Primary Breast Augmentation with Silicon Implant

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ABSTRACT

Introduction: Breast augmentation remains one of the most commonly performed cosmetic procedures. It is a surgery of breast in order to increase its size by placing breast implants under breast tissue or chest muscles. Silicon implant is used for both cosmetic and reconstructive reasons. The purpose of this study was to evaluate the outcomes of primary breast augmentation with silicon implant.

Methods: A retrospective study was performed in patients who underwent silicon based breast augmentation through inframammary in submuscular dual plane, between February 2017 and January 2019. Surgical outcomes were evaluated and Patient satisfaction was measured using the BREAST-Q Augmentation Module.

Results: This study involved a total of 32 patients (i.e. 64 breasts),19 patients were mongoloid and 12 were non mongoloid. The average age was 32.25 years (range: 20-45 years) between a follow up period of 24 months.The size of breast implant ranged from 240-340 cc. Thirty-one patients were satisfied with the outcome. Seroma was noted in two patients. One of the patients was not satisfied and was noted with capsular contracture within follow-up period. Fifteen patients were used with implant size 280 cc. All patients were able to go to normal daily activity after seventh post-operative day.

Conclusion: Breast augmentation with silicon implant have potential to produce more satisfactory and aesthetically pleasing results with low revision rates. Eventhough various techniques are existing in breast augmentation but still universal standard technique is controversial.

Keywords: Breast Augmentation; Dual Plane; Inframammary; Silicon Implant; Submuscular.

INTRODUCTION

Breast augmentation surgery is continuingly increasing in importance of body image, changes in social expectations and aesthetic acceptance. Vincent Czerny performed first breast augmentation for partial mastectomy in 1895.[1] Later on, various alloplastic materials were used but could not be continued as they caused harm to the tissue.[2] Since the introduction of silicone gel prosthesis in 1963, breast augmentation technique has become progressed and commonly performed procedure in cosmetic surgery.[3] Breast augmentation has evolved not only technically, but also in quality and diversity addressing specific needs including types and sizes of the chest.[4] Variables such as type of incision, plane of insertion of the implant, and implant characteristics have previously been addressed in the literature.[5–7]

In cosmetic surgery, silicon implant breast augmentation is the leading procedure as toxic injectable like liquid silica and polyacrylamide were banned.[8–11] Ideal shape and size of breast varies according to cultural and individual preferences. Due to variation in ideal breast structure safety of implant, shape and volume has range of choices. Unfortunately, inadequate breast volume,

visible asymmetric breast causes low self-esteem and the mindset of disproportionate figure. After pregnancy, breast-feeding, weight fluctuation and age related factors cause loss of breast elasticity leading sagginess. Due to great result with high satisfaction, quick recovery and low revision, breast augmentation with silicon implant is widely performed. As demand for breast augmentation rises, it behooves plastic surgery community to document and publish pertinent experience to establish evidence based practice guidelines for breast augmentation in Nepal.

METHODS

A retrospective analytical study was conducted in Annapurna Hospital with the approval of Institutional Review Committee (IRC). A total of 32 patients were included in this study. They underwent to request breast augmentation between February 2017 and January 2019. Written informed consent was obtained from all patients and anonymity was assured. Surgery was performed by single surgical team.Demographic characteristics (age, weight, and height), ethnicity, marital, pregnancy and breast feeding status, and implant related and surgical complications (hematoma, infection, seroma and capsular contracture) were taken from patients' medical history charts.

In the initial consultation, implant options were discussed in details with patient. Implant was selected using modified version of the High Five Decision Support Process.[12] The advantage and disadvantages of implant placement, incision were discussed and advised to undergo submuscular through inframammary incision. Every decision is made in close consultation with the patient, taking patients' desires and expectations, as well as patient's anatomy into account.

Surgical Technique

Preoperative bilateral infra mammary fold (IMF), upper pole and midline were marked on standing position. New infra mammary crease is placed slightly lower than existing IMF crease depending on projected implant volume and position of areola and nipple. The IMF was underdeveloped and new IMF was set at 7cm inferior to nipple at 6 o'clock position. 3 ml of 2% xylocaine with epinephrine 1:100,000 injected at 4 cm incision in the center of breast meridian. The lateral border of pectoralis muscle was identified and elevated. Pectoralis fascia was incised to develop sub muscular plane with minimal disruption of muscular fibers. The inferior and inferomedial attachments of the pectoralis muscle were divided until the lateral border of sternum reached. The submuscular pocket was created precisely with digital maneuver under direct visualisation. Meticulous hemostasis was achieved in direct vision and drains were not routinely used. The implant was placed in their containers with a bath of antibiotic solution during pocket dissection and pocket was irrigated with antibiotic solution containing 1 gm of cefazolin, 80mg gentamicin and 500 ml normal saline.

Surgeon gloves were changed and washed with antibiotic solution before implant insertion and preparation. Implants were inserted in a subpectoral pocket with minimal or no skin contact with subsequent digital manipulation. Then patient was placed in a semi-fowler position by raising head of the table and bilateral breasts were assed for proper placement of implants, symmetry and overall appearance.

