

Maintenance of the Anatomic Contours in Auricular Reconstruction: The Button Technique

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Abstract

Background and Objective: Reconstructing the contours of the auricle is a unique challenge. Various bolster techniques have been tried to help prevent complications such as hematoma, seroma, and morbidity. Here, we describe a simple technique using a button to maintain the natural ear contour when it is at risk of a poor aesthetic outcome. **Materials and Methods:** A 77-year-old man underwent resection of a squamous cell carcinoma of the postauricular skin on the right ear, which involved the helical margin. A skin graft was chosen to close the defect. However, on initial inspection of the repair, buckling of the scaphoid fossa, collapse of the antihelical fold, and notching of the helix were observed. When these buckling changes persisted even after the anesthesia-related swelling resolved the following day, a button bolster was placed for 2.5 weeks to provide support for the cartilage. **Results:** Standardized digital imaging revealed maintenance of the original contours and sulci of the ear with an excellent cosmetic result. **Conclusion:** Recreation of the auricular contours is critical for an excellent cosmetic outcome. Using a button bolster is worth considering as it is of low cost, can easily fit into the natural ear contours, and can provide a rigid structure to ensure maintenance of the ear shape.

Keywords: Auricle, bolster, cutaneous oncology, reconstructive surgery

BACKGROUND

Reconstruction of the auricular contours after surgical intervention for cutaneous malignancies is a unique challenge. Flaps and full-thickness skin grafts (FTSGs) are an essential part of reconstruction, but tension on the surrounding native skin can cause ear distortion. The ear is a highly visible area where there is a higher risk of a poor aesthetic outcome. Any intraoperative deformities should be corrected during surgery. To compensate for wounds that are under tension, it can be tempting to use mattress sutures. However, applying tension forces to the skin distant from the suture line on the ear does not correct cartilage buckling and risks track marks. To redistribute localized pressure over a larger area, bolsters can be used. Various bolster techniques have been tried. Button bolsters, in particular, have been used by otolaryngologists to prevent auricular hematomas and seromas.^[1] They also have the advantage of redistributing tension applied by the reconstruction to the surrounding

native skin. Yet, there is a paucity of dermatology literature describing the usefulness of this technique.^[2]

Here, we describe a simple low-cost technique using a button bolster to maintain the helical rim contour when it is at risk of a poor aesthetic outcome. This report adds to previously described indications as we show how it can be used not just to prevent hematoma or sustain tension, but also to create added structural support for the ear cartilage.

DESCRIPTION OF THE TECHNIQUE

A 77-year-old man underwent resection of a squamous cell carcinoma of the right retroauricular skin, opposite to the scaphoid fossa, with an involvement of the helical

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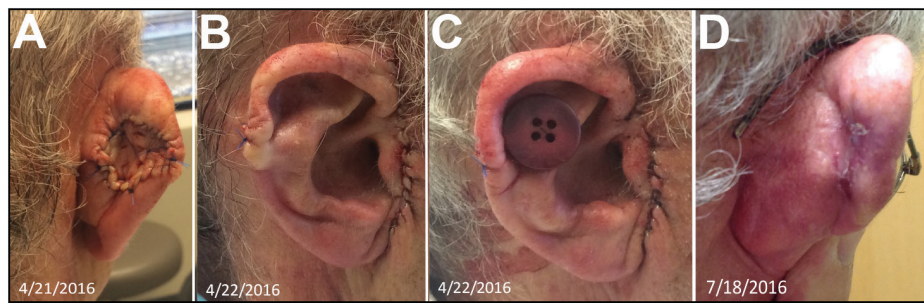


