Endoscopic Transaxillary Silicone Gel Filled Breast Augmentation: Early Experience in Egyptian Females

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ABSTRACT

Background: *Breast augmentation is a commonly performed procedure in the aesthetic surgery practice. Several approaches have used to perform breast augmentation.* ***Objectives:*** *The aim is to evaluate the use of endoscope in transaxillary breast augmentation in Egyptian females.* ***Patients and Methods:*** *Twenty patients were enrolled in the study. All of them presented with breast atrophy without ptosis. Subglandular pocket was done in 12 cases while dual plane was used in 8 cases.* ***Results:*** *Among all of the patients there were no major complication. Patients' satisfaction was great.* ***Conclusion:*** *Endoscopic transaxillary breast augmentation is a safe, reproducible technique with satisfactory results.*
Key words: *Breast - Endoscopic - Transaxillary*

INTRODUCTION

Breast augmentation has been a commonly requested procedure in the plastic surgery practice. It has been one of the operations in plastic surgery that markedly benefited from the advances in medical equipments and implant industry [(1)].

Three traditional approaches have been used over decades to perform breast augmentation: inframammary, periareolar and transaxillary approaches. The most commonly used is the inframammary approach. However, the only approach which leaves the breast without scars is the transaxillary approach[(2)].

Introduction of endoscopy together with advances in dissection instruments led to marked improvement in the results of the transaxillary breast augmentation due to better visualization and sharp dissection techniques [(3)].

PATIENTS AND METHODS

This study was conducted in the period between November 2012 and Novemebr 2015. Twenty patients were enrolled in the study. All of them presented with breast hyoplasia without ptosis.

Exclusion criteria included breast ptosis, previous breast augmentation, previous surgery in the axilla. The indication for using the transaxillary approach is the patient's desire to have the scar away from the breast.

Laboratory investigations were done in the form of coagulation profile complete blood picture, fasting blood sugar, liver and kidney function tests. Mammography and breast ultrasound were requested in patients above 35 years old.

Preoperative markings and measurements were performed to detect the expected size of the implant, the extent of pocket dissection, the existing and new inframammary fold. The markings were done while the patient is standing up. This is followed by standard photographs.

All patients were operated upon under general anaethesia 1 gram of IV ceftriaxone was given with induction of anaesthesia. The patients were put in the supine position with the arms . The location of the scar is extremely important to prevent easy visibility of the scar. The incision is located in the apex of the axillary hollow.location is in the hairbearing skin of the deepest apical portion of the axillary hollow **(Figure 2)**. Incision length can vary from 2 to 6 cm to accommodate varying implant sizes. The pocket is dissected either in the subglandular plane **(Figure 3)** or in the submuscular plane to perform dual plane breast augmentation **(Figure 4).** Intravenous cannulae can be inserted percutaneously in the inframmary fold to guide the dissection **(Figure 5)**. Once the pocket dissection is completed, irrigation was done using a solution of normal saline and gentamicin . This

is followed by insertion of the implant using no touch maneuvers. No suction drains were used in this study. The wound was closed carefully in 2 layers. An elastic band was applied over the superior pole of the breast for 6 weeks to prevent upward migration of the implant. The patients were discharged the day after surgery on oral amoxicillin-clavulanic tablets and oral analgesics.

The patients were reviewed 1 day postoperatively, then after one week, 2 weeks, one month, 3 months, 1 year and 18 months.

Information was collected regarding implant properities, implant location, operative time, aesthetic result, patient satisfaction and complications. Complications were classified into 2 groups. Group A: Implant related complications in the form of asymmetry, malposition, rippling, infection, hematoma, seroma and capsular contracture. Group B: Incision related complications, wound dehiscence, surgical site infection, hypertrophic scar/keloid and subcutaneous band formation. Overall patient satisfaction with the breast appearance was rated on a scale of 1-5: 1 - poor, 2 - fair, 3- good, 4 - very good and 5 - excellent.

