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Cosmetic

Inframammary Flap Excision Method in Breast Augmentation: Improving Symmetry of NAC and IMF

Ju Young Go, MD, PhD*
Dae Kyun Jeong, MD†
Daniel Seungyoul Han, MD, PhD*
Seong Hwan Bae, MD, PhD†‡

Background: When we perform a breast augmentation through the inframammary fold (IMF) approach, incision placement at the new IMF is a key element of the planning process. In the majority of the previously published methods, the new IMF was planned based on the nipple-areola complex (NAC) position. However, these methods can lead to asymmetry in the IMF if the NAC is not symmetrical.

Methods: We present the IMF flap excision method for correction of asymmetries of NAC and IMF. The new IMF position was marked based on the ICE technique. We have redesigned the higher side IMF to the same height as the lower side. And then we removed the amount of the skin and soft tissue, which corresponded to the difference between the 2 IMF. We dissected the submuscular breast pocket higher than in the usual cases, making it easier to move the breast tissue downward.

Results: This method was performed on 21 patients, with an average follow-up time of 6 months (range, 2–9 months). The average correction amount of asymmetry of the NAC ranged from 3 to 15 mm and was maintained throughout the follow-up period. NAC downward positioning and symmetry of IMF were observed. Almost all patients showed improvement or complete resolution of their nipple asymmetry.

Conclusion: The IMF flap excision method corrected the asymmetries in the NAC and IMF without additional scars. This method should be strongly considered in patients undergoing a primary breast augmentation procedure with mild NAC asymmetry. *(Plast Reconstr Surg Glob Open 2018;6:e2052; doi: 10.1097/GOX.0000000000002052; Published online 17 December 2018.)*

INTRODUCTION

Inframammary fold (IMF) incisions are one of the most common and preferred incisions in breast augmentation.[1] When we do the breast augmentation through the IMF approach, incision placement at the anticipated level of the postoperative IMF is a key element of the planning process.[2] In the majority of previously published methods, the new IMF was planned based on the nipple-areola complex (NAC) position.[3] However, these methods can lead to asymmetry in the IMF if the NAC is not symmetrical.

The asymmetry of NAC could be improved through the periareolar approach[4] and by variable surgical design.[2] However, it is a general idea that improvement of NAC asymmetry may be relatively difficult when operating through the IMF approach. Furthermore, patients do not prefer for scars to remain around the areola to improve mild NAC asymmetry.

For the above reasons, we present the IMF flap excision method for simultaneous correction of asymmetries

*From the *DH Plastic Surgery, Busan, Korea; †Department of Plastic and Reconstructive Surgery, Pusan National University School of Medicine, Busan, Korea; and ‡Biomedical Research Institute, Pusan National University Hospital, Busan, Korea.*

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Table 1. Patient Outcomes

Patient	Age	Height	Weight	BMI	Preoperative *VIND (cm)	Preoperative. †VIFD (cm)	Higher NAC Side	‡IMF Flap Excision Amount (cm)	Postoperative *VIND (cm)	Postoperative †VIFD (cm)	Implant					Follow-up Duration (mo)
											Company	Higher NAC Side		Lower NAC Side		
1	40	156	43	17.7	0.7	0.5	Lt.	0.6	0.1	0.2	Motiva	Demi	300	Demi	300	9
2	31	163	47	17.7	0.6	0.6	Rt.	0.4	0.0	0.1	Motiva	Full	375	Full	355	7
3	28	165	52	19.1	0.5	0.7	Rt.	0.3	0.1	0.1	Motiva	Full	335	Full	315	7
4	23	169	58	20.3	0.5	1.1	Rt.	0.5	0.0	0.1	Motiva	Full	335	Full	315	7
5	28	163	54	20.3	0.6	0.8	Rt.	0.4	0.3	0.2	BellaGel Micro	High	325	High	300	6
6	47	160	52	20.3	1.2	1.3	Rt.	1.1	0.3	0.1	Allergan 410	FF	335	FM	310	6
7	26	163	48	18.1	1.8	0.8	Lt.	1.0	0.3	0.2	Motiva	Full	335	Demi	300	6
8	44	152	44	19.0	0.7	0.5	Lt.	0.6	0.1	0	Motiva	Demi	320	Demi	300	5
9	42	160	56	21.9	0.7	0.4	Rt.	0.4	0.4	0	Eurosilicone	TMM3	320	TMM2	305	5
10	26	162	51	19.4	0.6	0.4	Lt.	0.3	0.0	0.2(-)	Motiva	Demi	340	Demi	320	5
11	38	166	53	19.2	0.6	0.5	Rt.	0.3	0.1	0.1	Motiva	Demi	320	Demi	300	5
12	34	173	51	17.0	1.3	1.8	Lt.	1.0	0.0	0.2(-)	Motiva	Full	375	Demi	340	5
13	27	155	44	18.3	0.7	0.9	Lt.	0.8	0.2	0.2	BellaGel	High	325	High	300	5
14	47	162	48	18.3	1.2	1.0	Rt.	0.7	0.3	0.0	Eurosilicone	TMM3	345	TMM2	290	4
15	30	163	48	18.1	0.7	0.5	Lt.	0.6	0.1	0.0	Eurosilicone	TMF3	385	TMF3	385	4
16	34	164	53.5	19.9	0.6	0.6	Rt.	0.5	0.2	0.1	Eurosilicone	TMM3	320	TMM3	320	3
17	27	165	48	17.6	0.6	0.4	Rt.	0.5	0.1	0.1	Motiva	Demi	380	Demi	380	3
18	27	163	45	16.9	0.6	0.5	Rt.	0.5	0.0	0.2(-)	Motiva	Demi	300	Demi	300	3
19	36	167	54	19.4	0.8	0.6	Lt.	0.7	0.0	0.2	BellaGel Micro	Medium	300	Medium	300	2
20	28	161	45	17.4	0.7	0.4	Lt.	0.5	0.0	0.1(-)	Eurosilicone	TMM3	290	TMM3	290	2
21	32	168	53	18.8	0.7	0.5	Lt.	0.4	0.0	0.0	Motiva	Demi	320	Demi	320	2
Average	33.1	162.9	49.9	18.8	0.78	0.70		0.58	0.12	0.1			332.4		316.4	6.0

