New approach for subfascial breast augmentation

Ayman Reda, Tamer M. Said, Sherif Mourad

Department of General Surgery, Ain Shams University Hospitals, Cairo, Egypt

Correspondence to Tamer M. Said, MD, 16 Foud Badwany Street, Nasr City, Cairo, Egypt
Tel: +20 111 362 3458; fax: 22874687;
e-mail: drtamer1981@hotmail.com

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Context
Despite many years of experience, there is still an ongoing debate over the potential benefits of incision site, anatomical pocket, and the types of breast implant.
Aim
The aim of this study was to evaluate a new approach for subfascial breast augmentation as regards the site of incision and the plane of placement of the silicone implant.
Patients and methods
Twenty-five female patients suffering from bilateral breast atrophy underwent breast augmentation through an incision made in the pectoral fold along the anterior axillary line, with insertion of the implant in the subfascial plane, deep to the pectoral fascia.
Statistical analysis
Continuous variables were expressed as mean and SD. Categorical variables were expressed as frequencies and percentage.
Results
During the postoperative follow-up period, the breast projection was optimal in all patients with establishment of the superior mammary slope and the inferior pole of the breast, with good reconstruction of inframammary fold and adequate breast volume, and both breasts were symmetrical in all patients.
Conclusion
The subfascial insertion of breast implant through an incision along the anterior axillary line has a low complication rate compared with any other technique and leads to better cosmetic results and high patient satisfaction.

Keywords:
breast augmentation, breast implant, subfascial breast augmentation

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Introduction

Female breast is considered a crucial sign of femininity among women all over the world. Therefore, it is not surprising that women seek cosmetic changes in their breasts for reasons including feelings of inadequacy and lack of confidence in their femininity and desirability, which highlights the great psychological benefits of breast augmentation [1].

Most surgical techniques for breast augmentation are based on the implantation of a silicone implant in the subpectoral or subcutaneous pockets [2]. However, these techniques are not able to predict the final shape of the breast after the intervention, and their success relies entirely on the surgeon's skill [1].

Breast reconstruction aims to replace breast volume with restoration of breast symmetry, establishment of superior mammary slope and inferior pole of the breast, and reconstruction of inframammary fold [3].

In the last 50 years, breast implants have been widely used for breast reconstruction and augmentation [1]. Improvements in the implant design that were achieved over time have led to corresponding improvements in safety and esthetic outcomes of the surgery [1]. However, in a 25-year prospective population-based study [2], capsular contracture and malposition were reported as the first and third most common complications after breast implantation, respectively.

Despite many years of experience, there is still controversy over the potential benefits of the site of incision, the anatomical pocket, and the types of implant (e.g. textured surface, anatomical shape, and gel-fill type) [3–6]. The association between periareolar, axillary, or inframammary surgical incisions and the risk of capsular contracture and wound complications was not well documented in clinical trials [7,8]. However, some reports were published on the benefits of textured surface devices, which showed reduced risk for capsular contracture compared with smooth surface devices when they are placed in the subglandular pocket [9–11]. Nonetheless, it is still unclear whether

subpectoral placement of the implant gives the same results as subglandular placement [9–11].

Aim of the study

This article aims to evaluate a new technique for subfascial breast augmentation with respect to the site of incision and the placement of the silicone implant.

Patients and methods

This study was performed on 25 patients with ages ranging from 18 to 28 years (with a mean age of presentation of 23.3 years) suffering from bilateral breast atrophy. The trial was conducted from January 2014 to June 2015. All statistical procedures were carried out using SPSS version 15 for Windows (SPSS Inc., Chicago, Illinois, USA).

All patients presented with bilateral breast atrophy and normal hormonal profile. Patients with the following criteria were excluded from the study: failure of previous augmentation, presence of breast lump, previous breast surgery, having discharge per nipple, pregnant or lactating women, or refusal to undergo the procedure with its modifications.

Approval of the procedure was obtained from the ethical committee of the Faculty of Medicine at Ain Shams University. Informed written consent was obtained from all patients included in this study.

Preoperatively, all patients were assessed through a detailed history and full clinical examination. Routine preoperative investigations with full hormonal study (estrogen, progesterone, luteinizing hormone, and follicle-stimulating hormone) and radiological examination (breast sonomammography) were performed for all patients.

Before the start of the operation in the operative room, in a standing position, the patients were labeled with several marks on the lateral border of the sternum, anterior axillary crease, the inframammary fold, and the inferior margin of dissection. Round cohesive implant with volume ranging between 175 and 350 ml was used.

