

Lysis of the three Semicircular Canals in Chronic Otitis Media with Cholesteatoma

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ABSTRACT

The cholesteatoma of the middle ear is a chronic otitis qualified as dangerous because of the risk of evolution of potentially serious complications. Labyrinthine fistula represents an erosive loss of the endochondral bone overlying the labyrinth. Labyrinthine fistula occurrence is one of the most common complications in chronic otitis media with cholesteatoma(2-3). Very commonly, the fistula is seen in the lateral semicircular canal (6-7). But very rarely cases of lysis for the three semicircular canals. We report the case of 30-year-old man admitted to the emergency for right fetid purulent otorrhea and rotary type vertigo for 15 days, who presented a chronic right sided otorrhea 8 years ago and homolateral hypoacusis. Computed tomography shows lysis of the 3 semicircular canals. The treatment is essentially surgical with open technique. Regression of vertigo and dry ear is the benefits.

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INTRODUCTION

The cholesteatoma of the middle ear is a chronic otitis qualified as dangerous because of the risk of evolution of potentially serious complications. It is characterized by the presence in the middle ear cavities of a keratinized squamous epithelium endowed with extensive, invasive and lytic potentialities(1).

Labyrinthine fistula represents an erosive loss of the endochondral bone overlying the labyrinth. This loss of the overlying protective bone allows pressure or mass-induced motion of the underlying endosteum, perilymph, and by contiguity, the endolymphatic compartment, evoking vestibular and sometimes auditory symptoms (1).

Labyrinthine fistula occurrence is one of the most common complications in chronic otitis media with cholesteatoma (2-3). The incidence of labyrinthine fistula secondary to cholesteatoma has remained relatively constant over the last 50 years. A frequency of 5-10 % is reported in most studies (7-8). Most commonly, the fistula is seen in the lateral semicircular canal (6-7), while cases of lysis of the three semicircular canals are very rare. The treatment of this

lesion is exclusively surgical, based on the principle of the complete eradication of all the epidermal lesions invading the middle ear. This work reports a case about lysis of the three semicircular canals and their surgical treatment.

OBSERVATION

This is a 30-year-old man admitted to the emergency department of the hospital of specialties, for fetid purulent otorrhea of right ear and rotary-type vertigo for 15 days. He presents as antecedents episodes of chronic right-sided otorrhea 8 years ago, with homolateral hypoacusis. The otoscopic examination of the right ear after aspiration of otorrhea finds a translucent polyp, bleeding on contact, filling the entire external auditory canal. The vestibular examination shows a positive fistula sign, the ROMBERG sign is negative and the FUKUDA test is negative. Preoperative audiometric shows a transmission deafness at 70 dB of the right ear with lateralized WEBER on the left. The temporal bone Computed Tomography (CT) shows lysis of the 3 semicircular canals: lateral, posterior and anterior(Fig.1,2,3),a labyrinthine fistula, lysis of the tympanic tegmen (Fig. 1b).

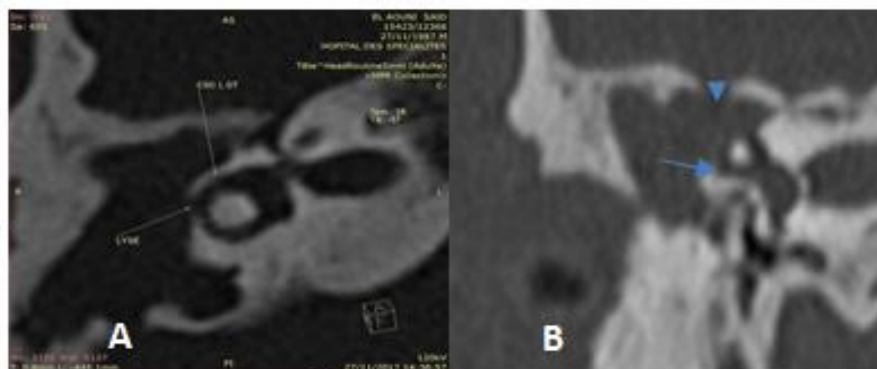


Figure 1. A - Axial CT image showing the labyrinthine fistula of the lateral semicircular canal of the right ear. B – Coronal view of the lysis of the lateral semicircular canal (arrow) and the tympanic tegmen (arrowhead) of the right ear.

