



Correction of congenital cleft earlobe with front and back flaps

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Abstract (J Korean Assoc Oral Maxillofac Surg 2017;43:423-426)

Congenital auricular deformities may be either deformational or malformational. Malformational anomalies present with a skin or cartilage shortage. Two cases with congenital cleft earlobe were presented. A new surgical technique using a two-layered repair with front and back flaps were introduced. She waited to begin wearing earrings until six months after the surgery to prevent possible scar contracture. The patients were followed up for a period ranging from 3 to 14 months. The earlobe volume deficiency was replaced, and acceptable scar maturation was obtained.

Key words: Earlobe, Auricle, Cleft, Malformation, Congenital

[paper submitted 2017. 7. 13 / revised 2017. 9. 18 / accepted 2017. 10. 13]

I. Introduction

Congenital auricular deformities are relatively common and most frequently involve the upper one-third of the auricle. The lower part of the auricle is affected in 1:15,000 of live births¹, and the vast majority are cleft earlobe anomalies². Various techniques have been introduced for congenital cleft earlobe repair depending on the size and form². The purpose of this report was to introduce a useful operative technique for repair.

II. Technical Note

Between September 2015 and May 2017, two patients who presented with a congenital earlobe cleft underwent surgical correction at our institution. The patients were 11- and 17-year-old females. The anomalies were unilateral in both cases and occurred on the patient's left side. The first patient

demonstrated a tag and a hypoplasia-type cleft earlobe malformation according to Park's classification². (Fig. 1) The second patient had a defective type of cleft earlobe anomaly. (Fig. 2)

The auricle was compared to the unaffected side, and the amount of tissue loss on the affected side was determined. We designed an operative technique composed of a Z-plasty anteriorly and a Y-V advancement posteriorly. The Z-plasty



Fig. 1. Tag and cleft with a hypoplasia type malformation in an 11-year-old girl. The gap size was 5×6 mm in comparison to the normal right earlobe.

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Fig. 2. A defective type of cleft earlobe anomaly in a 17-year-old girl. The lateral element was rotated posteriorly.
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Fig. 4. A split thickness Z-plasty incision in only the front allowed for intact back support.
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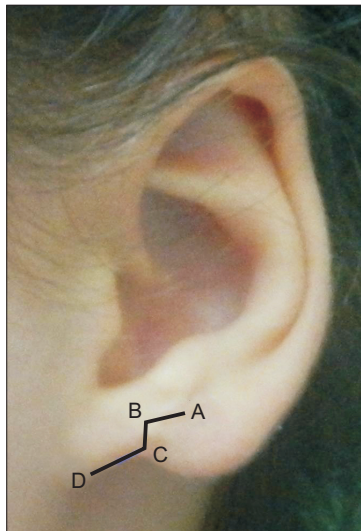


Fig. 3. The design of the front flap. Marking an earlobe Z-plasty with a right-angled front and the margin of the cleft. The lengths of the line AB and line BC are 5 mm, while line CD is 6 mm.
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Fig. 5. Undermined Z-plasty flaps. Lobule bisected into two layers.
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incision was marked with a right angled anterior and continued on the marginal surfaces for a corrective intervention. The lateral (line AB) and vertical (line BC) lines were 5 mm, while the medial component along line CD was 6 mm in length.(Fig. 3) An incision that ran half of the total thickness was drawn beginning from the anterior surface of the earlobe to the cleft margin and ending at the inferior point of the medial component.(Fig. 4) After the incision was made, the flaps were undermined and separated from the posterior skin

to produce anterior and posterior subdermal flaps of equal thickness.(Fig. 5) The first flap composed the front layer. The key suture of this layer stretched from the lateral component to the inferior point of the medial component, accomplishing the Z-plasty transposition. The anterior skin was closed with 6/0 prolene sutures (Ethicon Inc., Somerville, NJ, USA). (Fig. 6) A slit was prepared on the posterior surface, and the second subdermal flap section of the medial component was adapted as a Y-V advancement flap.(Fig. 7) The second flap



Fig. 6. Z-plasty flaps transposed and sutured anteriorly.
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Fig. 8. A subdermal back flap was adapted as a Y-V advancement style.
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Fig. 7. Back flap. A slit performed on the posterior auricle. The incision pulls away from the margin with the maintenance of a minimum of 5 mm marginal tissue in the back rear of the lobule.
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Fig. 9. Postoperative view at 14 months. Minimal scar contracture and a notch can be seen, and a satisfactory lobule repair is evident.
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created the back layer and supplied sufficient earlobe bulk to pull the earlobe medially.(Fig. 8)

This technique was applied to two patients to repair their specific deformities. The patients were followed up for a period ranging from 3 to 14 months. She has been wearing earrings since the sixth month postoperatively.(Fig. 9) Ultimately, the consecutive application of the front and back flaps created a well-shaped earlobe. The patients healed uneventfully.

