

The Transareolar–Periareolar Approach

Jonathan Zelken, MD*

Jung-Ju Huang, MD†‡

Chih-Wei Wu, MD†‡

Yi-Ling Lin, MSc†

Ming-Huei Cheng, MD, MBA†‡

Summary: The periareolar approach is limited by areolar diameter. Asian women typically have smaller areolae than Western women. Voluminous and form-stable silicone implants demand larger incisions. Zigzag transareolar approaches closely approximate the nipple and improve exposure, but scar appearance remains problematic, and there is a risk of ductal injury and capsular contracture. We prefer a zigzag incision that straddles the areolar border. Between 2013 and 2015, 11 augmentation mammoplasties (20 incisions) were performed through a transareolar–periareolar (TAPA) incision. The TAPA incision resembles 3 inverted V’s that traverse the inferior areolar border. Outcomes were evaluated on the basis of photographs, clinical charts, and surveys. Women were 36 years old (range, 25–50). Silicone implants were used in 10 patients and saline in 1 patient. Implants were 270 cm³, placed in subpectoral position in 6 patients and subglandular position in 5. Follow-up was 12.5 months (range, 5–20 mo); there were no hematomas or infections. There was 1 case each of seroma (9.1%) and unilateral capsular contracture (9.1%) after secondary mammoplasty. There was no implant malposition or contour deformity. There were no keloids or hypertrophic scars. Every patient was satisfied. Nipple sensation was maintained or heightened in 100% of patients surveyed. The incisions were 139% longer than 180-degree periareolar scars. TAPA scars were well tolerated in this series of Asian women. We did not observe malposition, infection, or sensory disturbances. Despite its peripheral position on the nipple–areola complex, there are not enough data to determine whether TAPA incisions reduce risks compared with traditional approaches. (*Plast Reconstr Surg Glob Open* 2016;4:e1020; doi: 10.1097/GOX.0000000000001020; Published online 7 September 2016.)

The demand for breast augmentation is rising in Asia. Decision-making reflects cultural values, anatomic features, and wound healing tendencies of women who are classically prone to, and fear, unsightly scarring.^{1,2} Asian women who seek augmentation are typically slim, with small breasts and areolae and large nipples. Transareolar (TA) and periareolar (PA) incisions have limitations. Because Asian areolae may be 10 to 15 mm smaller than whites’ areolae, traditional PA approaches may not enable adequate visualization and placement of large silicone implants. Zigzagged TA modifications extend the

effective incision length and improve scarring but the ability to lactate may be impaired,³ and poor scarring has been reported.^{4,6} There may be increased risk of capsular contracture, malposition, and secondary procedures.

The perfect incision would be nearly imperceptible, maximize exposure, minimize ischemic sloughing,⁶ and preserve nipple sensation. The transareolar–periareolar (TAPA) approach is a zigzag incision that resembles current TA incisions but is positioned inferiorly. The incision is designed to combine cosmetic benefits of zigzag incisions with the safety and visualization of the inframammary fold approach. The senior author has used this technique since 2013 with excellent results.

TECHNIQUE

The incision is marked as shown in Figure 1. The first mark is made 5 mm inside the areolar border (“–5”) at the 4-o’clock position of the areola. The second is 5 mm outside the border (“+5”) at 5-o’clock position, –5 at 6, +5 at 7, and –5 at 8. Dots are connected with a fine-tip absorbable marker to reveal a “W” that straddles the areolar border. At each end of the W, a curvilinear tail is drawn to veer

From the *Private Practice, Laguna Hills, Calif.; †Department of Plastic and Reconstructive Surgery, Chang Gung Memorial Hospital, College of Medicine, Chang Gung University, Taoyuan, Taiwan; and ‡Center for Tissue Engineering Center, Chang Gung Memorial Hospital, Taoyuan, Taiwan.

Received for publication March 20, 2016; accepted July 8, 2016.

Copyright © 2016 The Authors. Published by Wolters Kluwer Health, Inc. on behalf of The American Society of Plastic Surgeons. All rights reserved. This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 (CCBY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially.