Fig.(1): The endoscopic instruments used in this technique

Fig. (2): Identification of the lateral border of pectoralis major and starting the dissection of the subpectoral pocket

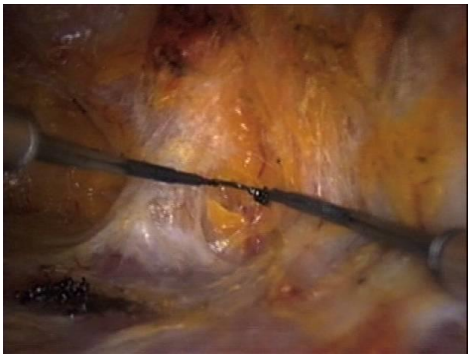

Fig. (3): Intraoperative photo showing sharp dissection of the breast in the subgandular plane using the electrocautery

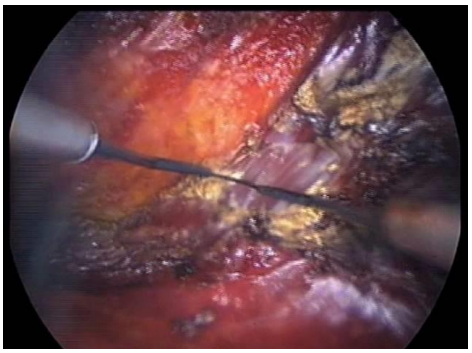

Fig. (4): Intraoperative photo showing cutting of the lowermost medial fibers of the pectoralis major muscle origin during dual plane breast augmentation

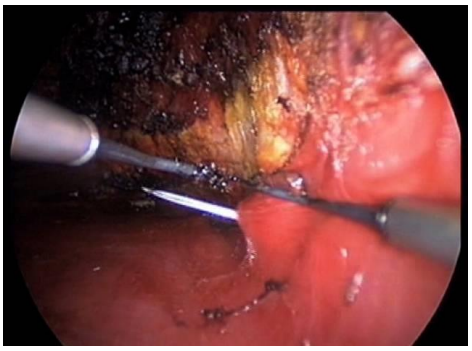

Fig. (5): Intraoperative photo showing insertion of an IV cannula percutaneously through the inframammary fold to guide the dissection

RESULTS

The average operating time was 90 minutes (range from 60 to 120 minutes). The operating time was longer in the early cases and reached one hour time in the late cases of this study.

Among all of the patients, there were no major complications including hematoma, implant rupture, penumothroax or instrument related skin burns.

Table (1): Implant related complications

Items	*No.*
Asymmetry	1
Malposition	-
Rippling	-
Capsular contracture	-
Muscle contraction associated deformities	-

Table (2): Incision related complications

Items	*No.*
Wound dehiscence	-
Infection	-
Hypertrophic / Keloid	2
Subcutaneous hand	-
Upper arm hypothesia	-

Table (3): Patient satisfaction

Items	*No.*
Poor	0
Fair	0
Good	4
Vary good	8
Excellent	8

Table (4): Pocket location

Items	*No.*
Subglandular	12
Dual-plane	8

One patient complained of mild asymmetry but did not request a secondary procedure. Two patients developed hypertrophic scars that were treated conservatively.

All the implants used in the study were high profile textured round silicon gel implants. The average size was 340 c.c (range from 280 to 400 c.c)

