Breast augmentation with lipofilling

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ABSTRACT

Objective: To review our experience of the safety and efficacy of breast augmentation with lipofilling.
Design: To review our experience of the safety and efficacy of breast augmentation with lipofilling.
Setting: King Faisal Specialist Hospital & Research Center-Jeddah and Med Art Clinic, Riyadh
Subjects: Between 2006 and 2008, a total of 12 patients (age 19 – 50) underwent fat grafting procedure for various cosmetic reasons and were followed with mammography.
Intervention: Autologous fat transfer for breast augmentation
Main Outcome Measure: Patients were evaluated by comparing breast volume pre-operatively and at one year post-operatively.
Result: All women had a significant improvement in their breast size and/or shape postoperatively and all had breasts that were soft and natural in appearance and feel.
Conclusion: Fat grafting to the breast can be a useful procedure for cosmetic enhancement in patients who desire for such a procedure. It is a safe and effective treatment option with low morbidity as seen in this study. In our experience, fat transfer shows to be a promising technique for breast augmentation. It is time to consider ending the prohibition of breast fat grafting created by the 1987 position paper and encourage surgeons who do not believe in fat grafting to keep an open mind.

KEYWORDS: Mammaplasty; Autologous fat transplantation; Fat grafting; Breast


INTRODUCTION

The current standard for breast augmentation involves placement of an implant. Although implants are safe, they are foreign bodies and thus have inherent risks including infection, failure and malposition. In order to avoid the inherent risks...
of an implanted device, some plastic surgeons and patients have elected to proceed with breast augmentation from autologous tissue. Although the popularity of fat grafting is a recent development, the concept of transferring fat is not new. The first clinical fat transplantation was performed in 1893 by Neuber and later by Czerny in 1985. While it has taken more than a century for the application of fat grafting to be embraced by plastic surgeons, not all are ready to use this technique since breast augmentation by fat injection has been condemned by the American Society of Plastic and Reconstructive Surgeons [1] and others[2] as irresponsible for reason of potentially obscuring carcinoma of the breast, necessitating many biopsies to assess the numerous false positives that may arise. Although the use of autologous fat for breast augmentation has been controversial, studies have been reported that it is a useful procedure for cosmetic breast enhancement in many patients who desire such a procedure. We present our clinical findings and report our experience in performing this specific procedure.

SUBJECTS AND METHODS

Between 2006 and 2008, 12 female patients who underwent fat grafting to the breast in the plastic surgery unit of our hospitals were included in this retrospective study. Informed consent was obtained from each patient after careful explanation of the scope of the study. The ages of the patients were between 19 and 50 years old. The indicators for autologous fat grafting included cosmetic augmentation of micro-mastia, corrections of post bariatric surgery as well as post traumatic deformity. The record of each patient, including age and underlying diseases, were carefully recorded in a protocol sheet. They also agreed to undergo routine postoperative mammography. All patients were followed for a maximum of 18 months.

SURGICAL TECHNIQUE

Before the procedure began, the donor site was marked and cleansed. The fat grafts were usually harvested from the lower abdomen or the inner thighs, in accordance with the patients’ wishes. Under general anesthesia, the procedure was performed by using a manual liposuction and the harvested fats were put into 50 cc syringes. The aspirated fatty tissue is then treated by putting the syringe vertically to allow the fat to decant (Figure 1).

FIGURE 1. Decanting of the fat harvested

![Decanting of the fat harvested](image-url)
FIGURE 2. Injecting the harvested fat using a cannula into the mammary tissue through a small inframammary incision.

FIGURE 3. (Left) Before and after (right) injecting a breast tissue.

FIGURE 4. A 42-year-old female patient with hypomastia requesting for breast augmentation. The amount of the fat grafts transplanted was 300 cc in each breast. Above, preoperative views. Below, 6 months after the fat graft.
After several minutes, when the fat becomes nearly yellow, it was injected through a 5 mm incision using a blunt cannula which allowed for more dispersion of the grafted tissue in small aliquots. The incision were positioned to allow placement from at least two directions into each area grafted (Figure 2). Shaping of the breasts was accomplished by layering the fat into different levels until the desired contour was achieved (Figure 3a and 3b). This technique allows selective augmentation and contouring from the chest wall to the skin.