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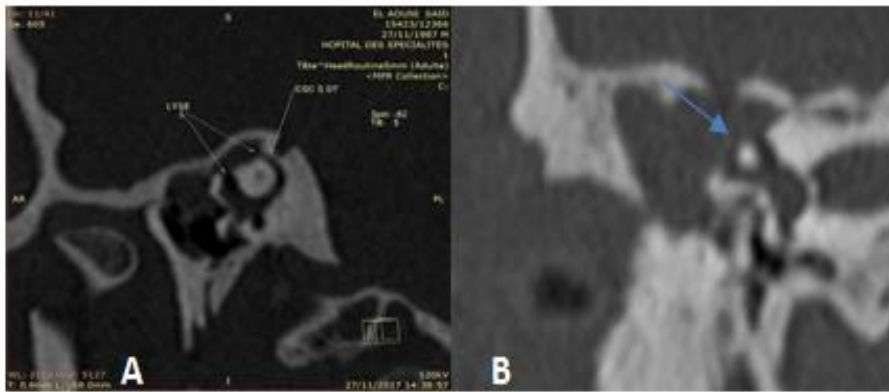


Figure 2. Temporal CT demonstrating the lysis of superior semicircular canal of the right ear, on an oblique (A) and coronal (B) view.

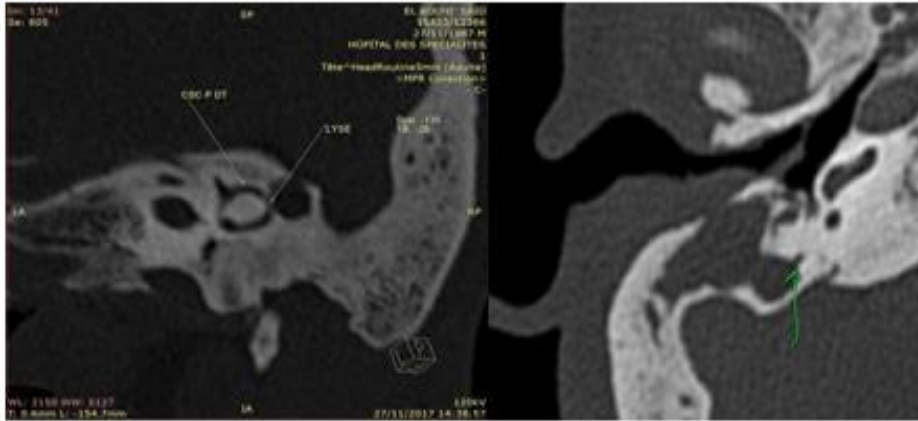


Figure 3. Temporal CT showing the lysis of inferior semicircular canal of the right ear.



Figure 4. Surgery made by open technique with filling the three fistulas of the canals with tragal cartilage with pieces of temporal facial.

The infections were prevented by using Topical and oral antibiotics preoperative period. Surgery made by open technique with filling the three fistulas of the canals with tragal cartilage with pieces of temporal facia (Fig. 4), then pieces of spongicell. Postoperative control regression of episodes of vertigo, dry, well epithelialized cavity within three months following surgery. A postoperative audiometric evaluation reported a no change in the bone and the air conduction pure tone average.

DISCUSSION

The evaluation and management of labyrinthine fistula secondary to cholesteatoma remains unsettled. Definitive preoperative diagnosis is not possible in all patients. Further, universal consensus on management of this problem does not exist. While the incidence of chronic otitis media and cholesteatoma have decreased, certain factors should alert the otologist to potential or impending complications. The presence of vertigo in association with otorrhea and/or sensorineural hearing loss should increase the level of suspicion of labyrinthine involvement secondary to a middle

ear or mastoid pathology. A positive fistula test strongly suggests labyrinthine involvement, which is the case of our patient. The absence of positive findings on pneumatic otoscopy is most likely secondary to a mass effect within the middle ear that prevented transmission of a pressure change to the inner ear.

This abnormality, as well as such other signs of the labyrinthine involvement as decreased bone conduction and facial nerve involvement, should serve to alert the otolaryngologist to the possibility of a fistula.

When history or physical findings suggest labyrinthine invasion, radiographic imaging of temporal bones should be considered.

Current-generation CT has allowed increased resolution of the structures within the temporal bones and is now considered the investigation of choice. While it would be expected that this type of imaging would be helpful in confirming the presence or absence of labyrinthine invasion by cholesteatoma, in our case the fistulas are identified with CT. Similar difficulties were noted in other previous

reports(8).Preliminary consultation with the neuroradiologist should improve the likelihood of an accurate diagnosis. The treatment of this complication is the source of many controversies. Some authors favor the use of techniques, recommending staged removal in selected cases(9). Others advocate open techniques for the management of labyrinthine fistula(10). This type of approach a more extensive intraoperative exposure and a safer postoperative observation. The rarity of lysis for the three semicircular canals makes the surgery difficult.

CONCLUSION

The lysis of the three semicircular canals is a very rare complication of the cholesteatoma whose diagnosis is clinical and radiological. His treatment is basically surgical with open techniques

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