MASTOID OBLITERATION WITH AUTOLOGOUS COSTAL CARTILAGE AFTER CANAL WALL DOWN MASTOIDECTOMY
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ABSTRACT

INTRODUCTION

Costal cartilage were harvested with middle ear surgery concurrently. We prefer the right side to distinguish cardiac symptom. About 2.0 cm incision is made just inferior to the inframammary crease in the female and below the inferior border of the pectoralis major muscle in the male patients. Skin is incised with a scalpel, and dissection through the subcutaneous tissue, fat, and external oblique muscle is performed with cautery. We tried to harvest 7th or 8th rib because this cartilage has enough volume with small incision. Tactile appreciation for the straightest rib cartilage guides the direction of dissection. The perichondrium is incised with a scalpel in the shape of a T. A periosteal elevator is then carefully used to lift the perichondrium. A 15-blade scalpel is then used to make incisions both at the rib shaft and at the midportion of the rib. We harvest the cartilage using the gouge. To evaluate the effectiveness and complications of the mastoid obliteration with autologous cartilage after CWD was performed, satisfactory postoperative audiometry, neodrum findings, temporal bone CT and complications including wound infection and canal wall displacements were evaluated.

METHODS AND MATERIALS

Patients

• From January 2009 through January 2010, a retrospective study was performed on patients who underwent mastoid obliteration with autologous costal cartilage after CWD was performed.

Complication evaluation

Postoperative wound infection, neodrum state, healing time, canal wall displacements were evaluated in all patients.

Audiologic evaluation

• The pre & post operative hearing threshold was calculated as the mean value of the threshold for 500, 1000, 2000, 3000 Hz.

Computed Tomography

• After the canal healing was completed, in 10 ears, we did follow-up TBCT to determine the status of mastoid cavity and middle ear cavity.

RESULTS

The total number operated on was 38cases. 12 patients were male and 26 patients were female, and their average age was 44.8 years (range 19-64 years). The average postoperative follow-up period was 11.4 months, ranging from 9 to 14 months. Follow-up temporal bone CT was performed in 14 cases, mastoid obliteration was well obliterated and the contour of external auditory canal was maintained. Postoperative audiometry was assessed in 20 patients and air-bone gap was improved in 18cases. The preoperative air-bone gap was 23.8 ± 9.7 dB (mean ± SD) and the postoperative air-bone gap was 7.3 ± 4.5 dB. All except two patients showed successful postoperative audiometry with 20 dB. For all cases in the study, complications such as postoperative wound infection, perforation, and canal wall destruction were not developed. Small skin dehiscence at the harvest site occurred in one case and healed up with reapproximation of the wound. All except one patient showed successful postoperative air-bone gap within 20 dB. Hearing improvement of all cases were well obliterated in follow-up temporal bone CT.

CONCLUSIONS

Adequate amount of cartilage could be harvested from the costal cartilage and mastoid obliteration could be successfully performed with normal shaped canal and hearing improvement. We propose the autologous cartilage obliteration as an attractive material for mastoid obliteration after canal wall down procedure.

Discussion

The canal wall down procedure is essential to remove the extensive middle ear disease completely. To prevent postoperative complications of this procedure, many methods were devised. We could successfully obliterate mastoid cavity and remodel the canal using sufficient autologous costal cartilage after canal wall down mastoidectomy. Autologous cartilage showed high success rate & low ablation rate. It has several advantages like resistance to infection, sufficient volume for remodeling of external auditory canal, saving money and time. We suggest the autologous cartilage as an attractive material for mastoid obliteration after canal wall down procedure.

There was no complication in costal cartilage harvest. Any problem at harvest site of costal cartilage was not complained in our patients.

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