Figure 1: Reconstruction of a helical defect with placement of a button bolster. The placement of the skin graft (A) resulted in buckling of the scaphoid fossa and helical dimpling (B). After placement of a sterilized button, the natural contours were restored with only minor helical dimpling secondary to a placed sutured at the helical margin (C). At 3 months, the contours of the ear are preserved with few visible signs of the skin graft (D)

margin. Options for closure were discussed with the patient. As a result of the defect size, poor surrounding skin laxity, and the patient preferences, a FTSG donated from the preauricular skin was chosen to close the defect. On initial inspection after the graft was placed, buckling of the scaphoid fossa, collapse of the antihelical fold, and notching of the helix were observed [Figure 1A and B]. When this buckling persisted even after the anesthesia swelling resolved the following day, a 12-mm button cleansed with chloroxylenol was inserted into the antihelical fold to recreate the rounded contour as well as to buttress the helical rim and scaphoid fossa. It was secured into place with a quilting stitch. This reconstituted the natural contours of the ear without compromising the FTSG [Figure 1C]. Usual postoperative wound care instructions were given, including how to keep the button and new graft clean. Antibiotics were not given postoperatively. The button was left in place for 2.5 weeks and then removed with the tacking suture.

Follow-up photographs at 3 months after surgery revealed an excellent cosmetic result. No contraction or notching of the helical rim was evident. The site of the graft was nearly imperceptible within the retroauricular groove of the superior crus [Figure 1D]. No further modification or treatment was required to improve or maintain the result.

DISCUSSION

The use of bolsters in surgical reconstruction of cutaneous defects is well established. These are often constructed from dental rolls or gauze to prevent hematomas or seromas, apply atraumatic mattress sutures in areas under tension, or ensure full contact of skin grafts with underlying tissue to facilitate imbibition. The need for bolsters in FTSG placement has been debated.^[3] Previous reports have shown the ability of bolsters to prevent hematomas and encourage FTSG contouring during initial healing in auricular reconstruction.^[1] A randomized control trial compared gauze or hard dental roll dressings to foam bolsters and found that moldable foam bolsters are better tolerated when used for hematoma prevention.^[4] The disadvantage of these more traditional methods is that they tend to require multiple overlapping stitches to secure

them in place and time to construct. Further, foam bolsters are not rigid enough to provide structural support.

Our method shows the effectiveness of using a button as a reconstructive tool on the ear. The main advantages of this technique are that the roundedness and tapered shape of the button is better able to fit into the natural anatomic folds, and the buttons cannot be deformed by external forces from the underlying cartilage. Different size buttons allow for a custom fit. With proper placement, no risk of distorting contours or moving of the button during the healing phase is observed. Further, it is also less expensive and less complicated than constructing traditional bolsters. Only a single quilting or mattress stitch is required. We have treated several patients requiring auricular reconstruction using this method and have found the results to be reproducible.

Our outcomes with the button bolster are limited by being nonrandomized and a single practitioner's experience. Similar to comparing foam and cotton bolsters,^[4] an open-label, randomized study would best determine if button bolsters are an effective adjuvant measure for auricular reconstruction. Still, we feel that this specific indication for button bolstering of intraoperative anatomic contour deformities of the ear is worth considering.

CONCLUSION

Button bolsters have a broad experience in otolaryngology to improve the outcomes related to auricular reconstruction. They are well known to redistribute tension and tissue shear more broadly along the wound. Through modifying this technique to provide fitted support for the auricular cartilage and helical contours, persistent ear deformities can be prevented after surgical intervention for cutaneous malignancies. Further studies will establish the true benefit of the technique over traditional methods.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal.

The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Garcia-Rodriguez L, Jones L. Ear bolster button. *Laryngoscope* 2018;128:719-21.
2. Adnot J, Salasche SJ, West RW. Button bolsters in dermatologic surgery. *J Dermatol Surg Oncol* 1989;15:59-61.
3. Shimizu I, MacFarlane DF. Full-thickness skin grafts may not need tie-over bolster dressings. *Dermatol Surg* 2013;39:726-8.
4. Atherton D, Sreetharan V, Mosahebi A, Prior S, Willis J, Bishop J, *et al.* A randomised controlled trial of a double layer of Allevyn compared to Jellonet and proflavin as a tie-over dressing for small skin grafts. *J Plast Reconstr Aesthet Surg* 2008;61:535-9.