*Vertical inter-nipple distance.
†Vertical inter-fold distance.
‡IMF.
BMI, body mass index.

of both the NAC and IMF in IMF approach breast augmentation.

IDEA

Surgical Technique

The types and sizes of implants were selected through the 3D simulation and sufficient conversation with patients.[2] Standard anthropometric breast measurements were analyzed by the Crisalix (Crisalix Virtual Aesthetics, Bern, Switzerland). Additional breast measurements evaluated included IMF and NAC position in the vertical plane. Through this measurement, we obtained "vertical inter-nipple distance" and "vertical inter-fold distance," which allows us to ascertain the asymmetry of the nipples as well as IMFs (**see figure,** Supplemental Digital Content 1, which displays standard anthropometric breast measurements analyzed by the Crisalix, ***http://links.lww.com/PRSGO/A931***). The new N-IMF distance and IMF position were determined based on the low ventricular curvature and arc of the implant. Design using the modified ICE technique was performed.[5] We have redesigned the higher side IMF to the same height as the lower side (**see figure,** Supplemental Digital Content 2, which displays design and surgical method, ***http://links.lww.com/PRSGO/A932***). After designing the 2 lines by elliptical or crescent, the ablation amount was determined and the operation proceeded to the lower line.

In this study, the surgeon performed "dual plane" implant placement. However, the level of the dual plane was lowered, and the further superior submuscular pocket dissection was done on the higher NAC side rather than on the lower NAC side. These procedures make it easier to move all the breast tissue downward. After the pocket dissection, the implant was inserted and then the planned amount of skin and soft tissue were removed (**Supplemental Digital Content 2**). The deep closure was performed by setting the IMF with a 2-0 polydioxanone suture, placing the suture into the deep fascia directly in the fold and then through the breast fascia of the lower flap. The wound was closed using the conventional method and our patients wore a supporting bra and an implant stabilizer band for 1 month.

RESULTS

This inframammary flap excision method was performed on 21 patients, with an average follow-up time of 6 months (range, 2–9 months). The average age of the patients was 33 years, and the average body mass index was 18.8. Average implant size was 334 and 316 cc, respectively, for higher NAC side and lower NAC side. The average correction amount of asymmetry of NAC ranged from 0.3 cm to 1.5 cm and was maintained throughout the follow-up period. Both NAC downward positioning and symmetry of IMF were observed. Almost all patients showed improvement or complete resolution of their nipple asymmetry (Table 1). The outcome of the technique is shown in Figures 1, 2.