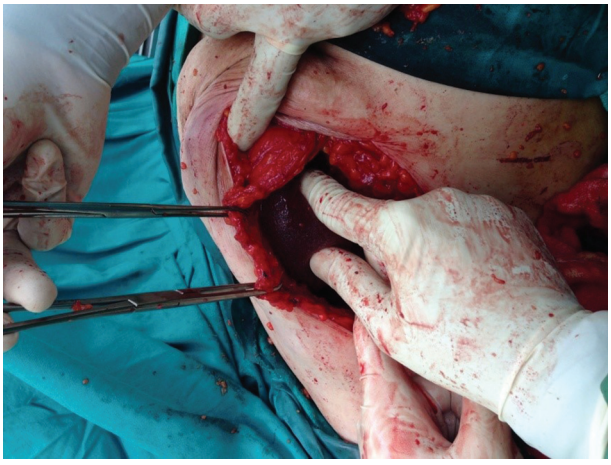
The operation was performed under general anesthesia. All patients were placed in the supine position with both arms fully abducted, and prophylactic antibiotics (100 ml metronidazole and 1.2 g amoxicillin and clavulanic acid) were given to all patients. Sterilization of the target area was performed with povidone iodine.

During the operation, the incision was made in the pectoral fold along the anterior axillary line, instead of inframammary, transaxillary, transverse, or circumareolar incision. Subsequently, the lateral border of the pectorals major muscle was approached by sharp dissection using diathermy (Fig. 1).

The pectoral fascia was identified and elevated from the muscle by means of both sharp and blunt dissection, creating an adequate space underneath the pectoral fascia that precisely fits the implant. Final shaping of the breast was achieved by repeated evaluation and adjustment of the place of the implant (Fig. 2).

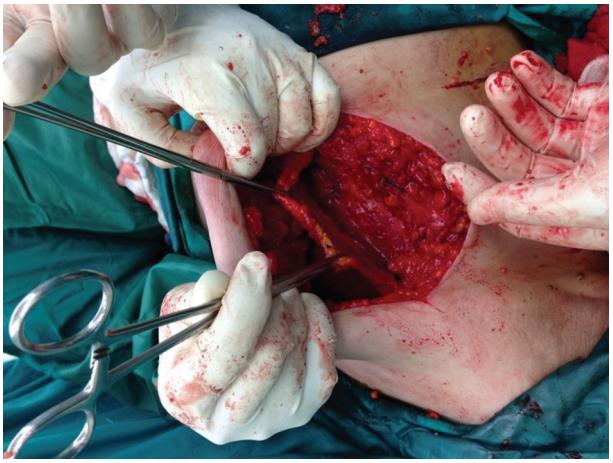
Proper homeostasis that was followed by insertion of vacuum suction drain in the subfascial space was performed before final insertion of the implant. Finally, closure of the lateral border of the pectoral fascia

Figure 1



Combined sharp and blunt dissection along the lateral border of the pectoralis muscle.

Figure 2



Subfascial plane after dissection.

and the subcutaneous tissue and skin was performed (Fig. 3).

At the end of operation, insertion of the implant in the subfascial space with hidden scar along the anterior axillary line was performed (Fig. 4).

Oral intake was only allowed after 3 h following surgery. Treatment was continued with antibiotics and flagyl for 10 days with frequent dressing. Suction drain was removed after delivering less than 20 ml serous fluid.

The follow-up period ranged between 2 and 4 months. Patients visited the outpatient clinic 1 week after surgery and once every month. Postoperative scar, ptosis or misplacement of the implant, skin complication, and overall patient satisfaction were recorded at every hospital visit.

Results

Twenty-five patients suffering from bilateral breast atrophy with a mean age of 23.3 years were enrolled in our study. The intraoperative time ranged from 30 to 75 min, with a mean operative time of 60.2 min. No intraoperative complications occurred and none of the patients needed blood transfusion (Table 1).

The postoperative hospital stay ranged from 1 to 2 days. Suction drain was removed after 7–13 days of surgery (mean time = 9.5 days) when it delivered less than 20 ml serous fluid. No seroma or hematomas were observed after removal of the drain. Stitches were removed after 10–12 days of surgery after complete healing of the wound (Fig. 5).

During the follow-up visits, no ptosis or misplacement of the implant was observed and no skin complications occurred. All wounds healed by primary intention with no early or delayed wound complications. As regards the breast shape, the breast projection was optimal in all patients with the establishment of superior mammary slope and inferior pole of the breast with good reconstruction for inframammary fold. Adequate breast volume and symmetry of both breasts were achieved in all patients. No mortality or morbidity related to the operation was recorded.