The incision was closed in layers, fascia was closed with 3.0 vicryl, followed by 4-0 vicryl dermal and skin with 5-0 prolene sutures.Average operative time for both breasts ranged from 90-110mins. Ointment Neosporin dressing was done. Compressive bandage with appropriate pressure applied and to support lower pole of the breast. All the patients stayed in hospital for 1 day after surgery for observation and were discharged next day after dressing. Sutures were removed on 7th postoperative day.

Postoperative evaluation

Patients were evaluated postoperatively at 1st day, 3rd day, 7th day, 15th day, 1st month, 3rd month, 6th month, 12th month, and 24th month. Hematoma, infection, seroma, size, shape, symmetry, distortion, rippling, capsular contracture and any other associate complications were assessed by same operating surgeon. Patients were given enough time to ask questions and review concerns at each visit.

All patients were instructed to wear fitted soft sports bra for 4 weeks of postoperative and to avoid underwire brassieres, lifting or carrying heavy objects and strenuous physical activities for 6 weeks after surgery.

Inclusion criteria included were who desired to undergo breast augmentation and were selected from outpatient clinic. All patients were informed about their choices to refuse to participate. Age ranges from 20-45 years and body mass index 19-25kg/m2. Exclusion criteria were previous breast surgery, family history of breast cancer, medical comorbidities, Poland syndrome, implant exchange, smoking. Data were collected from self-developed Performa and BREAST-Q questionnaires were used to evaluate patient satisfaction after breast augmentation by using BREAST- Q Version 2.0 C Augmentation Module Pre and

Post-operative scale, English Version.[13] A questionnaire Performa was sent asking for participants through email or phone call who were not able to visit for follow up.

RESULTS

A total of 32 patients received 64 silicon breast implants, 19 patients were mongoloid and 12 patients were nonmongoloid. Mean age was 32.25 years (range from 20-45 years), mean BMI was 21.91 (range from 19-25 kg/m2).The size of breast implant ranged 240-340 cc. Fifteen patients with implant size 280 cc were used in 26-40 years age group. Implant distributed as per ethnicity, marital status, post pregnancy, breast feeding status and age group is presented in tables 1 & 2.

Table 1: Distribution of Implant as per Ethnicity, Marital and Post Pregnancy Status

Ethnicity			Total
	Pre pregnancy	Post pregnancy	
Mangolian	16	3	19
Non-Mangolian	2	11	13
Total	**18**	**14**	**32**

Table 2: Distribution of Implant Sizes in relation to Age

Age Group (yrs)	Implant Size(cc)						Total
	240	260	280	300	320	340	
21-25	3	3	0	0	0	0	6
26-30	0	5	2	0	0	0	7
31-35	0	1	5	1	0	0	7
36-40	0	0	6	1	0	0	7
41-45	0	0	2	1	1	1	5
Total	**3**	**9**	**15**	**3**	**1**	**1**	**32**

Table 3: Satisfactory level with Implant size

Implant size(cc)	Satisfaction level			
	Very dissatisfied	Somewhat dissatisfied	Somewhat satisfied	Very satisfied
240	0	0	1	2
260	1	0	0	8
280	0	0	1	14
300	0	0	0	3
320	0	0	0	1
340	0	0	0	0
Total	**1**	**0**	**2**	**29**

Two patients developed seroma in implant sizes 240cc and 280cc, that resolved spontaneously without surgical intervention. Capsular contracture was noted in one patient after 24 months of surgery in implant size 260cc in 26-30 age group.

All patients were able to go on normal daily activity after seventh post-operative day. All patient maintained normal sensitivity in and around nipple-areolar complex. All of the patients received round, smooth silicon implant, with profiles and diameters in accordance to their needs and based on the dimension of breast (base width and nipple-to infra mammary-fold distance), distance between NAC (nipple areolar complex) and midsternal and mid clavicular line. Implant was assessed according to the manufacturer's instructions. All implant was placed in subpectoral with dual plane technique 1.[13] Satisfaction was evaluated through information questionnaire Performa by patients, attending surgeon and office staff.

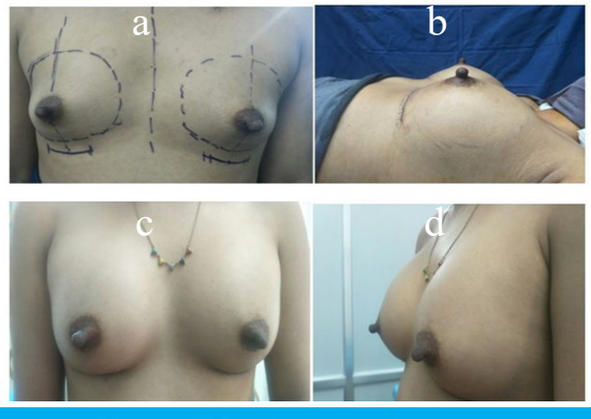

Figure A: 32 years old with primary breast agumentation with smooth silicon implant Preoperative inframammry incision marking(a), postoperative immediate lateral view(b), front(c) and lateral(d) view of postoperative at two years with IMF stable.