DISCUSSION

Methods for implant selection and IMF incision placement vary considerably.[2,5] Since most methods are designed based on the location of nipples, asymmetry of these can inevitably lead to asymmetry of the IMF after breast augmentation. However, the majority of women presenting for augmentation mammaplasty demonstrate asymmetry of their NAC locations. According to Yeslev et al.,[6] asymmetry between the right and left IMF positions was found in the majority of patients (95.4%), with symmetry only found in 5 patients (4.6%). Similar to the IMF, only 4.6% of patients had a symmetrical vertical position of the NAC. In the case of asymmetry of NAC, surgeons try to perform asymmetric correction through the periareolar incision. Egu and Forouzanpour[4] described supraareolar incision approach should be considered in patient with middle nipple asymmetry. Some mild asymmetries in breast mound size or volume may be improved with different sized and style implants, and surgical manipulation.

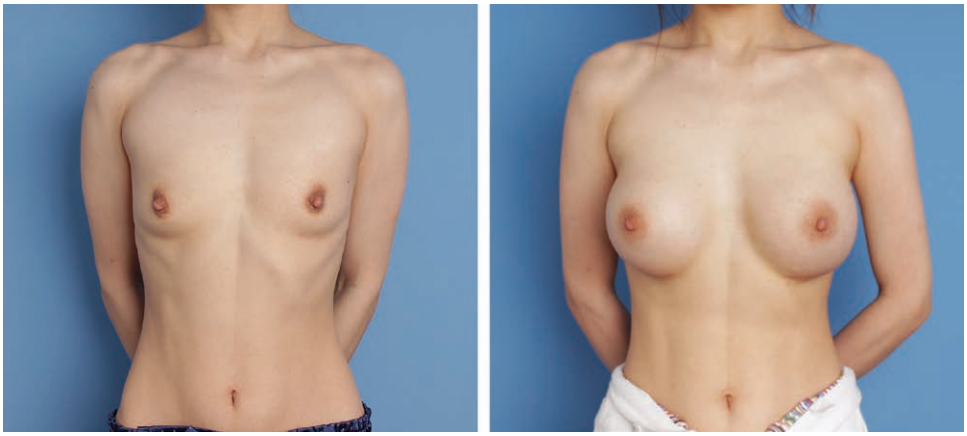

Fig. 1. Preoperative and postoperative photographs of patient 20. A 28-year-old female patient presented to the clinic preoperatively with mild asymmetry of the NAC. A vertical deviation of 0.7 cm in the nipple was corrected by 0.5 cm flap excision. Eurosilicone TMM3 290-cc implants were inserted (Eurosilicone S.A.S., Apt, France).

Fig. 2. Preoperative and postoperative photographs of patient 12. A 34-year-old woman presented to the clinic preoperatively with asymmetries of the chest wall, NAC, and IMF with congenital scoliosis. A vertical deviation of 1.3 cm in the nipple was corrected by 1.0 cm flap excision. Alternatively, a Motiva Ergonomix style Demi, 340-cc, silicone implant (Motiva, Inc., Alajuela, Costa Rica) was placed on the left, and a Motiva Ergonomix style Full, 375-cc, silicone implant was placed on the right.

However, asymmetries of NAC position may become more exaggerated with augmentation.

The slight asymmetry of the NAC position can be corrected by advancing the dual plane grade on the low NAC level side,[7] or by selecting an implant with relatively low maximum point of projection and high projection.[8] However, these methods are useful for elevating the NAC when the NAC position is low in ptotic breasts, but they are not suitable when the NAC is located in a high position. The advantage of our method is that the asymmetry of NAC and IMF can be corrected, especially in micromastia patients with high position of the NAC and IMF.

The precise location of the incision and secure IMF fixation are important to the success of this IMF flap excision method.[9] If there is a problem with this procedure, malposition of the implant as well as the asymmetry of the IMF and NAC can occur. Nowadays, we use barbed 3-0 V-Loc 180 sutures (Covidien, Mansfield, Mass.) for more robust fixation.[10]

The wearing of undergarments after surgery is also important. When we dissected the breast with higher NAC, we dissected the breast pocket higher than in typical cases, making it easier to move the breast tissue downward. However, it may cause the implant to settle up. Such postoperative care and patient education assist to achieve more predictable and optimal postoperative results.

The IMF flap excision method corrected the asymmetries in the NAC and IMF during the IMF approach. This is a simple and reliable method for asymmetry of NAC and IMF correction that can be widely applied and leaves only 1 IMF scar concealed in the fold. However, further studies on position maintenance of IMF and NAC over a long-term follow-up period should be done.

Seong Hwan Bae, MD, PhD
Department of Plastic and Reconstructive Surgery
Pusan National University School of Medicine
179 Gudeok-ro, Seo-gu
Busan, 49241, Korea
E-mail: denev96@gmail.com

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