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Deepithelized post-auricular skin as an adjunct to stitch-type prominent ear correction

Yusuf K. Coban, Goçmen Aslan, Mehmet Fatih Algan

ABSTRACT

Aims: Almost unlimited procedures for correction of prominent ear have been published. Pure-stiching type correction have complications like suture extrusion or recurrence. We proposed a new approach to secure concha-scaphal stiches. Methods: At posterior surface of auricula, a predetermined area is firstly deepitheliazed and then sutured with absorbable materials. A desired concha-scaphal angle is obtained with separate subcuticular stitches. Results: A total of nine patients were operated with the technique. five were bilateral and four were unilateral correction. No complication was seen during the follow-up period. Conclusion: The addition of the deepitheliazed post-auricular skin platform technique to the stich type otoplasty, is a useful refinement which maintains a simple, controllable course and avoids irreperable complications.

Keywords: Deepitheliased postauricular skin, Prominent ear, Surgery

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INTRODUCTION

A protruding auricle is a deformity that can occur in a number of abnormalities of position and shape, almost unlimited procedures for correction have been published as yet. Pure-stitching techniques, pure incision techniques, and combined stitching-incision techniques are the basic techniques for correction of prominent ears [1–15]. This wide variety of techniques suggests that no ideal method exists for the correction of protruding ears.

It should be mentioned at the start that there is no universal operating procedure that is suitable for all deformities of the form and the position of the auricle. Preoperative planning, therefore, requires an exact analysis of each deformity. For example, pure stitching techniques may not be suitable for correcting thick cartilage structures. Occurrence of failure following to pure stitching type correction of prominent ear in different hands may be related to technique itself. We believe that surfaces of conchal and scaphal bare cartilages without an intervening vascular layer endangers breaking strength gaining timely and so it leads wound dehiscence during the early phases of wound healing resulting failure. In order to prevent recurrencies in stitch type technique, some authors used fascia and dermal flap techniques [16, 17]. We proposed a different approach

to secure conchascaphal stitches used in this technique. This includes two parallel platform lines of 5x30-40 mm in diameters on posterior surfaces of conchal and scaphal cartilages created by deepithelizing overlying post-auricular skin.

MATERIALS AND METHODS

An exact analysis and documentation of the type of deformity of the ear is performed before the operation. A chart is filled for every case individually (Table 1). The two parameters that should be taken into account are quality of skin and cartilage. If thick cartilage is present, incision or/and excision techniques are made on the chart for the patient based on the preoperative analysis. This documentation is also very important for the aspect of medicolegal issues.

In patients having tiny cartilages, no incision or excision technique is chosen for correction of prominent ear. In these cases, a simple marking at posterior auricular area is done and prepared for deepithelization (Figure 1). The limits of the area are simply determined by bending conchal and scaphal cartilages with fingers. So that newly antihelical fold is created and posterior conchascaphal sulcus is formed. The diameters of this deepithelized skin area are usually in the range of 2x4 cm and 3x6 cm. After completion of de-epithelization procedure, a meticulous hemostasis is made (Figure 2). Then 3/0 absorbable vicryl is used for separate stitches. Generally, 4–8 stitches are necessary to obtain a desired conchascaphal angle. Completion subcutical stitches provides the maneuver that makes two deepithelized two halves come into close at a position of face to face (Figure 3). The edges of skin lines are closed with three or more cuticular stitches with 4/0 prolene. A head bandage was applied for three weeks.

Figure 1: Post-auricular marking.

Figure 2: After deepitheliasation of the area, ready for subcuticular sutures.

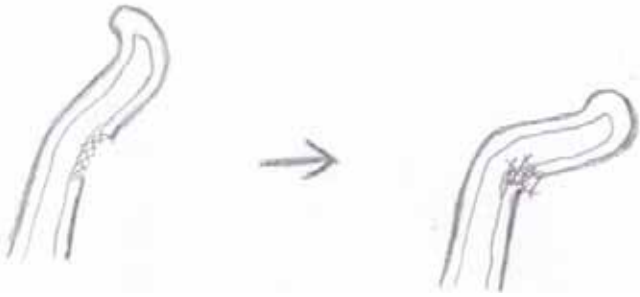

Figure 3: Schematic representation of the technique, cross-section illustrates skin and cartilage framework. Left; deepithelisation, Right; antihelical fold formed secondary to subcuticular stiches.

