Clinics in Surgery

Research Article
Published: 29 Jun, 2018

Impact of Skin Laxity on Selection of Breast Implant during Augmentation Mammoplasty

*Ahmed Tharwat Nassar**

Department of Plastic Surgery, Menoufia University, Egypt

Abstract

Introduction: Breast augmentation is one of the most common aesthetic surgical procedures. Physical characters of the patients markedly affect choice of size and projection of the implant.

Aim: Analyze the effect of skin laxity on the size and projection of breast implant.

Patients and Methods: Retrospective analysis of the effect of degree of skin laxity of patients had breast augmentation on the size and projection of the implant. Patients decided into groups each group have almost similar cheat wall diameter, age and marital stat. study included 20 patients received breast augmentation between January 2014 to January 2016 at Mawada privet hospital, Menoufia. All implants were inserted through inframammary approach and were place in sub glandular pocket.

Results: Relation between degree of skin laxity and size of breast implant show (Correlation coefficient) (r) (0.73) close to +1 which means that the two variables are closely related with each other with significant p value <(0.001). Also significant relation between the degree of skin laxity and implant projection also with deferent intraoperative steps during the procedure.

Conclusion: Degree of skin laxity directly affects the size and projection of the breast implant.

Introduction

Physical characteristics and patient desires are the most important factors in selecting implant size and profile during augmentation mammoplasty. Also incisions, pocket plane, and implant characteristics, including shape, texture and volume, are important factors during surgical planning [1].

Other factors like psychology, aesthetic sense, and anatomy must be assessed. Psychological and emotional stability is a mandatory demands simple personal criteria of the patients as style of dress, makeup, previous aesthetic procedures, community, and occupation reflect personality and aesthetics. Anatomic limitations must be explained to the patient [2].

Tebbetts and Adams [3,4], described a decision support process that enables surgeons to address all pre- operative assessment and operative planning decisions by prioritising five critical decisions in breast augmentation: 1) optimal soft-tissue coverage/pocket location for the implant; 2) implant volume (weight); 3) implant type, size, and dimensions; 4) optimal location for the inframammary fold; and 5) incision location.

Tissue characteristics and skin quality are equally important factors. Patients with atrophic tissue and poor skin elasticity make concealment of the implant whether visual or tactile very challenging they also carry the risk of late lower pole descent. Implant size is markedly affected by these factors and avoiding large size silicone implants are the best choice in these patients [5].

The skin stretch (SS) is measured by grasping the skin of the medial areola and pulling the breast maximally anteriorly. The SS distance correlates to the anterior-posterior excursion measured with a caliber [6].

Types and these are subdivided based on envelope quality and N: IMF on stretch

Breast Type I (very tight) SS <1.5 cm

Breast Type II (tight) SS 1.5 cm to 2 cm

Breast Type III (average) SS 2 cm to 3 cm

OPEN ACCESS

Correspondence:
Ahmed Tharwat Nassar, Department of Plastic Surgery, Menoufia University, Egypt,
E-mail: dr_ahmedtharwat79@yahoo.com

Received Date: *11 Jun 2018*
Accepted Date*: 25 Jun 2018*
Published Date*: 29 Jun 2018*

Citation:
Nassar AT. Impact of Skin Laxity on Selection of Breast Implant during Augmentation Mammoplasty. Clin Surg. 2018; 3: 2003.

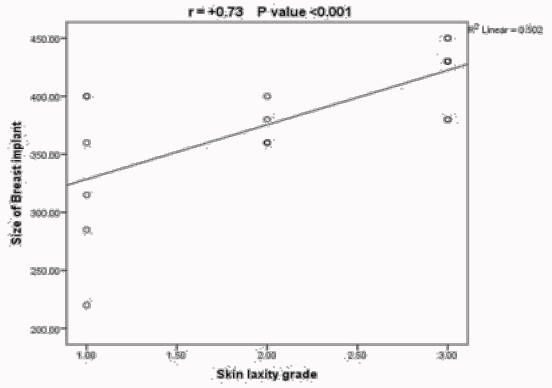

Figure 1: Correlation between skin laxity grade and size of breast implant. It showed significant positive correlation between skin laxity grade and size of breast implant (p value <0.001).

Breast Type IV (loose) SS 3 cm to 4 cm with N: IMF <9 cm

Breast Type V (very loose) SS 3 cm to 4 cm with N: IMF >9 cm

This represents the integration of BBW, SS, N: IMF, and breast type to create a blueprint for implant selection for implant-specific tissue-based planning [6].

