

Infant Cholesteatoma about 18 Cases

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Abstract

Original Research Article

Cholesteatoma is a chronic otitis media that is dangerous because of its evolving risks and potentially complications. Its clinical diagnosis is often less easy because of the difficulties of the otoscopic examination, it is more aggressive, responsible for a significant extension and a higher rate of residual cholesteatomas and recurrences. The age of the children varies between 7 and 16 years, a female predominance is found, the sex ratio is 0.5H / F, and a history otitis in 83.3%. Otorrhea and hypoacusia are the most common symptoms. A tympanic perforation is found in 88.8% of cases, a retraction pocket in 11.1% of cases, and a sentinel polyp in 11.1%. The audiometry allows to quantify the hearing loss and to follow the functional outcome of the patient; the audiogram shows pure transmission deafness in 66.66% of the cases, a mixed deafness in 22.22%. The average hearing loss is 35 dB. CT scan showed an ossicular lysis in 44.4% of the cases, wall of the stall in 50% of cases and tegmen tympani in 11.11% of cases. Canal wall up tympanoplasty, is the technique of choice in children, it was performed in all our patients. Cholesteatoma pathology is potentially dangerous in children due to their destructive and recurrent tendency. Its diagnosis must be early; CT scan remains the examination of choice for the preoperative extension of the diagnosis. New delayed gadolinium-enhanced T1-weighted and diffusion-weighted MRI sequences have recently been developed and provide more precise radiological diagnosis for postoperative follow-up. Treatment of cholesteatoma is exclusively surgical and the Canal wall up tympanoplasty remains preferred in children. Recurrence is a real problem of surgery; and therefore, it is necessary to closely monitor any patient operated for cholesteatoma since no cure can be affirmed for five years.

Keywords: children; cholestéatome; tympanoplasty; diffusion.

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INTRODUCTION

Cholesteatoma is a dangerous chronic otitis media affecting adults and children due to its progressive risks and potentially serious complications. In children, cholesteatoma presents a greater aggressiveness, responsible for significant expansion and a higher rate of residual cholesteatoma and recurrence [1].

The aim of our work is to analyze through a wide literature review: The epidemiological, clinical, paraclinical, therapeutic and evolutionary features of chronic cholesteatomatous otitis media in 18 children treated in our department.

MATERIALS AND METHODS

Our work is a retrospective study of 18 cases of chronic cholesteatomatous otitis media in children, collected at the ENT department of Moulay Ismail

Military Hospital in Meknes, during the period from January 2014 to December 2016.

RESULTS

The age of our children ranged between 7 and 16 years, the average age was 11.5 years, a female predominance was found, the sex ratio was 0.5H / F, and an otitic history in 83, 3%. Otorrhea and hearing loss are the most common symptoms. On otoscopic examination, tympanic perforation was found in 88.8% of cases, a retraction pocket in 11.1% of cases, and a sentinel polyp in 11.1%. Audiometry revealed pure transmission deafness in 66.66% of the cases, a mixed deafness in 22.22%. The CT of the temporal bone makes it possible to specify the extensions and to look for possible complications (figure 1). There is ossicular lysis in 44.4% of the cases, wall of the stall in 50% of the cases and tegmen tympani in 11.11% of the cases.

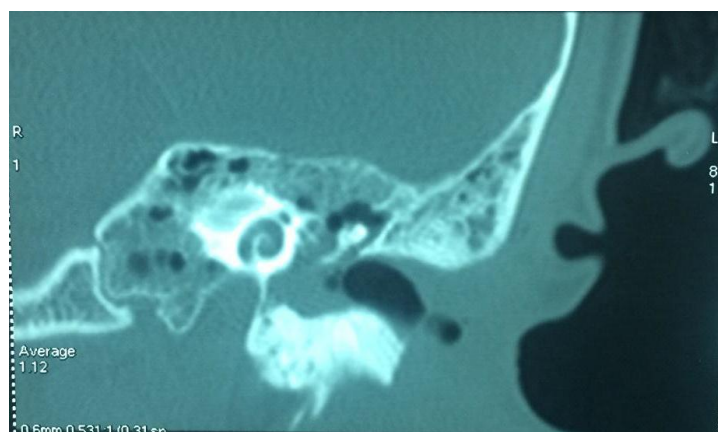


Fig-1: CT of temporal bone in coronal cut showing a filling of the box of left eardrum with preservation of the ossicular chain and dullness of the wall of the epitympanic recess.

Canal wall up tympanoplasty is the technique of choice in children; it has been performed in all our patients. The short-term evolution was good and uncomplicated in immediate postoperative. Subsequently, a control audiogram was performed first at one month, then at three months and one year after the intervention. Hearing has been improved or preserved and there have been no reports of worsening or iatrogenic cochlosis. There is an average transmission gain of 10 dB. Patients whose ear has been stabilized

with a hearing loss greater than 30 dB, a device has been proposed.