RESULTS

A total of nine patients with prominent ear were operated, between 2013–2015, with the using the method. Five patients had bilateral and four were unilateral correction. Ages of the patients of the preliminary study ranged between 9 and 27 years. Mean follow-up for the patients were 8.5±2.12 months (Table 2). There was no recurrence, skin necrosis or wound infection. No suture extrusion occurred in any patient. A well-formed anti-helical fold was obtained in all patients and it remained stable during the follow-up periods (Figures 4 and 5). Table 2 summarizes the results and demographic data.

Table 1: Commonly needed procedures performed during aesthetic correction of prominent ear and its documentation in a chart.

Patient name		
Procedure list	**Yes**	**No**
Lobulus reduction		
Antitragus reduction		
Cavum rotation		
Helix narrowing		
Cavum reduction		

Table 1: *(Continued)*

Patient name		
Procedure list	**Yes**	**No**
Skin type		
Cartilage type		
Operative techniques possibly done		
- incision techniques		
- excision techniques		
- stich techniques		

Table 2: Patient demographics, follow-up and complication rates

Patient	Age	Deformity	Follow-up	Sex	Complication
1	16	Bilateral	10 months	Female	No
2	13	Unilateral	6 months	Male	No
3	21	Bilateral	11 months	Male	No
4	27	Bilateral	9 months	Female	No
5	9	Unilateral	8 months	Female	No
6	14	Bilateral	7 months	Male	No
7	11	Unilateral	6 months	Male	No
8	24	Unilateral	12 months	Male	No
9	22	Bilateral	8 months	Female	No

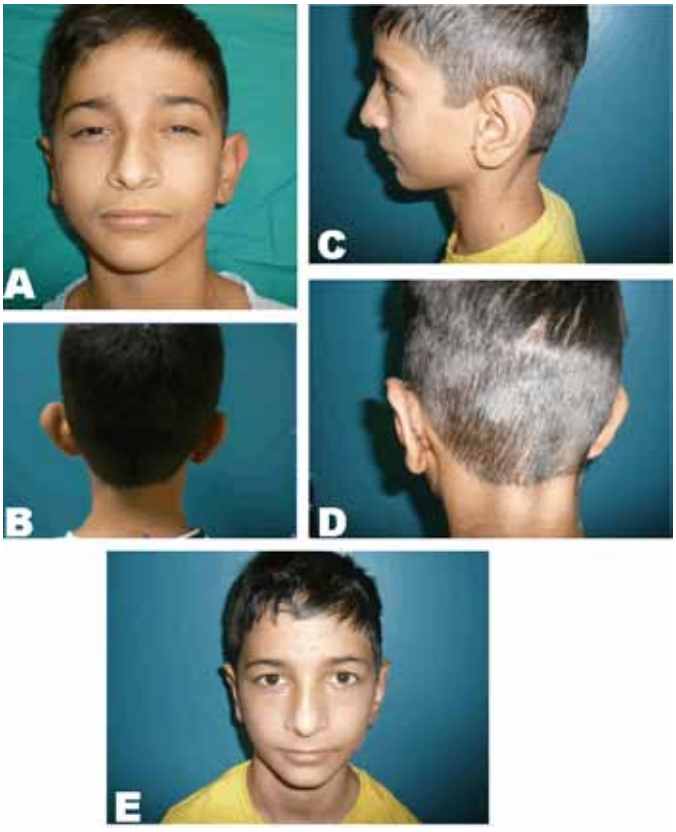

Figure 4: A young male unilateral prominent ear deformity. Preoperative (A) Anterior view, (B) Posterior view. Postoperative (C) Lateral view, (D) Posterior view, and (E) anterior view.

