The malleus, the heart of the tympanic-ossicular chain

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OBJECTIVE

METHODS AND MATERIALS

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CONCLUSIONS

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The anterior ligament has a cylindrical shape and provides the union between the manubrium of the malleus and the tympanic spine of the incus; this ligament also contributes to support the tympanic membrane. The malleus is a crucial element of the tympanic cavity and the epicentre of the movements that physiologically sustains hearing, having been detected the existence of 3 major ligaments, contrary to the 4 or 5 previously mentioned by other authors.

First, we are located at the mesotympanum and the last at the mesotympanum, making it therefore more fragile and being at the origin of a significant number of infection processes, which ultimately lead to its collapse. In 15% of the cases a posterior pocket communicates with the superior and only 25% of the cases anterior pocket communicates with the superior, giving the absence of a meso in its apex. It is this intratympanic “abnormal” that cholesteatoma develops and grows, the most damaging processes according to the presence of faciitcellar factors.

CONCLUSIONS

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The anterior malleus fold, identified in 98% of cases, is the most central element of the malleal system and the union between the malleus, the tympanic membrane and the adjacent thin external lateral ligament, creating a surgical point of cleavage, facilitating the detachment of the tympanic membrane and preventing its collapse (Fig. 1). The anterior malleolus fold has an exuberant concave curve, which causes the tympanic membrane to contact directly with the malleal border of the manubrium. It was found that, at the upper border of the manubrium, the connection between the tympanic membrane and the malleus (Figs. 2 and 3) was quite clear, while in other places, it was not. Malleal folds, located anterior and posterior, are mucosal folds that exist in 95% of cases, crescent shaped, and not exceeding 0.5 mm wide.

The anterior ligament lies in the outer side of the tympanic membrane, on top, from the Processus propius to the superior tympanic wall, creating an anatomical barrier to cholesteatoma evolution (Fig. 4). The malleolus fold, identified in 98% of cases, forms the connecting link between the lower half of the tympanic membrane and the anterior border of the manubrium. In many cases, at the edge of the malleolus fold, there is erosion of the wall, the two structures are simultaneously detached. This ligament divides the external hall of the epitympanum, on top, from the Prussak pocket or superior tympanic pocket, creating an anatomical barrier to cholesteatoma evolution (Fig. 4).

The external lateral ligament, composed of fibrous tissue, lays out like a fan between the neck of the malleus and the Rivinus notch. The proximity between this ligament and the malleolus fold contributes to the surgical point of cleavage, facilitating the detachment of the tympanic membrane and preventing its collapse (Fig. 1). Malleal folds, anterior and posterior, are mucosal folds that exist in 95% of cases, crescent shaped, and not exceeding 0.5 mm wide.