

Cholesteatoma involved the epitympanum in 78%, mesotympanum in 77%, and mastoid in only 52%. Subsite involvement in the epitympanum was: posterior 86%; middle, superficial to ossicles 69%; middle deep to ossicles 54%; anterior 65%, and anterior epitympanic recess 9%.

In the mesotympanum it was central over promontory in 76%; posterior-superior in 72%; in the facial recess and sinus tympani in 48%, anterior in 22% and in the hypotympanum in 12%.

In the mastoid it was restricted to the antrum in 52% and more widely in 26%.

Differences are described in the pattern of spread dependent on the site of origin from tympanic membrane.

Conclusion: This data shows cholesteatoma is primarily a condition of the meso- and epitympanum. One thus needs to be able to remove it from the complex subsites of the middle ear, including retrotympaanum, and rehabilitate the mesotympanum. The frequent involvement of the ossicles in the epitympanum demands techniques to mitigate recidivism here. Our South African data is significantly different from what the literature describes - the question is whether this disease is different in different regions.

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Meeting Medical Expectations in Pediatric Cholesteatoma Surgery – Revisited

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Learning Objectives: to establish realistic expectations in pediatric cholesteatoma in the era of non-EPI-diffusion weighted MRI.

Introduction: Cholesteatoma is a struggle for a safe and convenient condition with the least possible surgeries in the presence of a disease that tends to re-create after complete removal due to the compromised ME physiology, as well as the possibility of residual disease.

Methods: Data collected from consecutive pediatric cholesteatoma surgeries performed by a single surgeon (ML) between 2001 and 2005 and between 2011 and 2015. Type and number of surgeries performed in each group over the follow up period before (2001 and 2005) and after (2011 and 2015) the introduction of non-EPI-diffusion weighted MRI were compared. Revision surgery was also performed in both groups at any point when recurrent cholesteatoma is detected by routine follow-up otoscopy (4–6 weeks, 3 m, and every 6 m thereafter).

Results: There were no significant medical or surgical complications in either group. 54.5% of the children operated between 2001–2005 ended with a CWD mastoidectomy condition (radical cavity) after a mean follow up of 5.8 ± 3.8 . None of the children operated during

2011–2015, after the introduction of routine periodic post-operative non-EPI diffusion MRI follow-up ended at this point or expected to have at any point a radical mastoidectomy.

Conclusions: Currently, radical mastoidectomy with meato-plasty should not be used as one of the routine surgical options in pediatric cholesteatoma. Follow up (clinical and imaging) after cholesteatoma is absolutely mandatory, without it, children with cholesteatoma are exposed to a very significant and unnecessary risk. In cases of repeated, de-novo re-creation of cholesteatoma, or repeated infection in an existing radical cavity, a CWD mastoidectomy with blind sac obliteration of the EEC and the ME cleft is also a very practical option in certain cases, as it eliminates de-novo re-creation of cholesteatoma.

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Hearing in Patients with Cholesteatoma: Facing Reality

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Learning Objectives: to confront the otologic community with the non-optimal hearing of individuals with controlled cholesteatoma.

Introduction: Goals of management in cholesteatoma are to create a safe ear (avoiding complications), to achieve a dry and convenient ear and to reach the best possible hearing restoration. Although hearing restoration is not defined as the first priority for treatment in cholesteatoma, it may have serious long-term effects on patient's life.

Methods: The study included two study groups. In one group there were 260 consecutive cholesteatoma surgeries, 128 adults and 132 children. The mean group follow-up was 6.6 ± 12.8 yrs. Hearing thresholds were analyzed according to type of surgery performed and age of the patients (children Vs adults). The other group includes 39 ears of children who were operated after the introduction of routine use of none EPI-diffusion weighted MRI and the complete avoidance of traditional radical cavities. In this group follow up was much shorter (Mean 1.4 ± 1.3 yrs.)

