ENDOSCOPIC MANAGEMENT OF MIDDLE EAR / MASTOID CHOLESTEATOMA

EE Yuin Su [1]; SOW Aye Jane [2]  
1 – ENT Department, Timberland Medical Centre, Kuching, Sarawak, Malaysia  
2 – ENT Department, Normah Specialist Medical Centre, Kuching, Sarawak, Malaysia

Information/ Background

• Traditionally, cholesteatoma is treated by surgery, using the microscope. Examples of cholesteatoma surgery are modified radical mastoidectomy (MRM), cortical mastoidectomy and atticotamnectomy.
• The operating microscope gives excellent magnified view in a straight line and free the surgeon’s hands to operate, but requires wide surgical exposure to reach hidden areas in the middle ear.
• The endoscope provides direct wide field vision of the disease and the hidden areas in the middle ear. Therefore, it provides the surgeon another visualization tool during surgery.
• The objective of this study is to analyze the outcomes and complications of endoscopic ear surgery for middle ear and mastoid cholesteatoma.

Materials and Methods

• Retrospective review of 18 cases of endoscopic ear surgery for cholesteatoma from September 2013 till November 2018 was carried out.
• Cases of open surgery where endoscope was used as an adjunct for visualization at the end of open surgery were excluded.
• Data were collected from clinic notes, surgical notes, surgery video recordings and audiology records.

Results and Discussions

• 18 patients underwent endoscopic ear surgery for middle ear and mastoid, age of patients range from 9 years to 78 years, mean age 37 years, 11 males (1 male patient had both ears operated at different time) and 6 females.
• There were 12 cases of cholesteatoma presenting without complication, of which 3 involved the attic and antrum (1 congenital cholesteatoma), and 9 had disease in the middle ear and mastoid (1 recurrent cholesteatoma after open MRM).
• There were 6 cases of cholesteatoma presenting with complication, of which 2 presented with facial nerve palsy, 2 with labyrinthine fistula, 1 with dural sinus thrombosis and intracranial abscess, 1 with extradural abscess. 5 of the 6 cases had mastoid disease, while 1 case with only attic disease had stapes erosion and labyrinthine fistula.
• All cases with limited attic and antrum cholesteatoma had transcanal endoscopic atticotamnectomy and attic reconstruction (TCEAR). 1 case had labyrinthine fistula patched and repaired at the same time as TCEAR. 2 cases involving attic and mastoid, with good pre-op hearing level and intact ossicular chain, had combined cortical mastoidectomy, and transcanal endoscopic atticotamnectomy and attic reconstruction (CMTCEAR). Combined endoscopic and open surgery enabled cholesteatoma to be removed completely without disruption of the ossicular chain. 7 cases of cholesteatoma presenting without complication, had endoscopic modified radical mastoidectomy (eMRM). 5 cases of cholesteatoma presenting with complication, had extended endoscopic modified radical mastoidectomy (eeMRM) and facial nerve decompression, repair of labyrinthine fistula or skull base defect, draining of dural sinus abscess or temporal subdural abscess.
• Surgical time range from 120 to 270 minutes, mean time 178 minutes, median 165 minutes. Most patients were discharged after 1 to 3 days, with exception of 1 patient with temporal abscess who was warded for 6 days. Mean hospital stay was 1.65 days, median 1 day.
• Patients’ follow-up postoperatively range from 1 month (lost to follow-up) to 62 months, with exception of 1 patient who died due to huge concurrent temporal abscess. Mean follow-up was 18.71 months. 1 patient (6.25%, n=16) had recurrence at 21st month post-operatively. The patient was treated by transcanal endoscopic cholesteatoma removal under local anaesthesia, and remain recurrence free since then. 15 out of 16 patients (93.75%, n=16) had no recurrence.
• There were 5 immediate / early post-operative complications, includes 1 with delayed Bell’s palsy, 1 with vertigo, 1 with BPPV, 1 with wound dehiscent and 1 with mastoid granulation / otomycosis, all resolved.
• Post-operatively, there were 2 cases of chorda tympani cut during surgery, 3 cases had small central perforations, 2 cases had attic perforations (both ears from same patient, who had long term ear and nose symptoms since childhood). There were no cases of new facial nerve palsy post-operatively. 2 cases with pre-operative facial nerve palsy (House-Brackmann Grade 2 and Grade 3) recovered completely. 2 patients had worsening of sensorineural hearing loss post-operatively (both with labyrinthine fistula and perilymph leak noted during surgery, of which 1 patient’s hearing recovered partially). Of the 13 ears with pre and post-surgery pure tone audiograms, 9 ears (69.2%, n=13) had improved hearing, mean hearing improvement is 4.09 dB.

Conclusion

This retrospective review concludes that endoscopic ear surgery is a safe surgical technique for removal of middle ear and mastoid cholesteatoma, with low intra-operative and post-operative complications, low cholesteatoma recurrence, and high hearing preservation rate.