Simplification of Total Ear Reconstruction for Microtia

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Introduction:

The ear is difficulty to reproduce surgically. Total ear reconstruction for microtia type III using the autogenous rib cartilage framework is accepted world-wide and also is the treatment of choice. There are many surgical methods to reconstruct the ear. Three stages total ear reconstruction according to Brent's technique was recommended. The procedure to construct the ear framework is important to achieve the good result of contour and detail of helix, anti-helix and anterior triangle. Many authors constructed the ear lobule continuing with the ear cartilage framework even the patients do have the ear lobule.

Method:

Three stages total ear reconstruction according to Brent's technique was used. First-stage was performed when the patient was 7 years old or when the costal cartilage grew enough to be use as an ear framework by removal of vestigial cartilage and insertion of constructed cartilage framework into the subcutaneous pocket at post-auricular area. The contra-lateral rib cartilage was used to construct the ear framework. The first floating rib was used to construct the helix. The 6th to 8th ribs cartilage were used as a base of the ear framework. The anti-helix and the anterior triangle were constructed from rib cartilage and placed over the base of ear framework. 3/0 nylon was used to suture and fix the ear framework. The cartilage at the base between helix and anti-helix should be removed enough to create the groove which made it more prominence of helix and anti-helix. Two pieces of rib cartilage were embedded beneath the scalp to be used in the third-stage. The ear framework was placed into the subcutaneous pocket. The post-auricular skin is some what thicker than normal and blunts the details of a carved cartilage framework. There was not necessary to construct the cartilage framework as an ear lobule except in an anotia patient. The contour, axis, detail of helix, anti-helix and position of the ear framework should be corrected or readjusted before finishing the operation. One radivac drain was placed and removed 24 to 48 hours after the operation. The second-stage was performed 1-3 months later to rotate the ear lobule into the proper position. Then the third-stage was performed at least 3 months after the second-stage. The reconstructed ear was raised. The pieces of cartilage beneath the scalp were used and placed subperiosteally to support the ear 30-40 degrees to the skull. The thick split thickness or relative full thickness skin graft was used to cover the raw surface at posterior aspect of the ear and post-auricular area.

Figure 1 Harvested the contralateral costal cartilage and constructed the ear frame

Figure 2 First stage total ear reconstruction

Figure 3 Second stage total ear reconstruction

Figure 4 Third stage total ear reconstruction

Results:

The Harvesting of the costal cartilage with construction of the ear framework was shown in figure 1. The first, second, and third stage total ear recon-struction were shown in the figure 2, 3 and 4 respectively.The result was satisfactory. The recon-structed ear has good contour, axis, position, helix, anti-helix, anterior triangle and ear lobule.

3 months after third stage total ear reconstruction

Conclusions:

The treatment of choice for microtia type III is total ear reconstruction from autogenous costal cartilage. Three stages reconstruction were recommended. This operative technique is simple compared to the other methods which constructed the ear cartilage frame-work including the ear lobule. There is not necessary to construct the ear framework including the lobule except in an anotia patient. Some cases need touch up operation for minor correction of the detail of the reconstructed ear. However, this reconstructed ear has no tragus, no concha and no external ear cannal.

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