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Posterior Approach for Scoring and Creation of Antihelix in Prominent Ears

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ABSTRACT

This study aims to describe a technique for folding of the cartilage of the prominent ear through the retroauricular incision without anterior scoring. This procedure is done by scoring the posterior surface of the proposed site of antihelix by a rasper to weaken the cartilage. In addition to scoring, a scalpel is used to do two parallel incisions 1-2mm apart on the posterior cartilage through the whole thickness of the cartilage reaching the subcutaneous tissue of the anterior skin to form a stripe of cartilage and to release the anterior tension of the cartilage. Helical fold can be shaped easily with a smooth anterior surface as the stripe of cartilage lies between the two edges of the cartilage. This technique avoids anterior skin dissection and scoring with no risk of haematoma formation. It is less time consuming with single skin approach as anterior scoring is avoided. Twenty-eight ears were corrected in 18 patients. There was no postoperative haematoma while postoperative infection occurred in 2 cases. One patient presented with suture extrusion and another patient presented with prominence of the upper pole of one ear. In conclusion, the procedure is less time consuming with fewer complications and gives satisfactory results for most of the patients ranging from good to excellent.

INTRODUCTION

The aim of correction of prominent ears is to improve cosmoses, preferably without complications. Some use no sutures and some modified suturing to keep the antihelical fold **[1]**. Surgery for prominent ears was first performed in 1881 by Edward Ely **[2]**. Otoplasty should be made while the child is old enough to cooperate with the post operative regimen and before the school age to avoid the psychological impact of ear deformities **[3]**. Scoring of the anterior surface of the cartilage was first introduced by Davis and Gebson in 1958 **[4]**. Chongchet, in 1963, described sharp scoring of the anterior surface of the cartilage to form an antihelix using a scalpel **[5]**. In 1963, Stenstrom used a rasp to score the anterior surface of the cartilage **[6]**. Kaye, in 1967, combined Stenstrom's technique with the Mustarde's posterior sutures **[7]**.

Most of plastic surgeons preferred anterior scoring technique for the treatment of prominent ears **[3]**. Careful anatomic analysis of the ear to determine the precise cause of the ear prominence allows appropriate preoperative planning for good correction of ear deformities **[8]**.

MATERIAL AND METHODS

Eighteen patients, 12 males and 6 females, were operated on between February 2004 and November 2006. Ten of them were children and 8 adults. The age ranged from 4 to 23 years old (mean age was 9 years). These patients presented with 28 prominent ears, 10 of them with bilateral and 8 with unilateral problem. The follow-up period ranged from 4 to 12 months (mean follow-up period was 6 months). The technique used in this study was done through the retroauricular incision using a rasp to weaken to posterior cartilage and in addition two parallel incisions were done on the posterior surface of the cartilage on the proposed site of the new antihelix. These two incisions were 1-2mm apart and going through the whole thickness of the cartilage reaching the subcutaneous tissue of the anterior skin. The cartilage was easily folded as the anterior tension was released.

Surgical technique:

Under general anesthesia, the patient was in supine position. The face and both ears were prepared and draped. The retro-auricular area was infiltrated with 2mL of 1/200,000 diluted adrenaline. The proposed site of the antihelix was marked on the anterior skin. The ear was retracted forward with a double hook and a skin incision was done in the retroauricular area. The skin incision was deepened to the cartilage and the subcutaneous tissue was dissected from the posterior surface of the cartilage. The site of the new antihelix was weakened by scoring using a rasper. A surgical scalpel No. 15 was used to make two parallel

