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RESEARCH ARTICLE

IMAGING ASPECT OF TYMPANOSCLEROSIS : A CASE REPORT

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Abstract

We report a 50-year-old female case with tympanosclerosis, revealed by a hearing loss on the left side. A CT scan of the petrous bonerevealedlesions of middle ear. This case shows the interest of imaging in the ckaracterization of tympanosclerosis lesions.

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Introduction:-

Tympanosclerosis is anabnormal scarring process of the middle ear,characterized by a deposition of hyaline calcareous on the tympanic membrane, in the tympanic cavity, on the ossicular chain, the ligaments and occasionally in the mastoid. (1,6)

The etiology of tympanosclerosis is still not fully understood. Immunological reactions, genetic predisposition, infection, trauma and free oxygen radicals are possible underlying causes of tympanosclerosis.(6)

The clinical incidence of tympanosclerosis is 5–10% in patients who suffered from chronic otitis media. It is bilateral in around 50% of cases. Tympanosclerosis was seen most commonly in individuals over 40 years of age.(2,3)

Observation:-

We report a case of a 50 year-old female presented to the otorhinolaryngologic department for a hear lossing on the left side processing for 1 year. She had no history of chronic otitis media, ear trauma or ear surgery.Physical exam and otoscopy did not reveal any abnormality of extrenal auditory canals or tympanic membranes.

An audiogram revealed mixed hearing loss on the left side.

A CT scan of the temporal bone showed calcified tympanosclerotic materiel in the epitympanum, those calcified block formations are extended to the incus which is fixed to the tegmen. (Figures 1 and 2)

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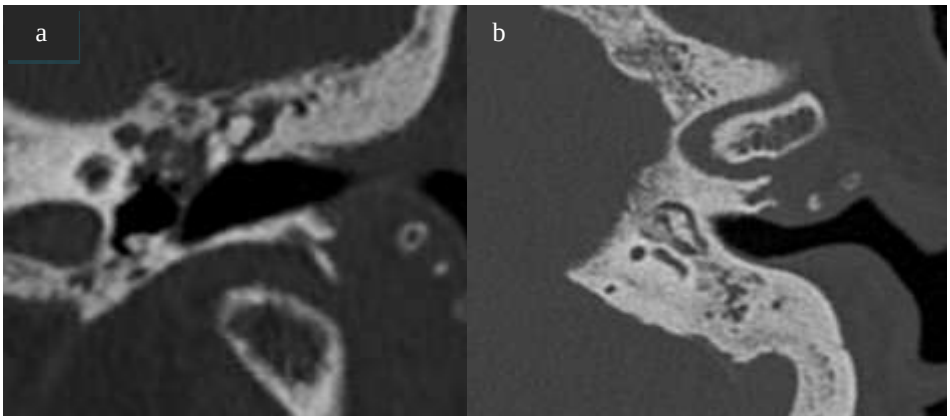

Figure 1:- (a)coronal CT-image (b) axial CT-image of left ear : incudo-malleolar complex fixation.

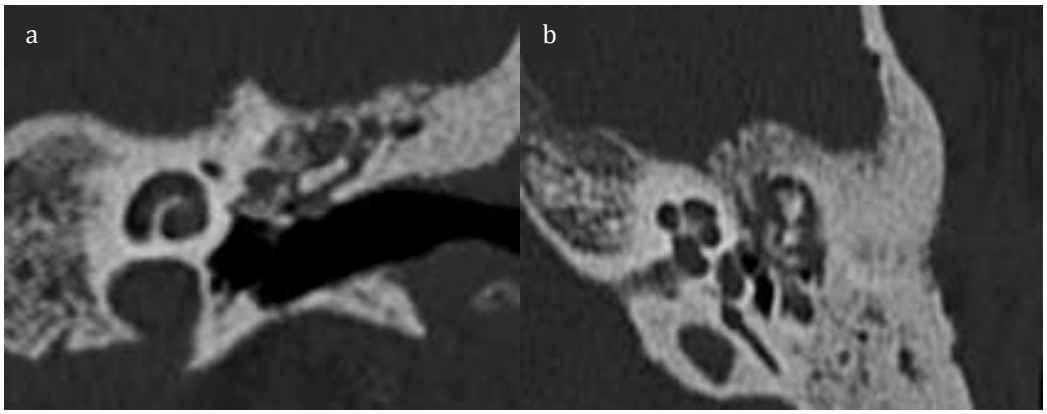

Figure 2:- Calcified tympanosclerotic material in the epitympanum in the left ear: (a)coronal CT-image(b) axial CT-image.

Discussion:-

Tympanosclerosis is an abnormal condition of the middle ear. It is a clinico-anatomical entity which can also be defined as the irreversible end-result of any unresolved inflammatory process in the ear that has produced anatomical injury and almost always functional impairment (5)

Tympanosclerosis affects the tympanic membrane alone in 50%. In 30%, middle ear structures are affected, as ossicular ligaments, interosseous joints, muscle tendons and submucosal areas, causing varying degrees of fixity of the ossicular chain. Tympanosclerosis affects both, the tympanic membrane and the middle ear structures, in 20%(6).

Tympanosclerosis is revealed, almost all the time, by a hearing loss. It is rarely accompanied by otorrhea (6).

CT-imaging has a high interest in improving the positive and the differential diagnosis of tympanosclerosis.Endoscopic findings correlated to CT-scan determine the appropriate treatment of tympanosclerosis.

Myringosclerosis :

One type of tympanosclerosis, is characterized by calcified plaques and hyalinization of of the tympanic membrane. It may vary from very tiny spots of calcifications to large thickened calcified plaques. (8,9)

Calcified material inside the tympanic cavity :

Tympanosclerosis inside the tympanic cavity may manifest as a calcification of the ligaments, folds and tendons, in form of bandlike structures, that cross the cavity, calcifications of the capsule of the incudomallear joint. Tympanosclerosis can manifest by diffuse calcifications throughout the tympanic cavity and its recesses or even

calcified block formations with narrowing of the lumen of the cavity, or extend to the antrum and mastoid. However, not all tympanosclerotic lesions are shown by CT as calcified formations, especially the chalk type, which appears as condensation images hardly differentiate (6,7).

Treatment depends on the disease extension. The benefits of surgery for tympanosclerosis could be limited in several cases. The controversy is whether or not removal of calcified plaques would improve hearing.

It consists of non surgical rehabilitation of the hearing loss due to when there is a probable non satisfactory outcome from the surgical treatment.(8,9)

Conclusion:-

Tympanosclerosis is an abnormal condition of the middle ear. CT-imaging play an important role to clarify the diagnosis of tympanosclerosis and give to the otolaryngologist a preoperative evaluation, especially behind an intact tympanic membrane.

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