Skin Stretch (SS) is one of the important factors that determine suitable fill volume. If the patient is a breast type 1 or 2, the optimal fill volume is reduced further (60 mL and 30 mL, respectively). Any adjustments to the optimal fill based on the patient desires are made. Breast type provides a simpler construct to correlate envelope quality and tissue-based implant selection [6].

Patients and Methods

In this random study 20 patients were included between the periods of January 2016 to June 2017. Menoufia University Hospitals, Mawada privet hospital, Menoufia Governorate and AL kawakab privet hospital, Cairo, Egypt were the places where cases had are operated on.

Patients was divided into 3 groups according to degree of Skin Stretch (SS) group one skin stretch from 0 to 2 cm called (Grad one) laxity, group two from 2 cm to 4 cm and called (Grad two) and group three above 4 cm and called (Grad three).

Skin stretch or skin pinch test was used to assess the skin laxity. Skin stretch test was done by attaching the nipple gently and pulling the skin up while the patient was lying down the distance, the nipple could pass through was measured before pulling zero point of the measuring caliper was at the level of nipple at resting position.

All patients have informed with deferent operative and post operative details and informed consent was taken preoperative photography was taken for all patients. Preoperative examination including breast examination and chest wall measurement was done from mid line to anterior axillary line on each side. Routine preoperative laboratory investigations was done, preoperative sonomammography was done for all patients.

Expected breast implant size was determined according to chest wall base, degree of skin laxity and the patient desire three pairs of implants were prepared, for each case each pair of it has the same size and projection. All implants were rounded, silicone gel fill, textured and all of them were (poly tech) implant.

Table 1: Descriptive statistics of patients of the studied groups.

Age/years	The studied cases N=20	
X ± SD	28.7 ± 5.5	
Range	20-40	
Marital status	**No**	**%**
Single	6	30
Married	12	60
Divorced	1	5
Widow	1	5
Previous lactation no	8	40
1	1	5
2	5	25
3	6	30

Table 2: Descriptive statistics of the general operative steps.

	No	%
Anesthesia		
General	20	100
Operative time		
X ± SD	101.3 ± 16.8	
Range	90-135	
Incision		
Inframammal	20	100
Site of implant		
subglandular	20	100

Combination of third generation cephalosporin and gram positive antibiotic were given Intra Venous (IV) to all our patients after induction of anaesthesia and before wound creation. General anaesthesia was used in all patients, mean operative time 101 minutes ± 16.8. Inframammary incision and sub glandular placement of the implant was used in all cases. No drains were used in any of the patients in this study. Patient was discharged next day after surgery on third generation cephalosporin IV and intra muscular analgesic for 4 days shifted to oral treatment for one week including oral levofloxacin and analgesic.

First wound exposure was done after 5 to 7 days; Stitches were removed after 14 days. Supportive elastic bandage used to support breast during this time.

Correlation between degree of skin laxity and implant size and profile was studied to detect the effect of skin laxity on preoperative decision making and implant selection.

Also skin laxity was correlated to different intraoperative steps related to implant including pocket creation, retraction and implant insertion.

Results

Age of patients was between 20 to 40 years. 6 of them were single, 12 were married, 1 was divorced and 1 was widow. 8 of the patients had no previous lactation, 1 of them lactated once before, 5 patients lactated 2 times and the remaining 6 patients have 3 previous lactation experiences before (Table 1).

General anaesthesia was used in all patients, mean operative time 101 minutes ± 16.8. Infra mammary incision and sub glandular

Table 3: Descriptive statistics of implant related factors.

	No	%
Skin laxity		
Grade 1	6	30
Grade 2	5	25
Grade 3	9	45
Chest wall		
X ± SD	13.8 ± 0.8	
Range	12-15	
Pocket creation		
Easy	14	70
Difficult	6	30
Retraction		
Light	14	70
Hard	6	30
Implant delivery		
Easy	14	70
Difficult	6	30
Implant profile		
Moderate	2	10
High	10	50
Extra high	8	40
Implant size		
X ± SD	382.5 ± 57.9	
Range	220-450	

placement of the implant was used in all cases (Table 2).

Group 1 skin laxity group included 6 patients, Group 2 skin laxity group included 5 patients and Group 3 skin laxity group included 9 patients. Unilateral Chest wall width (implant base) from 12 cm to 15 cm. Creation of subglandular pocket was easy in 14 cases and was somehow more difficult in the remaining 6 cases; this was similar to retraction and implant delivery (Table 3).

