Group A - Round block technique and Group B - liposuction with disk excision regarding demographic data.

	Group A		Group B		<i>p</i>
	Mean ± SD (min-max)	Median (IQR)	Mean ± SD (min-max)	Median (IQR)	
Age	28±7 (19-40)	28 (21-33)	28±6 (19-41)	27 (23-31)	0.860

Table (1) shows that there is no significant difference between the 2 interventions as regards age distribution.

Table (2): Comparison between Group A and Group B patients regarding laterality and surgical time.

	Group A		Group B		<i>p</i>
	Mean ± SD (min-max)	Median (IQR)	Mean ± SD (min-max)	Median (IQR)	
Surgical time †	2.7±0.7 (2-4)	2.4 (2.2-3.2)	2.5±0.5 (1.5-3.3)	2.3 (2.1-3)	.437
<i>Laterality #:</i>	N	%	N	%	
Unilateral	3	15.0%	3	15.0%	1.000
Bilateral	17	85.0%	17	85.0%	

(#) Fisher exact test, and (†) Mann Whitney U test were used.

Table (2) shows that there is no significant difference between the 2 interventions as regards laterality and surgical time distribution.

Table (3): Comparison between Group A and Group B patients regarding drain usage and duration.

	Group A		Group B		<i>p</i>
	N	%	N	%	
<i>Drain#:</i>					
No	14	70.0	14	70.0	.000*
Yes	6	30.0	6	30.0	
	Mean ± SD (min-max)	Median (IQR)	Mean ± SD (min-max)	Median (IQR)	
Drain duration †	2±0 (1-2)	2 (2-2)	2±0 (2-3)	2 (2-2)	.176

(#) Chi square test, and (†) Mann Whitney U test were used.

Table (3) shows that there is no significant difference between the 2 interventions as regards drain duration.

Table (4): Comparison between Group A and Group B patients regarding postintervention complications.

	Technique				<i>p</i>
	Group A		Group B		
	N	%	N	%	
<i>Hematoma:</i>					
No	19	95.0	20	100.0	1.000
Yes	1	5.0	0	0.0	
<i>Seroma:</i>					
No	19	95.0	18	90.0	1.000
Yes	1	5.0	2	10.0	
<i>Wound Infection:</i>					
No	19	95.0	20	100.0	1.000
Yes	1	5.0	0	0.0	
<i>Wound dehiscence:</i>					
No	19	95.0	20	100.0	1.000
Yes	1	5.0	0	0.0	

(#) Fisher exact test was used.

Table (4) shows that there is no significant difference between the 2 interventions as regards postoperative complications.

Table (5): Comparison between Group A and Group B patients regarding cosmetic postintervention complications.

	Technique				p
	Group A		Group B		
	N	%	N	%	
<i>Scar quality:</i>					
Good	19	95.0	19	95.0	1.000
Corrugation at 1 sr then resolved	0	0.0	1	5.0	
Hypertrophic scar	1	5.0	0	0.0	
<i>Hypoesthesia of NAC:</i>					
No	19	95.0	18	90.0	1.000
Yes	1	5.0	2	10.0	
<i>Breast symmetry:</i>					
Near eq	20	100.0	20	100.0	-
<i>Necrosis of nipple-areolar complex:</i>					
No	20	100.0	20	100.0	-
Yes	0	0.0	0	0.0	

(#) Fisher exact test was used.

Table (5) shows that there is no significant difference between the 2 interventions as regards scar quality.

Table (6): Comparison between Group A and Group B patients regarding patients' satisfaction.

	Group A		Group B	
Patient satisfaction/10	9.8±0.6 (8-10)	10 (10-10)	10±0.2 (9-10)	10 (10-10)

Mann whintey U test was used.

Table (6) shows that there is no significant difference between the 2 interventions as regards patients' satisfaction.

Discussion

Gynecomastia is a benign condition due to proliferation of ductal system, glandular tissues and fat in male breast [8]. It is usually a multidisciplinary problem that needs endocrinological, surgical, oncological and psychological assessment for proper diagnosis and treatment [9].