Discussion

Despite the great advances achieved in surgical techniques and implant design, there is still debate over breast augmentation surgery with respect to the type and size of the implant and the pocket plane of its placement [12]. The anatomical site of the implant plays an important role in the final cosmetic shape of the breast and in the types of complications that may occur [13]. Most of the implants are placed either in the subglandular pocket or in the submuscular pocket, with each one of them having its own advantages and disadvantages. Subfascial insertion of the implant serves as a better alternative that combines the advantages of both position

Table 1 Age, operative time, duration of suction drain insertion, duration of stitches, and postoperative hospital stay

	Mean ± SD	Minimum	Maximum
Age	23.3 ± 4.6	18	28
Operative time (min)	60.2 ± 11.1	30	75
Duration of suction drain insertion (days)	9.5 ± 2.2	7	13
Duration of stitches (days)	10.7 ± 0.8	10	12
Postoperative stay (days)	1.2 ± 0.3	1	2

[a]Student's *t*-test.

Figure 3

Final shape of the breast after skin closure.

Figure 4

Shape of the breast after 2 months of the operation.

Figure 5

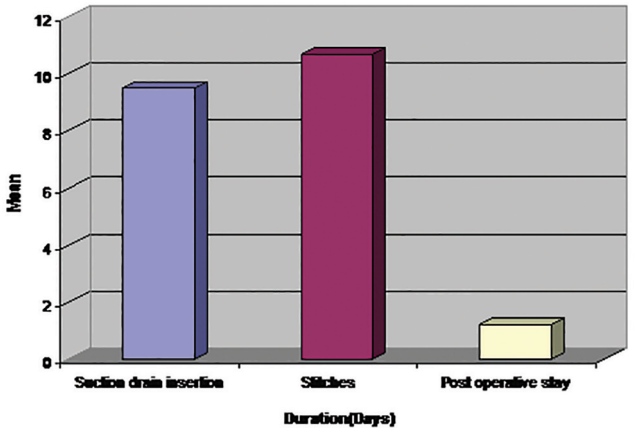


Illustration of postoperative data.

and achieving better cosmetic results with fewer complications [12].

In our study, breast implant was inserted in the subfascial plane (deep to the pectoral fascia only) through the anterior axillary line incision instead of the circumareola, inframammary, and transaxillary incisions. All wounds were healed by primary intention with no early or delayed wound complications. In addition, this incision achieved better cosmetically hidden scar.

In our opinion, the anterior axillary line incision provides a direct approach with maximum visualization of the implant pocket and independent plane of dissection. Moreover, the nipple areola complex was avoided and there was no need for dissection within the breast or axillary tissue. Therefore, this approach allows a more precise atraumatic dissection that minimizes the accumulation of fluid within the peri-implant space and reduces exposure to tissues colonized with bacteria (e.g. mammary glands).

In our experience, there was no seroma or hematoma observed after removal of the drain as previously shown in another study conducted by Ventura and Mrcello [14] in 2005. However, in their study there was dissection to the fascia covering the pectoralis major muscle, the serratus, the lateral oblique, and the rectus anterior muscles. In contrast, in our study the dissection of fascia was minimal and was limited to fit the size of the implant, which minimized the risk for seroma collection.

Another study conducted by Marco *et al.* [15] in 2012 showed that 38 women with small asymmetrical breasts were treated with adjustable implant on the smaller breast side and with fixed volume implant on the other side. The implant pocket was subglandular in 14 cases, subpectoral in 14 cases, and dual plane in 10 cases. They observed delayed wound healing in one case, hematoma in one case, and seroma in another case, which is considered a high rate of complications in comparison with our technique.

In our study, there was no capsular contracture, and breast projection was optimal in all our patients with the establishment of the superior mammary slope and the inferior pole of the breast with good reconstruction of inframammary fold. During the follow-up period, no ptosis or misplacement of the implant was observed. These results are in accordance with another study performed by Ahmed *et al.* [13] in 2011, who stated that, when fascia is dissected from the lateral side without involving its superior or inferior attachment, it provides strong supporting layer for the implant and thus prevents its displacement superiorly or inferiorly, keeping it in place. In addition, their average operating time was 75 min and two patients developed postoperative bleeding, whereas in our study the average operating time was only 60.2 min and there were no postoperative complications.

In another study performed [16], it showed that placing implants in a subpectoral position was associated with a lower risk of developing capsular contracture or moderate and severe malposition. However, they are less visible especially with muscle contraction, which results in less patient satisfaction in contrast to our approach. Therefore, subfascial approach has the advantage of subglandular approach with the benefits of subpectoral approach [13].

Conclusion

Subfascial insertion of breast implant through incision along the anterior axillary line is a new approach, which has a low complication rate compared with any other technique, leading to better cosmetic appearance with high patient satisfaction. However, this is a pilot study that needs more time and more patients for evaluating its preliminary results.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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