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Mini Review

Is Underweight a Contraindication of Autologous Fat Transplantation for Breast Augmentation?

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Abstract

Women with low body mass index was considered a contraindication of autologous fat transplantation for cosmetic breast augmentation. The fat ratio in these women is so low that it is difficult to harvest enough fat for grafting and inject large amount of fat to the breasts. In a study conducted by the author, a comparison of the degree of breast enlargement in underweight women and those with normal weight was performed. The results showed that underweight women could get the same degree of enlargement after fat grafting to the breasts and the difference in postoperative complication rate was of no statistical significance. The author adopts two major strategies to overcome the issue related to underweight and concludes that underweight is no longer a contraindication as long as appropriate strategies are undertaken.

Keywords: *Underweight; Autologous Fat Transplantation (AFT); Breast Augmentation*

Introduction

Breast augmentation using autologous fat transplantation (AFT) has become more and more popular. Spear., *et al*. reported AFT is a safe technique to improve contour deformities of the body that traditionally would require more complicated procedures to correct [1]. AFT has also been reported to be a useful procedure for cosmetic breast augmentation, although there is still doubt about this procedure [2,3]. In this respect, certain problems remain such as unpredictability and a low rate of graft survival. Besides, fat necrosis, cyst formation, and indurations could develop after AFT, which are other concerns. These complications can be seen in any other breast operations though [4,5].

Many strategies to overcome these problems have been advocated previously [6-8]. Refinement of fat harvesting, fat processing and injection technique to improve fat survival and reduce postoperative complications have all been reported. However, in a review article, Rosing concluded that injection method is the most important factor to achieve a good result in this procedure [9]. In 2013, the author's earlier result also demonstrated that postoperative complication rate could be lowered to 2.2% by adaptation of the "solid injection method" in AFT for breast augmentation [10].

In Asia, women with small breasts are often underweight, which is defined as those with a body mass index (BMI) under 18.5 [11]. Underweight is often considered a contraindication of AFT for breast augmentation as fat ratio in these women is relatively low. It is difficult to harvest enough fat for grafting and to inject corresponding volume of fat to the breasts as women with normal weight.

The author conducted a study to compare the degree of enlargement in underweight women and women with normal weight in 2014. In the study, the patients with inadequate follow-up time (< 12 months) or lost to follow-up were excluded. After exclusion, 205 patients with BMI larger than 18.5 were enrolled to group A and 77 patients with BMI ≦18.5 were enrolled to group B. Objective evaluation of breast size was the measurement of the difference in breast circumference (BCD). BCD was defined as the chest circumference at the ni-

pple minus the chest circumference at the inframammary fold. Theoretically postoperative BCD should be larger than preoperative BCD if the breast was enlarged after the procedure.

The results showed that preoperative BCD was 8.0 cm (range: 2 - 21.5) in group A and 6.3 cm (range: 1 - 14) in group B. Postoperative BCD was 11.5 cm (range: 4 - 30) in group A and 9.9 cm (range: 2 - 20) in group B. The operative change of BCD was 3.5 cm (range: 0 - 13) in group A and 3.6 cm (range: 0 - 7.5) in group B. The difference was of no statistical significance.

The results showed that underweight women could get the same degree of enlargement after AFT for breast augmentation. Postoperative complications were not higher in these patients. The author concluded that underweight was not a contraindication to this procedure [12].

Discussion

There are two strategies to overcome the obstacles in AFT for underweight women though.

Ultrasound-assisted liposuction (UAL)

Third-generation UAL was applied with a 3.7-mm, 3-ring probe at an amplitude of 100% in normal mode (10 Hz) to the donor sites. After emulsification of the subcutaneous fat, adipose tissue was harvested with a 3- or 4-mm aspiration cannula attached to a low-pressure suction machine. It was reported that UAL could provide an efficient way of fat harvesting without sacrificing its viability [13]. Fat harvested by ultrasound-assisted liposuction is viable and is potentially a suitable source for AFT.

This was especially important when the patients seeking autologous fat grafting for breast augmentation were thin and slim. UAL has been of particular benefits in superficial liposuction and lysis of fibrous and adhesive tissues [14]. To successfully perform fat grafting to augment the breasts in underweight women, including those who have undergone liposuction before, UAL is a useful technique to harvest enough amount of fat without running the risk of skin irregularities [15].

Injection of the graft

Injections were performed with the patient in a supine position under intravenous sedation. The injections were made in a fanning pattern and in small aliquots according to the principle of structural fat grafting recommended by Coleman [16]. In addition, special care was taken to avoid potential crowding of grafted fat by using the "solid injection method" described in the author's previously published article [10]. The amount of fat injected varied depending on the desired amount of augmentation and the remaining safety area which was detected during injection according to this technique.

Conclusion

In the study published in 2014, the author demonstrated that the degree of breast enlargement was similar in underweight and normal-weight women after AFT for cosmetic breast augmentation. The difference in complication rate was not significant. Low BMI is no longer a contraindication for this procedure as long as appropriate strategies were undertaken.

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