Post-operative CT scan was performed for all patients between 9 and 18 months after. We noted the occurrence of 4 cases of recurrence (%), in 3 cases the cholesteatoma was evident on CT, and in one case we used MRI (figure 2). The 4 patients were reoperated 3 by the same technique on the 4th by wall-down tympanoplasty.

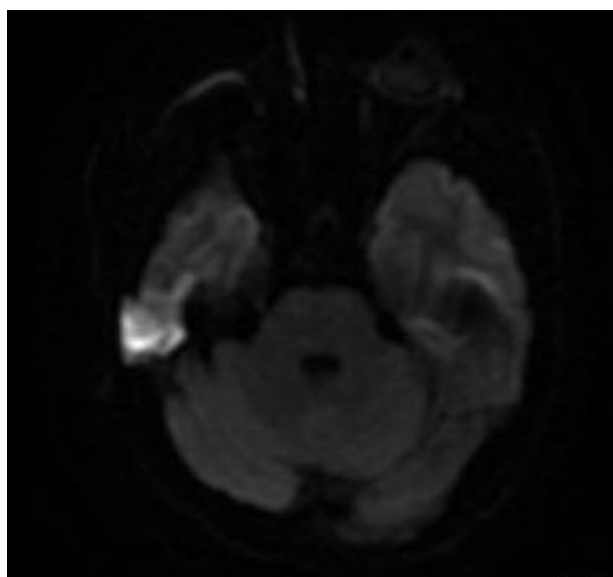


Fig-2: Hypersignal of the tympano-mastoid cavity on b800 diffusion: diffusion sequence indicating a recurrence of the cholesteatoma

DISCUSSION

The incidence of cholesteatoma is difficult to determine in children, especially for congenital cholesteatoma. In recent years, there has been a decrease in the incidence of acquired cholesteatoma in adults and children. The frequency of cholesteatoma in children has increased by a third in those under 16 in 1925 to three per 100,000 in the early 2000s (compared to nine per 100,000 in adults) [1]. Some authors link this decrease to better management of otitis media, in particular the increase in the number of trans-tympanic aerators installed [2].

The consultation period in children generally remains earlier than in adults. In the majority of cases, the signs suggestive of cholesteatoma are otorrhea and hearing loss. Revealing complications have decreased in frequency in industrialized countries but should be systematically sought (such as mastoiditis, facial paralysis, brain abscess, meningitis...). Audiometry quantifies hearing loss and tracks the patient's functional outcome. Deafness is generally of the pure transmission type [3-5].

The radiological exploration is based on CT which allows to specify the extensions and to look for possible complications of cholesteatoma. It is also the examination of choice to visualize the anatomical configuration of the tympano-mastoid cavities, thus participating in the development of the surgical strategy [1, 3].

MRI has more recently been introduced in cholesteatoma assessment, and is indicated for initial extension assessment, in case of contact with the meninges in particular, and for postoperative follow-up in case of doubtful CT images. MRI characteristics in cholesteatoma are: isosignal with or without peripheral enhancement on post-gadolinium T1-weighted sequences, and isosignal on T2-weighted sequences. Associating delayed (45 minutes) gadolinium enhanced T1-weighted sequences improved diagnosis of residual cholesteatoma. The cholesteatoma never shows enhancement, appearing in hyposignal with respect to surrounding tissue. In the last few years, a new type of sequence known as diffusion-weighted sequence has provided further information for residual lesion screening. Cholesteatoma shows as hypersignal on diffusion-weighted sequences. The b-factor is usually b800 in children and b1000 in adults. The MRI resolution threshold is 3 mm on standard sequences, but just under 5mm on diffusion-weighted sequences [1, 3, 4].

The treatment remains exclusively surgical, aimed at eradicating the disease in order to obtain a healthy and airy ear, but also restoring hearing. The choice between canal wall-up tympanoplasty and canal wall down tympanoplasty, depends on many parameters: the condition of the diseased and contralateral ear, hearing, nasal sinus field, preoperative computed tomography [5, 6].

Canal wall-up tympanoplasty remains the technique of choice in children. The widespread use of cartilage as a reconstruction material has resulted in a significant reduction in the rate of recurrence. Long-term monitoring can screen for residual cholesteatomas and recurrences, which appear to be more common in children than in adults, due to the particular aggressiveness of the child's cholesteatoma.

The second formerly systematic surgical look is currently oriented by imaging and in particular by CT performed approximately 12 to 18 months after the first surgical phase, which in case of doubt will be supplemented by MRI which differentiates the fibro-

inflammatory scar tissue from cholesteatoma [7]. In children it is necessary to pay attention to the irradiation repeated by the scanner which corresponds to approximately 8 years of irradiation, knowing that the maximum is 100 years, beyond there is a risk of radio-induced cancer.

CONCLUSION

Cholesteatomatous pathology is potentially dangerous in children by its destructive and recurrent tendency, giving it greater aggression and invasive potential. Its diagnosis must be early; the CT remains the examination of choice for the preoperative extension assessment. Treatment is exclusively surgical and the closed technique remains preferred in children. Prolonged monitoring (several years) is necessary, based on the clinic but above all imaging (MRI scanner) is highly recommended.

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