Aesthetics in Ear Surgery : A Comparative Study of Different Post Auricular Incisions and their Cosmetic Relevance

Chandra Shekhar • Kranti Bhavana

Abstract

Post auricular incisions play a very important role in the final post operative position of pinna and hence keeps a cosmetic bearing. This study shows that “behind the groove” incision gives a better post operative result in terms of minimal deviation of pinna and thus is cosmetically a better incision. This study also includes a new method to measure the concho-mastoid or the post auricular angle.

Keywords Concho-mastoid angle • Post auricular incision • Behind the groove incision

Introduction

At the very outset it would be prudent to discuss the relevance of this topic in the present scenario. The study focuses on a very basic thing like incision but as practicing ENT surgeons we all are aware of the fact that operating on a mastoid surface is a challenge as it has both curved and a rough surface and hence a meticulous incision can always lead to a very good post operative cosmesis. Though in normal circumstances the effect of position of the pinna on the facial profile is not given enough importance but only when it is altered that the person becomes aware of the disturbing fact. Hence for an otologist it becomes important that he gives a good surgical as well as cosmetic result to the patient. It is with this view that this study holds importance.

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Chandra Shekhar (✉)
Associate Prof. and HOD.,
Dept. of E.N.T. Patna Medical College Patna

Kranti Bhavana
Post Graduate Student, Final Year

It is a well known fact that incision on the mastoid surface is governed by various factors and all these have their bearing on the post-operative result.

- a) Incision in paediatric patients is different in comparison to the adults as the facial nerve is superficial in them.
- b) Incision on a healthy skin has a good post operative result in comparison to that on fistulous or unhealthy skin.
- c) Suturing of the incision in single or double layer has effect on the final position of pinna. Keeping these aspects in mind this study was taken up with the following aims.

Aims and Objectives

1. To measure the concho mastoid angle with accuracy.
2. To measure the deviation of this angle in different positions of post auricular incisions.
3. To observe the deviation with regards to different ear operations.
4. To observe the effect of “*in the groove incision*” and “*behind the groove incision*” on the displacement of pinna.

Materials and Methods

The study was carried out in the department of ENT, Patna Medical College, Patna.

- 1 In this study the incision has been categorized into two where “behind the groove” denotes post auricular incision that is 0.5 cm behind the retroauricular groove at superior and inferior aspect of pinna and 1 cm behind at the level of the tragus (Fig.1). This incision is different than the “in the groove incision” where the incision is placed in proper retroauricular sulcus.

Fig. 1 Showing the incision**Fig. 2** Impression material alginate**Fig. 3** Markings on the pinna**Fig. 4** Application of alginate**Fig. 5** Cut sections at which angles taken**Fig. 6** Post op result

- 2 40 patients were selected out of which 20 patients underwent myringoplasty and 20 patients underwent mastoidectomy.
- 3 Out of those 20 patients in each category 10 patients were given “in the groove incision” and 10 patients were given “behind the groove incision”.
- 4 In all the cases the incision was closed in two layers with catgut and mersilk.

Measurement of the post auricular or choncho - mastoid angle:

This was the most challenging task of all as the proper difference in the final position of pinna after the two different types of incisions could be ascertained only if this angle was measured with accuracy. For measuring the angle, a completely new method was improvised using dental impression alginate. Alginate has a unique property of taking the shape of any surface once mixed with water (Fig. 2). It settles in about 30 seconds and then can be easily stripped

off the surface taking its shape. Three points on the pinna were marked namely superior, tragal and inferior which corresponded to the superior most aspect of the retroauricular groove, tragus level, and lobule level respectively (Fig. 3).

Alginates was applied and after taking the final shape of the post auricular region of pinna straight sections were cut at these levels and the angle was measured (Fig. 4) (Fig. 5). It was observed that the choncho-mastoid angle of both the ears in a normal person was almost similar, hence measuring the operated and unoperated ear could easily give the deviation of pinna almost accurately.

Observations

After having measured the angle in all the 40 patients of myringoplasty and mastoidectomy following observations were made

Chart. 1 Shows 10 patients of myringoplasty where “in the groove” incision was given and the deviation is as high as 47 degrees at the tragal point

Chart. 2 Shows 10 patients of myringoplasty where “behind the groove” incision was given and the deviation has come down to as low as 15 degrees

Chart. 3 Shows 10 patients of mastoidectomy of “in the groove” incision where the deviation is as high as 60 degrees.

Table No. 1 The average deviation of pinna in different positions of incisions

Type of operation	In the groove SUP; Tragal; INF.	Behind the groove SUP; Tragal; INF.
Myringoplasty	11.8, 25.5, 9.5	5.8, 10.0, 5.7
Mastoidectomy	17.3, 43.0, 12.3	10.4, 24.7, 9.9

The above table shows the average deviation of the operated ear in comparison to the unoperated one at the three corresponding points as described before.

- It is well noted that in those 10 patients of myringoplasty in whom “in the groove” incision was given had more deviation of pinna in comparison to those in whom “behind the groove” incision was placed (Fig. 6).
- Similar finding were seen in mastoidectomy operations but the point to be noted is that the overall deviation of pinna was more in comparison to that seen in myringoplasty.
- As seen in the table, the deviation is maximum at the tragal point and hence cosmetically it becomes the most important point.

Discussion

The above study very well signifies the fact that when incision is given slightly behind the retroauricular groove of the pinna and skin incision is given meticulously then the

postoperative deviation of pinna is minimal and the cosmetic result is also good.

The deviation is more in mastoidectomy in comparison to that of myringoplasty as mastoplasty is an integral part of the procedure and that entails some amount of change in the final position of pinna.

Maximal deviation occurs at the midway that is at the so called tragal point and hence it is cosmetically the most important position to be taken care of during surgery. The suturing of the incision has to be done in two layers. In our department this is done with catgut and mersilk. This usually prevents undue popping up of the pinna. The mastoid bandage that is applied should not be very bulky and the post auricular region should not be loaded with extra gauze pieces as this may later lead to unwanted deformity inspite of a good surgery.

The basic principle behind the use of such incision lies in the fact that by giving incision slightly behind the proper retroauricular sulcus we are preserving the soft tissue of the angle and hence when healing takes place then the angle is

well maintained even post operatively. This prevents deviation of pinna and gives a good cosmetic appearance.

Often the mastoid surface is diseased as in the case of abscess and fistula. In such cases it is slightly difficult to restore back the original position of pinna post operatively. In such cases too a pre-op planning regarding the incision should be made and then it may be possible to give a good cosmetic result to the patient.

Conclusion

To conclude it can be stated that :

- a) “Behind the groove” incision is better in comparison to the “in the groove” incision for a good cosmetic result
- b) “Behind the groove” incision preserves the post auricular or the concho-mastoid angle by avoiding injury to the soft tissue of that area and hence deviation is prevented thereof.

- c) Proper incision and suturing is imperative for a good result
- d) Practicing this incision right from the very beginning can give great patient satisfaction.

Hence change your incision to behind the groove as “ **it is not the strongest of the species that survive, nor the most intelligent, but the one who is most responsive to change**”.

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