Implant profile was moderate in 2 cases, high in 10 cases and extra high in 8 cases. Implant size was between 220 cm^3 to 450 cm^3 with average 382.5 cm^3 ± 57.9 cm^3 (Table 3).

Table 4 analyzing the relation between skin laxities and implant profile also between pocket creations, retraction and implant delivery. It showed significant p value (0.009) for relation between implant profile and degree of skin laxity with low chi square X^2 13.4. Also significant p value (0.001) describing the relation between degree of skin laxity and pocket creation, retraction and implant delivery.

In this study correlation coefficient (r) which describe the relation between skin laxity degree and implant size was (0.73) close to +1 which means that the two variables are closely related with each other. Also significant p value (0.001) was found. Diagrammatic analyze of the relation between degree of skin laxity and implant size with the linear as shown in Figure 1.

Discussion

In this study a trial to re-emphasis the relation between the degree of skin laxity and the size and projection of implant was done.

Table 4: Effect of degree of skin laxity and implant size, pocket create retraction and implant delivery.

	Skin laxity						X^2	
	Grade 1 N=6		Grade 2 N=5		Grade 3 N=9			
	No	%	No	%	No	%		
Implant profile								
Moderate	2	33.3	0	0	0	0	13.4	0.009
High	4	66.7	4	80	2	22.2		
Extra high	0	0	1	20	7	77.8		
Pocket creation								
Easy	0	0	5	100	9	100	20	<0.001
Difficult	6	100	0	0	0	0		
Retraction								
Light	0	0	5	100	9	100	20	<0.001
Hard	6	100	0	0	0	0		
Implant delivery								
Easy	0	0	5	100	9	100	20	<0.001
Difficult	6	100	0	0	0	0		

Detecting how much the skin laxity affects the choice of the implant and should be considered and well assessed preoperative to achieve suitable size which may satisfy the patient needs.

Analyzing the relation between the degree of skin laxity and profile of the implant showed in Table 4 positive relation between them with p value (0.009). So in creased skin laxity leads to choosing higher implant profile to accommodate this increase.

Also there was positive linear relation between the degree of skin laxity and the size of implant even within patient with equal chest wall diameter and plant base (Figure 1). This also accompanied with significant be value between both the skin laxity degree and the implant size (p value <0.001).

Tebbetts and Adams [3] mentioned that having determined an optimal volume for each patient's envelope should be done before selecting implant type and dimensions and this to help controlling the distribution of that volume within the breast. For any specific volume, implant width, projection, and height can vary. Both also stated that optimal volume for a breast soft-tissue envelope is the least volume that is required to either

1. Achieve the desired result in a previously unstretched breast (or)

2. Adequately fill already stretched envelope but with optimal soft-tissue coverage to minimise unfavorable tissue effects by the implants.

Adams and Mckee [7] concluded that there is some evidence to support tissue-based planning as a superior approach to implant size selection planning; studies that used tissue based planning reported lower re operation rates compared with industry standards and accepted literature values.

Conclusion

Many factors affect the choice of breast implant one of these factors is the degree of skin laxity. Degree of skin laxity directly affects the size and projection of breast implant. Depending only on

chest wall diameter without accurate assessment of skin laxity and stretchability will affect the post operative out come and patient satisfaction.

References

1. Murphy DK, Beckstrand M, Sarwer DB. A prospective, multi-center study of psychosocial outcomes after augmen- tation with Natrelle silicone-filled breast implants. Ann Plast Surg. 2009;62(2):118-21.
2. Sarwer DB. The psychological aspects of cosmetic breast augmentation. Plast Reconstr Surg. 2007;120(7 Suppl 1):110S-7.
3. Tebbetts JB, Adams WP. Five critical decisions in breast augmentation using five measurements in 5 minutes: The high five decision support process. Plast Reconstr Surg. 2006;116(7):2005-16.
4. Adams WP Jr, Mallucci P. Breast augmentation. Plast Reconstr Surg. 2012;130(4):597e-611.
5. Hidalgo DA, Spector JA. Breast augmentation. Plast Reconstr Surg. 2014;133(4):567e-83.
6. Adams WP Jr, Small KH. The Process of Breast Augmentation with Special Focus on Patient Education, Patient Selection and Implant Selection. Clin Plast Surg. 2015;42(4):413-26.
7. Adams WP Jr, Mckee D. Matching the Implant to the Breast: A Systematic Review of Implant Size Selection Systems for Breast Augmentation. Plast Reconstr Surg. 2016;138(5):987-994.