State of the art imaging of cholesteatoma

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Dr. Bert de Foer

Dr. De Foer graduated as M.D. from the KU Leuven, Belgium in 1990. He completed his radiology residency at the University Hospitals Leuven (Prof. Dr. A. L. Baert) in 1995 and performed a supplementary training in MRI at the University Hospital Antwerp (Prof. Dr. A. De Schepper, Prof. Dr. P.M. Parizel) during the period 1995 - 1997. In 1997 he became consultant radiologist at the department of Radiology of the St. Augustinus Hospital in Antwerp, GZA Hospitals, Antwerp, Belgium, where he became responsible for Head and Neck radiology.
In 2011, he obtained a PhD at the KU Leuven with a dissertation entitled 'The value of Magnetic Resonance Imaging in the preoperative evaluation and the postoperative follow-up of middle ear cholesteatoma' for which he also received in December 2012 the scientific price Emeritus Prof.Dr. A.L. Baert, a bi-annual price attributed to a successfully defended PhD thesis in radiology.
In 2013, he obtained his European Diploma in Head and Neck radiology (EDiHNR) of ESHNR (European Society of Head and Neck Radiology)
In 2016, he obtained his European Diploma in Neuroradiology (EDiNR - European Society of Neuroradiology) after having completed the entire ECNR course, 13th cycle.
In 2017, he became a teacher at the ECNR course, 14 th cycle, and an examiner for the EDiNR.
In September 2017, he was assigned as vice-president of the ESHNR for the next 3 years.
In September 2020, he will become president of the ESHNR for 3 years.

Learning Objectives

1. To describe the recommended imaging protocol for pre- and post-operative imaging in suspected cholesteatoma.
2. To review the imaging characteristics of cholesteatoma as a consequence of middle ear inflammation, congenital cholesteatoma and cholesteatoma recurrence.
3. To illustrate typical pitfalls of image interpretation and discuss strategies to avoid them.

4. To describe the key points, which should be included in a clinically relevant radiologic report

Test Your Knowledge

1. One of the major differential diagnosis of cholesteatoma on imaging is cholesterol granuloma. Cholesterol granuloma displays
   a. high SI on T1 / high SI on T2/ high SI on b1000 images / low SI on ADC maps
   b. low SI on T1 / low SI on T2/ high SI on b1000 images / low SI on ADC maps
   c. high SI on T1 / low SI on T2 / high SI on b1000 images / low SI on ADC maps
   d. high SI on T1 / high SI on T2 / low SI on b1000 images / high SI on ADC maps
   e. low SI on T1 / high SI on T2/ high SI on b1000 images / low SI on ADC maps

2. Evaluation of patients after first stage cholesteatoma surgery is done using
   a. obligatory second look surgery after one year
   b. wait and see policy
   c. CT scan after one year
   d. MRI using non-EP DWI after one year
   e. Clinical evaluation alone

3. Which statement is correct?
   a. The most frequent complication of middle ear cholesteatoma is facial nerve palsy
   b. Incus long apophysis erosion is a handmark of pars flaccida middle ear cholesteatoma
   c. Chronic middle ear infection never causes ossicular erosion
   d. Maleus head and/or incus body and/or incus short process erosion is a handmark of pars flaccida cholesteatoma
   e. Chronic middle ear infection may cause erosion of the scutum

4. A routine MRI evaluation protocol in patients 1 year after first stage surgery to exclude residual cholesteatoma should include
   a. TSE T2 / SE T1 without and with Gd
   b. TSE T2 / SE T1 without and with Gd / EP DWI
   c. TSE T2 / SE T1 without Gd / EP DWI
   d. TSE T2 / SE T1 without and with Gd / non – EP DWI
   e. TSE T2 / SE T1 without GD / non – EP DWI

5. Which statement is correct?
   a. Congenital cholesteatoma is more frequent than the acquired cholesteatoma
   b. The acquired cholesteatoma is never associated to chronic infection
   c. The pars flaccida cholesteatoma is much more frequent that the pars tensa cholesteatoma
   d. Imaging in cholesteatoma prior to first stage surgery is only required in case of complications
   e. Imaging in cholesteatoma prior to second stage surgery is only required in case of complications