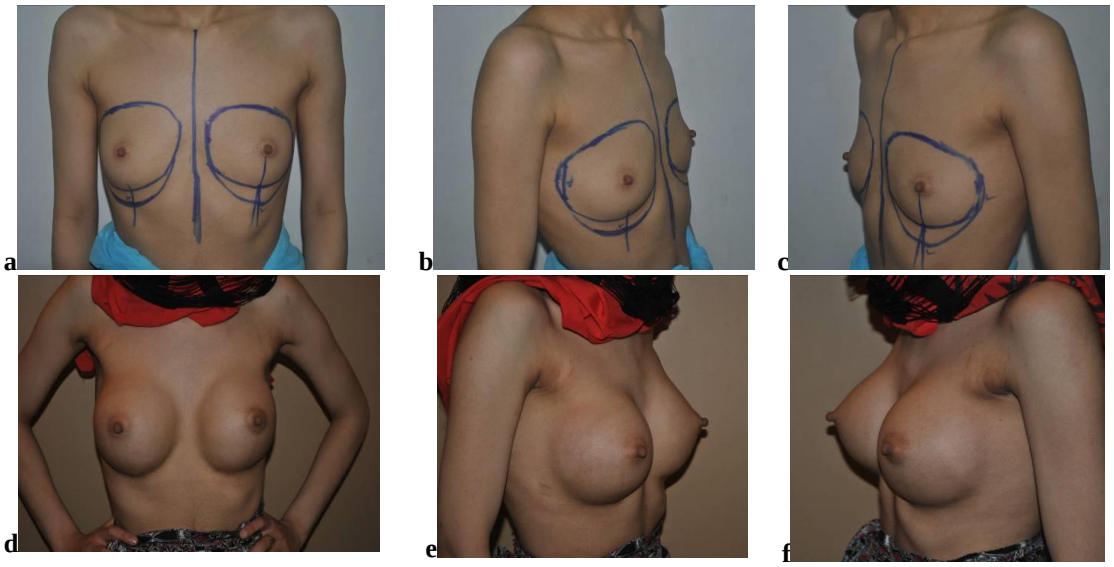

Fig. (6): A 28 year old female patient who underwent subglandular endoscopic transaxillary breast augmentation.

Fig. (7): A 23 year old female patient who underwent dual plane endoscopic transaxillary breast augmentation: a,b,c...preoperative photos....d,e,f....one month postoperatively.....g: Silicone sheets were used for prevention of hypertrophic scars.....h: 2 months postoperatively with improvement of the scar quality

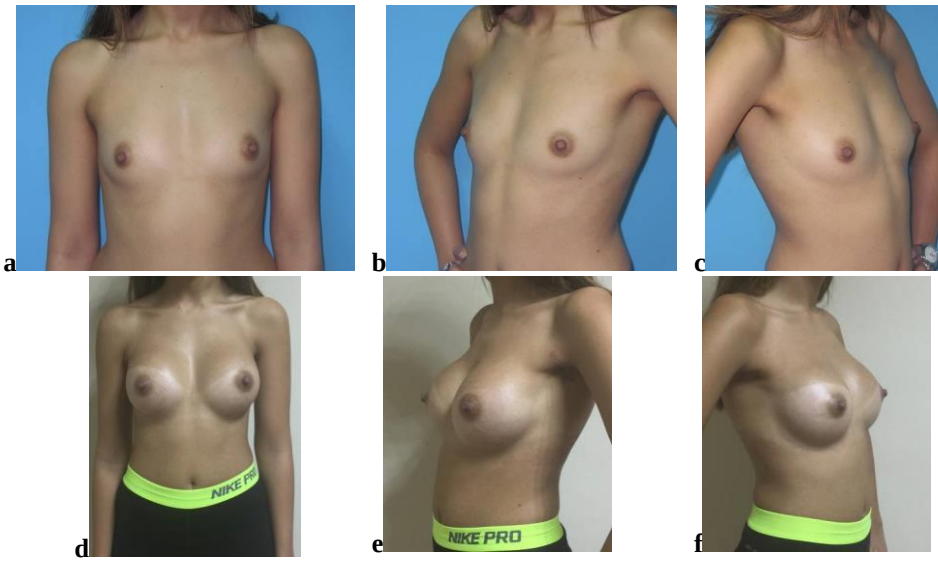

Fig. (8): A 24 year old female patient who underwent dual plane breast augmentation with lowering of the inframammary fold through the transaxillary route : a,b,c: preoperative...d,e,f : postoperative after 3 months.

DISCUSSION

Breast augmentation is a commonly requested procedure in the aesthetic surgery. Several approaches are being used, like the inframammary approach, the periareolar approach and the transaxillary approach, aiming to maximize safety and enhancing the aesthetic outcome and patient satisfaction[(9)].

Since its introduction by Hoehler in 1973, transaxillary breast augmentation (TBA) has been used as a well recognized approach for breast augmentation. The main drive for the plastic surgeons to improve the technique was the main advantage of the technique which is placing the scar away from the breast mound. Throughout the years, the TBA technique has evolved from dissection blindly in a totally blunt way to what is adapted nowadays using sharp electrocautery and direct endoscopic visualization throughout the entire procedure[(4)].

TBA technique without visualization has been associated with high rate or complications and less favorable results. One of the main limitations is the difficulty to achieve adequate hemostasis especially in the inferomedial part of the pocket where manual compression and irrigation were the only available tools to perform hemostasis. Even after control, the blood stained tissues are claimed to be associated with increased incidence of capsular contracture. The technique was also associated with increased postoperative pain and delayed convalescence. This may be attributed to trauma of the rib periosteum and perichondrium caused by blunt dissection[(1)].