Results: Mean group air conduction (AC) PTA after canal wall up procedures were 38 dB in children and 55 dB in adults. Mean group AC-PTA after canal wall down procedures were 70 dB in children and 60 dB in adults. Group AC-PTA after canal wall up procedures were 38 dB in children and 55 dB in adults. In the group with radical mastoidectomy and reconstruction of the EEC and mastoid obliteration mean group AC-PTA was 40 dB as compared to 60 dB in the canal wall down cases which were left as radical cavities.

Conclusions: The mean AC-PTA of ears with controlled cholesteatoma indicates that hearing is unsatisfactory in many of the individuals with controlled cholesteatoma. When it is evident that hearing is not within normal thresholds (whether ossiculoplasty was performed or not) all relevant rehabilitation options should be offered to the patients, including conventional hearing aids, bone conduction systems, middle ear implants or cochlear implants.

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Middle Fossa approach to Bone Bridge Surgery

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Learning Objectives: to popularise the middle fossa approach to placement of the receiver stimulator and vibrating mass transducer of the bone bridge implant instead of the mastoid cavity

Introduction: The Bone Bridge is a new bone conduction device that works on the principle of transcutaneous sound transmission and a vibrating mass transducer placed with titanium screws on to the mastoid bone to deliver sound to the cochlea in conductive and mixed hearing losses. Since we use this technique mostly in children and adults with microtia, the placement of the device in the mastoid can compromise future otoplasty surgery for pinna reconstruction. We demonstrate a technique of middle fossa placement of the device that is easier to perform, quicker and leaves the post aural skin free for later reconstruction.

Methods: The bone bridge has a large vibrating mass transducer that needs a well fitting circular cavity so that the titanium screws are placed properly. We chose the area above the mastoid, above the transverse sinus for placement where a small incision can place the implant easily and firmly

Results: Of the cases performed in two centers, London health sciences center has done 19 and Calicut MESIARC 6. All these are middle fossa placements. The age of the patients vary from 4 years to 58. Placement timing was between 30–40 minutes for one side. No post operative immediate or delayed complications were noted. Hearing results were excellent.

Conclusions: The middle fossa technique of bone bridge vibrating mass transducer is a safe, easy and quick technique even in very young children with minimum morbidity

Learning Objectives: It is expected that this technique is more widely followed than the conventional sinodural angle placement method

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Facial nerve dehiscence and middle ear cholesteatoma: endoscopic vs microscopic approach

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Learning Objectives: - Endoscopic approach in cholesteatoma surgery - Endoscopy vs microscopic approach in cholesteatoma surgery - Facial nerve dehiscence evaluation using oto-endoscopy

Introduction: Facial paralysis is one of the most devastating postoperative complications of cholesteatoma surgery, and dehiscence of the Fallopian canal may contribute to this serious complication. In recent years endoscopic approaches to the middle ear have increasingly been used. The aim of this study was to assess the incidence of facial nerve dehiscence in a group of patients with middle ear cholesteatomas who underwent primary exclusive endoscopic surgery (PEES).

Methods: Forty attic cholesteatomas were enrolled in the study. 20 patients underwent PEES were compared with a group of 20 patients that undergone microscopic surgery. Preoperative and postoperative clinical symptoms and disease duration before surgery were evaluated, together with the presence and site of facial nerve dehiscence, the presence and site of labyrinthine fistula, the type of surgery performed and the duration of the operation.

Results: The incidence of intraoperative facial nerve dehiscence in the EES group was 27.1%. Dehiscence was present in 42.3% of the patients who underwent revision surgery. The most common site of dehiscence (92.3%) was the tympanic segment. Similar data were reported in patients treated with microscopic approach without statistical difference between the two groups. No difference regarding post-operative complications was present in the two groups. PEES exhibited shorter surgical time.

Conclusions:

- Primary endoscopic surgery is a minimally invasive approach that circumvented bony work in sclerotic mastoid with antral or periantral cholesteatoma involvement with shorter times compared with mastoidectomy.
- Endoscopy is a 1-hand surgical manipulation and in some situations the need of 2-hand manipulation can oblige the use of microscopic dissection. However its complementary option in dehiscent facial nerve appears essential for evaluating hidden areas as in the area posterior to the geniculate