III. Discussion

Malformational auricular anomalies reveal themselves by their absent structural tissue and are caused by damage during embryologic or fetal development. The auricle is formed between the fifth and ninth weeks of gestation in the embryologic period. Failure of fusion of auricular components hillock 1 and hillock 6 is probably the cause of cleft earlobe³. Lower auricular malformations most commonly comprise

cleft earlobe deformities, and they can be classified into four subtypes based on the corrective method required; defective, tag and cleft, tag and cleft with hypoplasia, and simple type².

Acquired cleft earlobe deformity is extensively seen worldwide. However, congenital cleft earlobe presents as a distinct entity. Various reconstructive methods have been described according to the severity of the anomaly⁴⁻⁸. These approaches have used local flaps, grafts and simple suture techniques. The Z-plasty, 7-plasty or other applications can be used to correct simple clefts⁸. The disadvantage of these methods is that a scar line ends from the free margin of the lobule. Alternatively, a method that creates a sutureless-free lobule margin may be preferred⁶.

We used two distinct subdermal flaps. In this technique, the front flap was used for the Z-plasty, while the back became the Y-V advancement flap. This method allowed for control of the rotation of the earlobe as well. To avoid any ischemic condition, we did not use local anesthetics, but we know it is not necessary constantly. Park² corrected this type of anomaly by the using buttoning procedure and a chondrocutaneous postauricular arterial flap. We selected a simple technique that is applicable to clefts with a wide transverse diameter of the lobule. The Z-plasty on the front side is a safe intervention for this condition. After the flap transposition is completed on the front side, it becomes clear which process to use for the second flap on the back side. We chose this method because we consider it to be easier than Park's validated method². The medial component contains thick tissue, so it is suited to various reconstructive options. A common feature of many techniques is that they design a two-layer repair of the lobule^{2,4,6,8}. Cases that are more serious than a simple cleft will still require a local tissue transfer therefore contains extending incisions^{2,9,10}.

We advised our patients that they could begin wearing earrings during the sixth month postoperatively. This time frame was chosen to allow the influence of gravity to overcome possible earlobe contraction and prevent creating a different deformity. We report a useful method that may be worth con-

sidering for some patients with cleft earlobe.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

Acknowledgements

The written informed consent was obtained from each patient.

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References

1. Conrad K, Reifen E. Congenital cleft ear lobe deformity: a staged reconstruction. *J Otolaryngol* 1994;23:19-22.
2. Park C. Lower auricular malformations: their representation, correction, and embryologic correlation. *Plast Reconstr Surg* 1999;104:29-40.
3. Porter CJ, Tan ST. Congenital auricular anomalies: topographic anatomy, embryology, classification, and treatment strategies. *Plast Reconstr Surg* 2005;115:1701-12.
4. Yotsuyanagi T, Yamashita K, Sawada Y. Reconstruction of congenital and acquired earlobe deformity. *Clin Plast Surg* 2002;29:249-55, vii.
5. Fujiwara T, Matsuo K, Taki K, Noguchi M, Kiyono M. Triangular flap repair of the congenital earlobe cleft. *Ann Plast Surg* 1995;34:402-5.
6. Maral T, Tuncali D, Özgür F, Gürsu KG. A technique for the repair of simple congenital earlobe clefts. *Ann Plast Surg* 1996;37:326-31.
7. Hwang K, Kim DH, You SH. Correction of congenital transverse cleft of the earlobe. *J Craniofac Surg* 2011;22:279-80.
8. Qing Y, Cen Y, Xu X, Chen J. A new technique for correction of simple congenital earlobe clefts: diametric hinge flaps method. *Ann Plast Surg* 2013;70:657-8.
9. Okada E, Maruyama Y. A simple method for earlobe reconstruction. *Plast Reconstr Surg* 1998;101:162-6.
10. Zhang JY, Ha F. Congenital auricular deformity consisting of cleft concha and transposition of the earlobe and antitragus. *Plast Reconstr Surg* 1996;97:428-30.