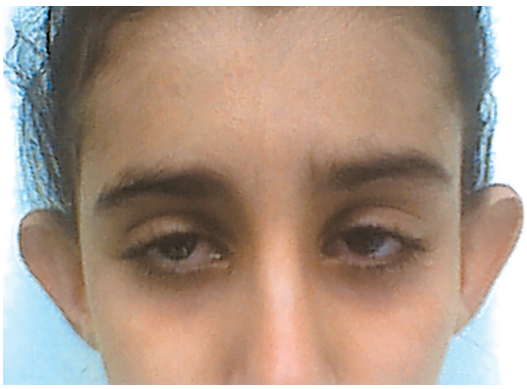
incisions along the posterior surface of the new antihelix fold. These two parallel incisions were done 1-2mm apart and deep enough to reach the subcutaneous tissue of the anterior skin without cutting through the skin. Three to four clear 4/0 prolene horizontal mattress sutures were inserted to fold the cartilage forming the new antihelical fold. The sutures were cut near the knots and buried in the subcutaneous tissue. The skin was closed with 5/0 prolene subcuticular running sutures. A light bandage was applied to cover both ears to avoid patient's discomfort. The bandage was kept in place for 7 days.

RESULTS

The follow-up period ranged from 4 to 12 months (mean period 6 months). All patients were seen in the out-patient office after 7 days where the bandage and the skin sutures were removed. All patients were instructed to wear a sweat hand-band, day and night, for another 7 days and over night only for 2 months.

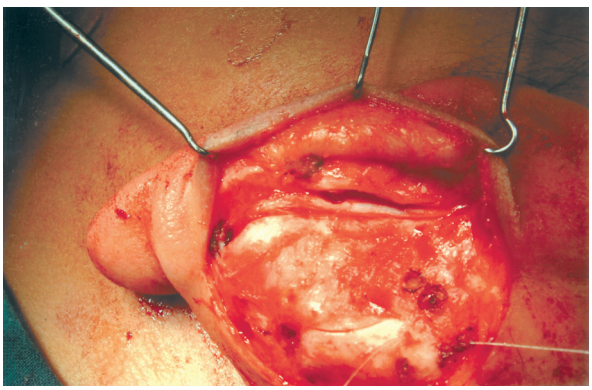
There were two cases (7%) with suture line infection treated with daily dressing and oral antibiotic. There was extrusion of sutures in one case (3.5%) after 28 days. One patient (3.5%) presented with unilateral prominence of the upper pole of one ear. There was neither haematoma nor ecchymosis of the anterior skin. The results were satisfactory ranging from good to excellent for most of the patients.

The results of some cases are shown in Figs (1 & 2).



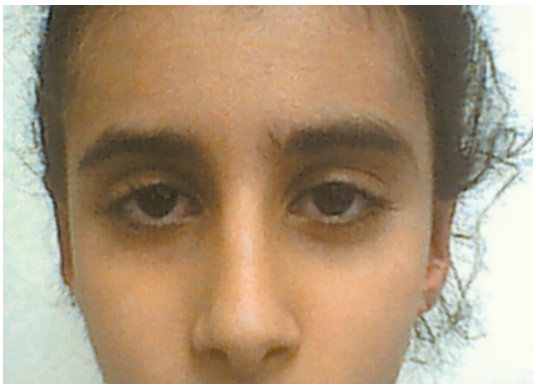
Case (1-A): Pre operative.

Case (2-A): Pre operative.



Case (1-B): Intraoperative two parellel incisions in the cartilage.

Case (2-B): Sweat hand-band.



Case (1-C): Post operative.

Case (2-C): Post operative.

DISCUSSION

There are about 200 different techniques for correction of prominent ears **[9]**. In 1910, Luckett described the importance of correcting the poorly developed antihelix **[10]**. Morestin, in 1903, suggested using horizontal mattress sutures to fold the cartilage. This suggestion was popularized by Mustarde **[11,12]**. Stenstrom, in 1963, advocated the use of closed anterior scoring with a rasp made from open blades of an Adeson-Browne forceps **[6]**. While Mahler and Bulstrode et al., used percutaneuos introduction of a hypodermic needle with a bend in one axis for scoring and soften the anterior surface of the ear cartilage. This procedure required minimal dissection or degloving of the ear cartilage **[13,14]**. Ely, in 1988, used incision on the anterior surface of the skin with the increased risk of keloid and hypertrophic scar formation **[15]**. Endoscopic assisted-otoplasty was first advocated by Graham and Gault in 1997. They reported the use of this technique to correct prominent ears. The instruments were introduced through scalp incisions. No skin incision was used. The posterior cartilage surface was weakened by an abrader to ease the creation of a new antihelix. Non-absorbable sutures were inserted through two stab wounds to hold the new fold **[18]**. The conventional anterior scoring technique for otoplasty is one of the most useful and reliable techniques applicable in all cases of prominent ears. However, in some cases, it is difficult to control the cartilage bending completely **[16]**. While Jeffrey, in 1999, advocated that anterior scoring appeared to have a higher complication rate if supplemented by cartilage sutures **[17]**. In 2003, Hoda and Hassan, reported that the cartilage was weakened by the diamond burrs on its posterior surface and the antihelix was formed as needed by sutures in the dissected perichondrium **[19]**. The technique used in this study has the advantage of single skin approach, less dissection, low risk of haematoma formation, easier procedure especially for the bigeners and it is less time consuming. However, the patient should wear the sweat hand-band for more than two months.