In this study we use Simon classification that classified gynecomastia into: Grade 1: Mild enlargement without skin redundancy. Grade 2A: Moderate enlargement without skin redundancy. Grade 2B: Moderate enlargement with mild skin redundancy. Grade 3: Severe enlargement with major skin redundancy [10].

Management of gynecomastia is either follow-up for spontaneous regression, medical treatment

and surgical treatment as mentioned in the literature. Surgical management is considered if gynecomastia persists for 18 to 24 months without spontaneous regression or not respond to medical treatment [10,11].

The aim of surgical treatment are flattening of the thoracic region, Elimination of the inframammary fold, correct positioning and diameter of the NAC, removal of redundant skin, symmetrization between the two hemithoraces and the two areolas and Minimizing scars [12].

The gynecomastia surgery has a significant effect on life postoperatively especially in the social aspect and psychical health [13].

The surgical management of high grades gynecomastia is considered a problematic issue as liposuction and conventional subcutaneous mastectomy without skin excision are not sufficient in most cases and need another session for redundant skin excision [14].

All patients (40/40) reported a postoperative improvement in self-confidence. The comparison revealed that the rate of hematoma in round block technique is (5%) while in liposuction was (0%) with *p*-value 1.000 with no significance, the rate of seroma in liposuction is (10%), while in round block technique is (5%) with *p*-value (1.000) with no significance, the incidence of nipple areola complex complications as (wound infection & dehiscens) in round block technique one case with (5%), versus zero cases in liposuction (0%), with *p*-value (1.000) with no significance and the patient satisfaction in both approaches is high with slight increase in liposuction (99%) over round block technique (98%), with *p*-value (0.515) with no significance.

So, our study advocates to some extent superiority of liposuction with disk excision over round block technique according to incidence of hematoma, wound infection, dehiscence and patient satisfaction but Versus according to incidence of seroma. However, there is no significant difference between the two approaches in operation time and drain time.

Conclusion:

Surgical management of high grades gynecomastia is a big challenge and there is no single approach is recommended between surgeons.

References

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مقارنة بحثية بين شفط دهون الثديين وإزالة الأنسجة الغدية من شق جراحي عند الحلمة مقابل استئصال الأنسجة الغدية والجلد الزائد من شق جراحي مستدير حول الحلمة في حالات الثدي

الخلفية: يعرف الثدي بأنه تضخم نسيج الثدي عند الرجال (النسيج الغدي) معاً وبدون وجود نسيج دهني في منطقة الثدي، وعادة ما يحدث في الثدي ينصح المريض في الحالات المتوسطة باتباع حمية غذائية مع جعل الرياضة أسلوب حياة منتظم، بينما يكون التدخل الجراحي هو الأمثل عادة في الحالات المتقدمة من الثدي (الدرجة الثانية والثالثة والرابعة). إذا كان كبر حجم الثدي نتيجة لزيادة النسيج الدهني وليس الغدي يمكن أن يكون شفط الدهون لوحده كاف

المرضى والطرق: هذه دراسة تجريبية عشوائية الأختيار للتدخل الجراحي تضمن مريض بالثدي من الدرجة الأولى والثانية والثالثة طبقاً لتصنيف سيمون، وتم إخبار جميع المرضى بتفاصيل الجراحة ونتائجها المحتملة وتوقيعهم لقرار بذلك. وكانت متابعة المرضى لمدة ٦ أشهر بعد الجراحة، خلالها تمت ملاحظة النتائج والمضاعفات من إتهاب أو تجمع دموي وغيرهم وتدوينها أن وجدت.

النتائج: كانت نسبة رضا المرضى عن الجراحة جيدة في المجموعتين.

الخلاصة: طريقة جراحية ذات أفضلية تامة عن أخرى في علاج حالات الثدي. هناك مميزات وعيوب مختلفة لكل طريقة يجب مناقشتها جيداً مع المريض قبل إجراء الجراحة. ويتم تحديد الطريقة الجراحية المتبعة بعد تقييم المريض وفحصه جيداً من قبل الجراح.