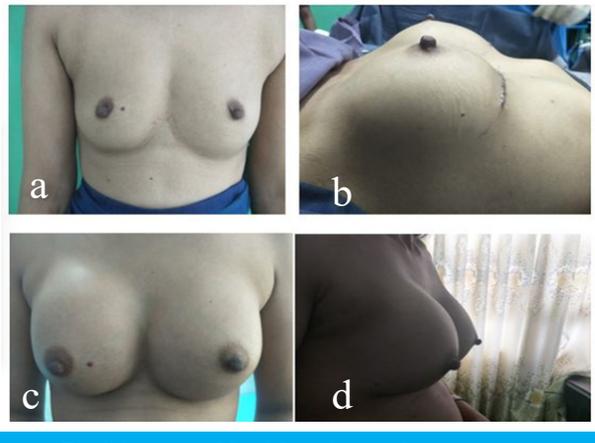

Figure B: 36 years old with primary breast agumentation with smooth silicon implant.
Preoperative front view(a) postoperative immediate lateral view(b), front(c) and lateral(d) view at 18 months of post-operative with maintainance of IMF position.

DISCUSSION

In the field of aesthetic surgery, breast augmentation remains one of the most commonly performed cosmetic surgical procedures.[8,9] Breast augmentation not only improves body image disproportionate, it helps in improvement of quality of life, self-confidence and social well-being as well. Breast augmentation with safety of the implants paired with a high patient satisfaction and low revision rate has made this procedure very suitable and desirable in selected cases. Author implemented consistently following precise steps in breast augmentation surgery to minimize complications and to increase more satisfactory outcome.

There are evidences in aesthetic breast augmentation in comparing different types of implants and different techniques.[14,15] Surgical and implant related complications still remains in aesthetic augmentation mammoplasty. Capsular contracture was noted in one (3.13%) patient in this study. Other studies reported 0% to 15% of capsular contracture in primary breast augmentation.[16,17]

All patients were discussed with details of risk and benefits of the procedure. The implant selection was based on objective tissue-based planning, matching the feel of the breast to the cohesivity, the viscoelastic properties of the device, and the aesthetic goals of a well-educated patient.[18,19] The breast type is the most important key for selecting the implant. Looser, emptier breasts may be better suited to more elastic, less cohesive whereas very tight breasts may benefit from a more cohesive, less elastic that can produce shape over time.

The infra mammary fold (IMF) incision remains the most popular to which all other incisions are compared.[20,21] It provides easy access and clear visualization of pockets, with the potential for the least trauma and contamination. Breast is a changeable structure, however best Placement of breast implant in sub muscular with dual plane technique can improve symmetrical, height and fullness of breast more naturally and postoperative complications can also be reduced. Three types of dual plane approaches have been described, with each level describing increasing degree of release of anterior pectoral fascial attachments from overlying glandular tissue. Dual plane I features of release of anterior pectoral fascial attachments from overlying glandular tissue. Dual plane I features division of the inferior pectoral origin without further fascial release, dual plane II adds release of anterior pectoral fascial attachments to the level of the inferior areolar border and rotation of the inferior origin of the pectoralis, while dual plane III involves fascial release and rotation at the level of the superior areolar border.[22] The placement of the implant in submuscular, which is avascular plane, helps to markedly decrease bleeding and risk of Hematoma.

Antibiotic irrigation is used in all cases to prevent capsular contracture. Minimal implant manipulation and skin contact during implant insertion is to reduce contamination. Our recommendation is to minimize the bacterial contamination during surgery, in accordance with strategies for prevention of device-associated infection in breast prostheses.[23] It will be thought that to take all steps precisely during consultation and surgery that will ensure to achieve high level patient satisfaction and pleasing result. As we share our experiences of cosmetic augmentation mammoplasty that will continue to grow and popular in the field of plastic surgery.

This study represents narrow group of patients performed in single center by single surgeon. Patients underwent breast augmentation with round, smooth silicon implant using single manufacture with inframamary approach in submuscular placement. This study is measured in patient based outcomes rather than implant based outcomes. This study was evaluated only in primary breast, could not cover reconstructive secondary breast augmentation and outcome. Autologous fat injection is another alternative opt to augment breast, but it was constraint in this study because of fat grafting included possible need for multiple procedures, limited augmentation potential and cost, with different reason within given countries.Radiological intervention will be recommended to evaluate the impact of silicon implant and volumetric changes on primary breast augmentation.

CONCLUSION

Breast augmentation has potential to produce naturally long lasting, more satisfactory and aesthetically pleasing results with extremely low revision rates. Satisfactory result can be achievable with meticulous patient education, implant selection, breast type and measurements, and patient's desires. The surgical procedure with placement of implant, and precise steps are taken to minimize bacterial contamination of the device and pockets are equally important to produce satisfactory outcome. Long term care should be taken to same as other implanted prosthetic device guidelines. Various techniques are existing in breast augmentation but still remain controversial in universal standard. Furthermore evidence based practice guidelines will certainly help to improve outcome as well as standardize this common surgical method.

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