DOI: 10.1097/GOX.0000000000001020

Disclosure: The authors have no financial interest to declare in relation to the content of this article. The Article Processing Charge was paid for by the authors.

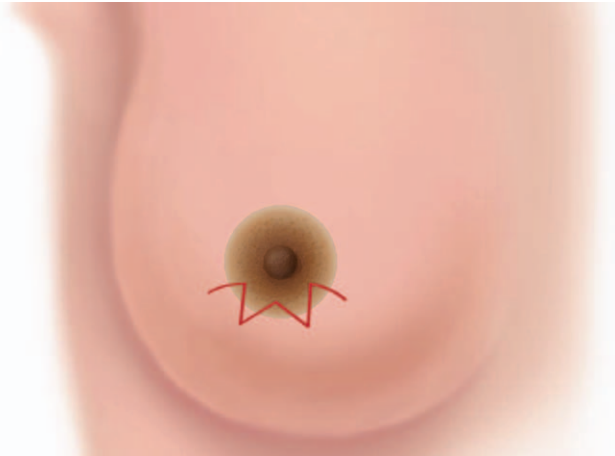


Fig. 1. Artist's rendition of the TAPA incision.

away from the horizontal breast meridian and marked at the “+5” position. Care should be taken during dissection to preserve a thick flap and avoid breast parenchyma. Gentle tissue handling will eliminate the risk of iatrogenic injury and the need for intraoperative tissue trimming. After the implant is placed, dermal and subcuticular layers are placed, taking special care to reapproximate the smooth muscle foundation of the areola.⁷ 5-0 Nylon suture is placed at the apex of each “V” and removed at 5 days.

OUTCOMES

Between November 2013 and November 2014, the senior author used this approach for 11 consenting women. Cosmetic outcome was based on clinical evaluation and telephone-based surveys. Scar appearance was evaluated for 9 of 11 patients (81.8%) with 6 or more months of follow-up using a modified Manchester Scar Scale (MSS) by 4 independent investigators who assigned a visual analog score (score range: 0–10) and evaluated color (1–4), texture (1–2), contour (1–4), and areolar distortion (1–4) for each patient. The best possible composite MSS score is 4; the worst is 24 points.

Scars were evaluated using photographs taken at the most recent follow-up for 10 women (90.9%) with 6 or more months of follow-up. Follow-up time was 13.2 months (range, 6–20 mo). There were no keloids, dyspigmented, or hypertrophic scars. Representative postoperative

results are shown in Figure 2. The MSS for TAPA scars was 8.92 ± 1.9 .

PATIENT SATISFACTION

Seven women with more than 6 months of follow-up were interviewed by telephone. These women assigned a score of 3.7 ± 0.8 points to their scars using a 5-point scale to evaluate subjective appearance (5 represents an invisible scar). Four women (57.1%) were very satisfied with the result of surgery; 3 were neutral. Two women (28.6%) would strongly recommend the procedure to friends, and the rest were neutral. Six women (85.7%) agreed or strongly agreed that their sexual attractiveness improved as a result of surgery. Two women (28.6%) stated that one or both nipples were more sensitive after surgery; the remainder did not appreciate any change in sensation. No patients were treated with steroids or other methods for unsightly scarring, and no scar revision procedures or treatments were indicated.

DISCUSSION

It is unlikely that unfavorable scarring, tissue loss, sensory changes, the inability to lactate, infection, and malposition risks are sufficiently problematic that current TA and PA approaches should be sidelined in Asian women undergoing breast augmentation. However, scarring remains imperfect with these procedures, and TA perinipple approaches may increase risk of contamination, injury to lactiferous structures, and nerve injury. Proposed benefits of the TAPA approach include scar camouflage, enhanced access, and reduced risk of contamination and capsular contracture.