Aesthetic outcome was less favorable because of the difficulty to create precise pockets and achieve symmetrical inframammary creases. In addition to the fact that inadequate release of the pectoralir major fibres resulted in irregular and inadequate expression of the lower pole of the breast resulting in high riding implants.

An evolution in the technique was performing the dissection with a blunt equipment followed by introduction of the endoscope for hemostasis and pocket control. This allowed more precise dissection and less bleeding, but tissue damage from blunt dissection was inevitable. Recent studies, including this study, advocated the use of sharp electrocautery under direct endoscopic vision all through the procedure. This helped to achieve a bloodless pocket with sharp non traumatic dissections.

The main advantage of the transaxillary route is the placement of the scar outside the aesthetic unit of the breast. However being in the axillar is not a guarantee that the scar is completely hidden. The surgeon must pay strong attention during planning, wound closure and in the postoperative period so that no wound healing problems develop that may lead to an unsightly scar. Scar visibility is related more to scar quality as a short scar may be associated with trauma to skin edges and potential damage to the shell of the implant. A recognized complication of this technique is axillary banding & scarring. Potential causes are sclerosed lymphatic channels and local thrombophlebitis. Early arm stretching and manual lymphatic drainage are useful preventive tools.

Great care must bet taken during the step of the incision to avoid injury of the intercostobrachial nerve and the medial brachial cutaneous nerves. A key step is to preserve the axillary fat pad and reaching the lateral edge of the muscle through a thin subcutaneous dissection.

This technique was initially used for subglandular breast augmentation. With the growing experience and advances in equipments and facilities; submuscular, muscle splitting and dual techniques can be excuted with optimal results[(8)]. In our early cases, patients with non ptotic symmetric breast with well defined inframammary creases were considered ideal candidates as our learning curve was in its beginning. Later on, the selection was extended to more advanced cases with breast asymmetry and tuberous breasts.

Managing tuberous breasts through transaxillary breast aumgnetation should be taken with great care. Several authors described successful management of grade I and II cases by performing vertical & horizontal sections in the breast parenchyma together with breast augmentation to achieve adequate expansion[(1)].

A critical point of debate around this technique is the feasibility of performing sentinel lymph node mapping for breast cancer treatment. Initial reports declared the feasibility of applying sentiel lymph node after transaxillary breast augmentation[(10)].

Breast augmentation is a procedure that may be associated with significant reoperation rate that may reach 15-24% at 3 years in some studies. Causes of reoperation may be capsular contracture, implant deflation, leakage or asymmetry. Patients who had their breast augmentation done through the transaxillary route would like to have their reoperation done through the same access. Many authors described a series of "endoscopic capsulectomy"[(7)]. Technical tips include extending the previous scar in the posterior not the anterior direction. In addition to keeping the implant while removing the roof of the capsule to maintain the visual cavity. In this study the short follow up period of 18 months did not allow to have reoperation cases.

Some authors have claimed that capsular contracture is more common in transaxillary breast augmentations, although this is not the case in the studies published in the last 5 years after evolution of the technique[(5)]. The two leading causes are subclinical infection and hematoma. Great effort must be exerted to avoid any potential contamination & achieve a bloodless pocket.

In this study round tectured silicone gel filled implants with different profiles were used in all the cases. Implants up to 400 c.c volume were successfully used. Larger implants may require larger incisions to avoid damaging the implant.

Applying this technique is not free of limitations. It requires a longer operative time especially in the early experience. The learning curve is steep. The technique requires an investment in equipments which may not be available in most hospitals.

Throughout the experience gained in this study, the main and only advantage of this technique is keeping the breast mound free of scars which is critical for every female patient especially in our culture. Patients now are more exposed to web-based information and data gained through the media and they became more aware about the different techniques and approaches. We believe that the choice of the approach by the patient depends mainly on how clear the information delivered to her by the plastic surgeon.

Before starting the endoscopic transaxillary approach, the surgeon must master the inframammary and perioreolar approaches and be familiar with different planes for pocket dissecdtion.

CONCLUSION

For every patient, the resultant scar is a major determinant of patient satisfaction. The only clear advantage of the transaxillary breast augmentation is scar placement away from the breast mound. Advances in instrumentation together with the accumulating experience allowed performing this technique safely with excellent patient satisfaction.

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