

Presenting Author: **Issam Saliba**

Issam Saliba¹, Musaed Alzahrani², Rami Alhazmi²,
Belair Manon¹

¹University of Montreal, ²King Fahad Specialist
Hospital-Dammam, Saudi Arabia.

Learning Objectives: 1) To learn the importance of MRI diffusion in cholesteatoma followup 2) to understand how fusion of mastoid CT scan and MRI diffusion can localize precisely residual cholesteatoma.

Objective: To evaluate the ability of a preoperative mastoid Computerized tomography scan (CT scan) fusion with the postoperative diffusion weighted magnetic resonance imaging to accurately localize a residual cholesteatoma thus sparing an unnecessary postoperative CT scan radiation.

Study design: Prospective study

Setting: Tertiary care center.

Patients and methods: We followed up prospectively a consecutive group of patients presenting with middle ear cholesteatoma using preoperative mastoid CT scans, postoperative mastoid CT scan and diffusion weighted-MRI between 2008 and 2009.

Postoperative Diffusion Weighted-MRI images were fused to both: the preoperative and postoperative mastoid CT scans. Fused images were evaluated for their ability to detect accurately the location of residual cholesteatoma. If any, results were correlated to surgical findings.

Results: Twenty-seven patients were included in the study; only nine patients showed middle ear opacity on the postoperative CT scans; the remaining negative patients were excluded. Diffusion weighted MRI had detected residual cholesteatoma in 3 out of the nine patients. Both CT scans; preoperative and postoperative, were able to precisely localize the residual cholesteatoma when fused to the postoperative diffusion-weighted MRI. Intraoperatively, two patients had a residual cholesteatoma that correspond to the fused radiological images. The third was cholesteatoma free.

Conclusion: Diffusion weighted MRI / CT scan fusion combines the advantages of cholesteatoma detection and precise localization. Preoperative CT scan performed before the first surgery can be used for the fusion to spare the patient an unnecessary another CT scan and thus decreasing radiation exposure.

doi:10.1017/S0022215116002619

Imaging for Cholesteatoma and ear structure (R676)

ID: 676.3

DWI imaging in extensive petrous bone cholesteatoma

Presenting Author: **Simon Lloyd**

Simon Lloyd, Hannah North, Simon Freeman,
Scott Rutherford, Charlotte Ward, Andrew King
TBC

Learning Objectives: To assess the utility of DWI imaging in the assessment of recurrence of extensive petrous bone cholesteatomas.

Methods: A prospectively updated database of patients who had undergone surgery for extensive petrous bone cholesteatoma was interrogated. All patients had undergone annual DWI imaging. Data was collated including extent of disease, surgical approach and recurrence based on clinical assessment and DWI imaging. Analysis of factors associated with recurrence was undertaken.

Results: 63 patients were included. Age range was 10 to 83 years. 60% presented with good facial function (House-Brackmann grade I or II) and 33% presented with useable hearing. The most common location of disease was supralabyrinthine 33%) although 28 (44%) had apical disease. Complications were limited with one patient developing a CSF leak, one patient an abdominal wall haematoma, and one patient an infection in the wound. 11% had residual hearing following surgery. 63% had good facial function at 1 year post operatively. 5% had clinically apparent residual/recurrent cholesteatoma but 30% had residual/recurrent disease on DWI imaging. 70% of recurrence was initially managed conservatively but 60% eventually required repeat surgery.

Conclusions: DWI MRI is a useful technique for confirming the diagnosis and assessing extent of petrous bone cholesteatoma. It has also become the gold standard for identification of recurrent disease and has much better sensitivity and specificity than clinical assessment. Its extensive use has demonstrated that recurrence rates of petrous bone cholesteatoma are much higher than historic papers based on clinical assessment would suggest. Not all recurrence requires treatment, however.

doi:10.1017/S0022215116002620

Imaging for Cholesteatoma and ear structure (R676)

ID: 676.4

How the use of CBCT and MRI has changed our management of cholesteatoma

Presenting Author: **Thomas Somers**

Thomas Somers, E Offeciers, J van Dinther, A Zarowski,
B Defoer, J Casselman

European Institute for ORL

Cholesteatoma remains a clinical diagnosis but today imaging has become an important cornerstone in the diagnostic work-up of this condition. Conebeam CT offers a much higher resolution of the interface between bone, air and soft tissue, while the associated irradiation dose is substantially lower, as compared to multi-detector CT scans. As such, CBCT has become very useful for the pre-op work-up of patients with cholesteatoma showing with precision bony erosion of the ossicular chain and erosion of the petrous bone (as fistulae, perilyabyrinthine erosion, intracranial invasion). Also the aeration of the