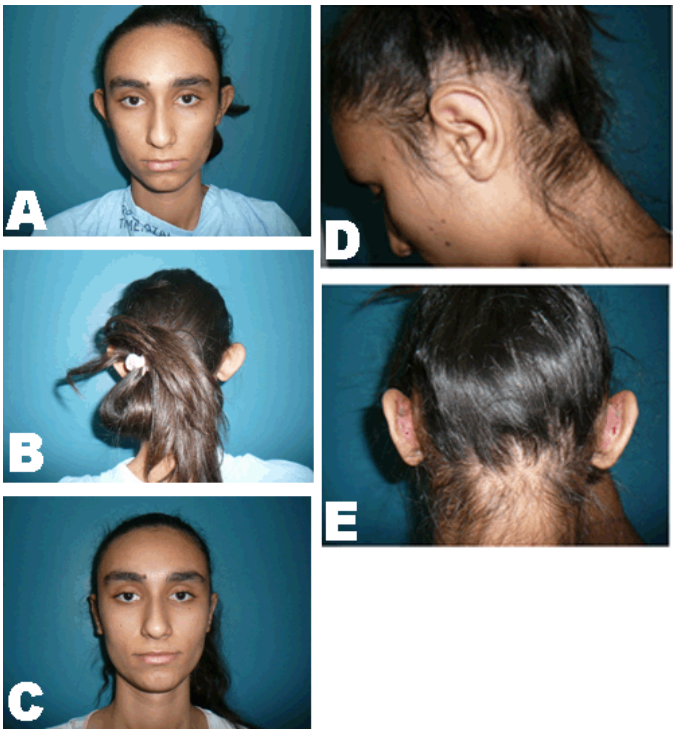

Figure 5: Patient 2 young female with bilateral deformity. Preoperative (A) Anterior view, (B) Posterior view. Postoperative (C) Anterior view, (D) Lateral view, and (E) Posterior view.

DISCUSSION

Cartilage sparing otoplasty such as Mustarde and Furnas types has been popular [8, 10]. These otoplasty techniques have been refined by addition of a post-auricular fascial flap to reduce suture extrusion and recurrence rates [16]. In that type of technique, a flap taken from mastoid fascia is advanced to cover mastoid sutures. Horlock's fascial flap techniques and Basat's similiar dermal flap techniques aims to reduce recurrence rates. However, they have very invasive surgical procedures which require wide subcutaneous dissections within the mastoid and post-auricular region [17].

We describe a less invasive method to get the same target in this report. Folding scapha conchal cartilage with their post-auricular deepithelized skin brings two surfaces in touch. Then securing this created area with absorbable stitches aids to antihelical folds unproblematic wound healing within the first postoperative three weeks. This the period of which 70% of breaking strength is obtained.

No suture is passed through the cartilages, instead the sutures are passed through deepithelized dermal layers. This means that there is no touch to the cartilages of the auricle. We have seen no complication of suture reaction or suture extrusion and believe that no touch the auricular cartilages brings uncomplicated postoperative

course. Weerda reported that 7.7% of recurrences were seen following the Mustarde technique [18]. During postoperative follow-up, there was no recurrence in this series and we continue to do the technique. As now, we have not used the technique with cartilage cutting otoplasties, but in selected cases we are planning to use the technique in combination. The deepithelized cross-contact layers prevent recurrence. It is evident that this is a new cartilage sparing otoplasty technique. Pain from buried sutures is also eradicated as no non-absorbable suture material is used [19]. Cartilage cutting otoplasty may result in irreparable complications like anterior skin necrosis, cartilage destruction [20]. A potential complication risk of this technique may be overuse of post-auricular skin which would lead to skin deficiency at post-auricular region. Visible helical rim deformity was reported as a complication secondary to over resection of post-auricular skin during otoplasty [21]. We avoided this complication by carefully planning and determining the amount of skin area to be deepithelized.

CONCLUSION

In conclusion, the addition of the deepithelized post-auricular skin platform technique to the stitch type otoplasty, is a useful refinement which maintains a simple, controllable course and avoids irreparable complications. Our preliminary results show that this is an effective simple method that solves most types of prominent ear problems.

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Author Contributions

Yusuf K. Coban – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Goçmen Aslan – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Mehmet Fatih Algan – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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