RESULTS

A total of 12 patients were operated on between 2006 and 2008. The age of the patients ranged from 19 to 50 years (mean = 34.5 years). The donor site in most patients was the abdomen and the thighs. Fat transplantation was successfully performed in all cases, and the time of the injection process ranged from 45 to 60 minutes for both breasts. The total amount of fat transplanted in each breast ranged from 50 to 500 ml (mean = 274 ml).

All patients were followed up from 4 to 18 months (mean = 11 months) postoperatively. Photographs of 5 of our patients are shown in Figures 4-8. Breast circumference difference increased in all cases, by 4 to 8 cm at 6 months, which corresponds to 2 cup sizes.

FIGURE 5. A 47-year-old woman who had fat transplantation for breast augmentation. The amount of fat transplanted was 500 cc for each breast. Above, preoperative photos. Below, postoperative results after 12 months.
FIGURE 6. A 35-year-old female patient requesting for breast augmentation. Above, preoperative photos. The amount of fat grafts transplanted was 350 cc in the right breast and 250 cc in the left breast. Below, postoperative views after 15 months.

FIGURE 7. A 19-year-old female had fat transplantation to increase breast volume after having post burn deformity. The amount of the fat grafts transplanted in her right breast was 280 cc. Above, preoperative photos, Below, postoperative views after 12 months.
DISCUSSION

Fat transfer for cosmetic defects has been experimented with since the beginning of the 20th century, but often with mixed results. Proponents of fat injection to the breast have agreed that this procedure provide a safe method for achieving modest breast augmentation. But doubts still remain as to not only whether the procedure is at all effective, but whether it presents the risk of calcified fat droplets masking the presence possible breast cancer, with life-threatening implications.

To answer the valid safety concerns, Coleman and Delay have published long term follow-up studies of their experience of fat grafting to the breast. Coleman et al[3] reviewed 15 patients with mammography after fat grafting to the breast with a follow-up of 56 months and found eight patients with normal mammograms, four with benign calcifications, one with fat necrosis and two with breast cancers. Delay et al[4] reported the ultrasound, mammography and magnetic resonance imaging (MRI) evaluation of autologous latissimus dorsi breast reconstruction secondarily augmented with fat grafts. The conclusion was that fat grafting does not affect the follow-up of patients with breast cancer.

Various complications have also been associated with fat transfer to the breast. Three case studies reported the occurrence of
large necrotic cysts subsequent to fat infection, all of which required excision and treatment with prostheses to rectify the subsequent breast deformities.[8-7] Calcifications were also reported in three fat transfer case studies,[5-6,8] with 3 out of 20 patients developing this condition in one case series.[9] Cheung et al.[8] also relate the case of multiple calcifications observed at mammography in the breast of a woman who underwent fat infection for breast enhancement, and noted that the breasts presented with a “highly unusual appearance.” Otherwise, there were no further data available regarding the mammographic interpretation of calcifications in the fat-injected breast. Hematoma, which is a frequent complication of surgery, is practically unheard of in breast lipomodelling. All in all, none of our patients had reported a hematoma.

The reported volumes of liposuctioned fat that has been injected into female breasts ranged from as little as 30 ml[7] up to 400 cc.[9] Hin[10] transferred fat in 2-3 stages, each of 30 ml. Illouz[11] used a similar approach, with months between sessions, whereas others[9,12-13] appear to have injected the desired amount of fat in single sessions. In our case series, fat injected into our patients breasts ranged from 40 ml up to 500 cc with only a single session.

As regards to patient satisfaction, although there were no case series that reported measures of patient satisfaction, Bircoll[12-13] in his study claimed that patients were “very pleased.” This has also been reported in our case series after overall cosmetic improvement was noticed in most of the patients and were satisfied with the results.

**CONCLUSION**

This preliminary study indicates that, natural, acceptable improvements in the size and shape of a breast are possible with fat grafting, with satisfactory clinical results without any major complications. Therefore, in patients requiring purely cosmetic surgery, lipofilling should be used with caution and patients should have strict pre- and postoperative evaluation by an expert radiologist with experience and interest in this procedure. Fat necrosis which is a rare event can be recognizable by modern breast imaging techniques. The procedure we performed did not create any lesion that might interfere with cancer detection. Thus, we can conclude that fat grafting is safe enough to be used and can lead to pleasing aesthetic breast augmentation.

**REFERENCES**

5. Castello JR, Barros J, Vazquez R. Giant