One of the greatest limitations of the PA approach is that the size of the areola dictates incision width. This poses a challenge for Asian women with small nipples seeking form-stable gel implants. Saline implants would solve this problem, but many patients are keen on using silicone. A zigzag incision is useful for extending the effective incision length. A model was created to predict effective incisional length as a function of areolar diameter, and a best-fit curve was obtained using Microsoft Excel 2011 (Microsoft Corp.; Redmond, Calif.). The model demonstrated that theoretical gains in incision length decreased with increasing areolar diameter. Beyond an areolar diameter of 50 mm, there is no predicted length benefit with the TAPA incision.



Fig. 2. Appearance of healed TAPA scars with the best (4.75, left), median (9.25, middle), and poorest (11.5, right) MSS scores. The first patient was a 32-year-old woman who underwent bilateral revision mammoplasty for bilateral implant rupture. The middle and right were the images of 25- and 39-year-old women, respectively, and who underwent primary breast augmentation for micromastia.

The path measurement feature of Adobe Illustrator CS6 (Adobe Systems; San Jose, Calif.) was used to determine actual increase in path (incision) length based on most current scar photographs compared with a 180-degree tracing along the superior areolar border of the same areola. For all incisions, there was a $139\% \pm 17\%$ increase in incision length compared with the PA incision (range, 112%–179% increase).

Inferior placement of the incision directs dissection away from the lactiferous ductal system. This is expected to reduce risk of bacterial colonization and associated risk of capsular contracture. Nipple sensation is preserved when PA incisions are used because nerve afferents originate superiorly.^{8,9} Sensory abnormalities were reported when perinipple approaches were used in 14%⁵ to “most” patients,⁶ but all patients reported return of sensation by 2 years.^{4-6,10} We observed few complaints of nipple dysesthesia using the TAPA incision, but sensation was not formally assessed in this study.

Ming-Huei Cheng, MD, MBA, FACS

Department of Plastic and Reconstructive Surgery
Chang Gung Memorial Hospital
5, Fu-Hsing Street, Kweishan
Taoyuan 333, Taiwan
E-mail: minghueicheng@gmail.com

ACKNOWLEDGMENTS

The authors would like to thank Dr. Sonia Wei-Ting Chen, MD and Chia-Yu Lin, MSc for assistance in data collection

and Dr. Cheng-I Yen, MD for assistance in evaluating scar appearance. There is no other source of support to acknowledge.

REFERENCES

1. Kim S, Choi TH, Liu W, et al. Update on scar management: guidelines for treating Asian patients. *Plast Reconstr Surg*. 2013;132:1580–1589.
2. McCurdy JA Jr. Considerations in Asian cosmetic surgery. *Facial Plast Surg Clin North Am*. 2007;15:387–397, vii.
3. Hurst NM. Lactation after augmentation mammoplasty. *Obstet Gynecol*. 1996;87:30–34.
4. Han HH, Kim KK, Lee KH, et al. Transareolar-perinipple (areolar omega) zigzag incision for augmentation mammoplasty. *Plast Reconstr Surg*. 2015;135:517e–525e.
5. Lai YL, Weng CJ, Chen YR, et al. Circumnipple-incision, longitudinal-breast dissection augmentation mammoplasty. *Aesthetic Plast Surg*. 2001;25:194–197.
6. Lee EJ, Jung SG, Cho BC, et al. Submuscular augmentation mammoplasty using a perinipple incision. *Ann Plast Surg*. 2004;52:297–302.
7. Vázquez G, Moretti E, Pellón A, et al. The importance of the areolar smooth muscle in augmentation mastoplasty. *Aesthetic Plast Surg*. 2009;33:298–301.
8. Mofid MM, Klatsky SA, Singh NK, et al. Nipple-areola complex sensitivity after primary breast augmentation: a comparison of periareolar and inframammary incision approaches. *Plast Reconstr Surg*. 2006;117:1694–1698.
9. Okwueze MI, Spear ME, Zwyghuizen AM, et al. Effect of augmentation mammoplasty on breast sensation. *Plast Reconstr Surg*. 2006;117:73–83; discussion 84.
10. Lee JH, Lee PK, Oh DY, et al. Subpectoral-subfascial breast augmentation for thin-skinned patients. *Aesthetic Plast Surg*. 2012;36:115–121.