

inflammatory condition of their middle ear. In all cases, after complete eradication of the pathology, mastoid cavity was obliterated with abdominal fat followed by double layered external auditory canal obliteration with special cosmetic concern. Surgical outcomes of this procedure were analyzed.

Results: Middle ear inflammation and cholesteatoma were completely managed with this surgical technique. None of the patients showed the inflammatory symptoms of otorrhea or other early inflammatory complication after the surgery. Cochlear implant was successfully placed and active electrodes were fully inserted in all of the 10 patients. Only one patient showed the delayed extrusion of the ball electrode to the obliterated ear canal which was successfully managed by replacement of extruded ball electrode with conchal cartilage reinforcement under local anesthesia. Postoperative quality of life during the medical interview revealed the highly satisfied status of subtotal petrosectomy from both disease eradication and cosmetic viewpoints.

Conclusion: Subtotal petrosectomy seems to be very safe, effective and even cosmetically acceptable procedure for the deafened patients with chronic otitis media whether accompanying cochlear implantation is planned or not.

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Updates in the surgical managements for cholesteatoma (N845)

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Atticosinoplasty for early cholesteatoma management

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Learning Objectives:

Objective: These days surgery rates for early cholesteatoma and residual or recurrent cholesteatoma are increasing. For this matter, Prof. Keehyun Park suggested a surgical technique called 'atticosinoplasty' to mediate early cholesteatoma. Thus, we analyzed the adequacy and applicability of atticosinoplasty as a treatment for early cholesteatoma comparing with other surgical techniques.

Materials & Methods: One hundred seventy two patients who underwent atticosinoplasty (n = 72) or canal wall up mastoidectomy (n = 73) in Ajou University Hospital (Suwon, Korea) between 2002 and 2014 were enrolled in this study. Patients with less than 12 months of follow up period were excluded from this study. During the follow up, post-operative physical examination and audiometry were performed including temporal bone CT in necessary cases. Based on these data, recurrence and re-operation rate, pre- and post-operative hearing levels, and hearing gain were compared between both groups.

Results: The atticosinoplasty technique includes the removal of cholesteatoma through atticotomy or posterior sinusectomy, removal of incus and malleus, transmeatal endoscopic exploration, ossicle reconstruction and wall reconstruction

with cartilage. There was no significant difference of hearing gain (PTA) between the atticosinoplasty group (44/72 patients) and the CWUM group (47/73 patients). Decrease of air-bone gap was detected in 61% (44/72) patients in the atticosinoplasty group and in 64% (47/73) in the CWUM group ($p > 0.05$). Revision mastoidectomy was performed in 3 (4.2%) in the atticosinoplasty group and in 4 (5.4%) in the CWUM group. However, revision ossiculoplasty was done less in the atticosinoplasty group (7, 9.7%) rather than the CWUM group (18, 24.6%) ($p < 0.05$).

Conclusion: Atticosinoplasty can be considered as an effective surgical technique for the treatment of early cholesteatoma, resulting in low recurrence rate and improved hearing.

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Endoscopic management of cholesteatoma

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Learning Objectives: Endoscope is widely accepted instrument for minimally invasive surgical approach for many clinical field. The main benefits of endoscopic management for cholesteatoma surgery are preserving the normal anatomical structure with complete removal of disease in the complicated middle ear structure. There are two aspects of endoscopic cholesteatoma surgery: totally transcanal endoscopic surgery vs. endoscope as an adjuvant instrument. Though totally transcanal endoscopic ear surgery (TEES) can provide wide surgical view without destruction of normal anatomical structures, it has disadvantage of one hand surgery with two instrument in relatively narrow ear canal. Surgical time for the TEES is longer than in microscopic surgery, especially for the beginners. We use the endoscope for every cholesteatoma surgery as an adjuvant instrument for microscopic surgery. With combined approach from both transcanal and transmastoid approach, we use the endoscope of 45 and 70 degree for inspection of blind spot in the middle ear cavity, and remove the remnant or residual cholesteatoma with intact canal wall. The chances of canal wall down approach were reduced dramatically with this methods. This technique is very useful especially for adhesive middle ear disease, attic cholesteatoma and congenital cholesteatoma. We will present the cases of adhesive middle ear disease, attic and congenital cholesteatoma with this endoscope as an adjuvant for microscopic surgery.

Endoscope is widely accepted instrument for minimally invasive surgical approach for many clinical field. The main benefits of endoscopic management for cholesteatoma surgery are preserving the normal anatomical structure with complete removal of disease in the complicated middle ear structure. There are two aspects of endoscopic cholesteatoma surgery: totally transcanal endoscopic surgery vs. endoscope