In conclusion, posterior scoring of the cartilage with two parallel cartilage incisions gives comparable good results with other techniques. This technique gives a natural acceptable appearance of both ears with fewer complications.

REFERENCES

1- Asif Z.B. and David O.D.: Sutureless otoplasty by scoring of the cartilage: A study in 34 patients. Br. J. Oral Max. Surg., 45: 217-20, 2007.

2- Ely E.T.: An operation for prominence of the auricles (with two wood-cuts). Arch. Otol., 10: 97-8, 1881.

3- Bruce S.B., Alexander M. and Davis H.S.: The importance of conchal resection in correcting the prominent ear. Aesthetic Surg. J., 25: 72-9, 2005.

4- Calder J.C. and Naasan A.: Morbidity of otoplasty: A review of 562 consecutive cases. Br. J. Plast. Surg., 47: 170-4, 1994.

5- Chongchet V.: A method of antihelix reconstruction. Br. J. Plast. Surg., 16: 268-72, 1963.

6- Stenstrom S.: A natural technique for correction of congenitally prominent ear. Plast. Reconst. Surg., 32: 509-18, 1963.

7- Kaye B.L.: A simplified method for correcting the prominent ear. Plast. Reconst. Surg., 52: 184, 1967.

8- Daniel G.B., Stephen S.L., Jeffrey B.W. and Jacob D.S.: Analysis in otoplasty. Facial Surg. Clin. North Amr., 14: 63-71, 2006.

9- Thomas S.S. and Fatah E.: Closed anterior scoring for prominent ear correction revisited. Br. J. Plast. Surg., 54: 581-7, 2001.

10- Luckett W.H.: A new operation for prominent ears based on the anatomy of the deformity. Surg. Gynecol. Obstet., 10: 635-7, 1910.

11- Mustarde J.C.: The correction of prominent ears using simple mattress sutures. Br. J. Plast. Surg., 16: 170-6, 1963.

12- Mustarde J.C.: The treatment of prominent ears by buried sutures: A ten year survey. Plast. Reconst. Surg., 39: 382-6, 1967.

13- Mahler D.: The correction of the prominent ear. Aesthetic Plast. Surg., 10: 29-33, 1986.

14- Bulstrode N.W., Huang S. and Martin D.L.: Otoplasty by percutaneuos anterior scoring: Another twist to the story; a long-term study of 114 patients. Br. J. Plast. Surg., 56: 145-9, 2003.

15- Ely J.F.: Small incision otoplasty for prominent ears. Aesthetic Plast. Surg., 12: 63-9, 1988.

16- Nikolas L.D., Ioannis T., Ioannis D. and Dimitris K.: Correction of the protruding ear with modified anterior scoring technique. J. Oral. Max. Surg., 56: 307-13, 1998.

17- Jeffery S.L.A.: Complications following correction of prominent ear: An audit review of 122 cases. Br. J. Plast. Surg., 52: 588-90, 1999.

18- Graham K.E. and Gault D.T.: Endoscopic assisted-otoplasty: A preliminary report, 50: 47-57, 1997.

19- Hoda Salah and Hassan Mostafa: Otoplasty for prominent ear. International Congress Series, 1240: 603-5, 2003.