Keratosis Obturans–Pathologic Version of Ear Wax Problem

Gerhard Goerres¹, Markus Huth²,3, Patrick Dubach²,3*

¹Institute of Medical Radiology, Buergerspital Solothurn, 4500 Solothurn, Switzerland
²Department of ENT, Head and Neck Surgery, Buergerspital Solothurn, 4500 Solothurn, Switzerland
³Department of ENT, Head and Neck Surgery, Inselspital, University Hospital, 3010, Switzerland

*Correspondence to: Patrick Dubach, Department of ENT, Head and Neck Surgery, Buergerspital Solothurn, 4500 Solothurn, Switzerland, E-mail: Patrick.Dubach@spital.so.ch

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Introduction

Keratosis obturans (KO) has been identified as a distinctive clinical entity by Piepergedes et al. [1]. KO has to be separated from other canal pathologies, i.e. primarily from external ear canal cholesteatoma [2] (EACC).

KO is clinically heralded by symptoms of hearing loss, bilateral ear pressure and frequently intensive otalgia. The definitive hallmark marks are the clinical signs of circumferentially distended external ear canal by bilateral keratin plugs mostly on both sides. Establishing the diagnosis can difficult as adequate cleaning of the ear canal is often cumbersome and painful requiring several stages of canal cleaning with help of the microscope.

Case Report

A young otherwise healthy female Indian immigrant was referred emergently. She suffered from acute very intense right sided ear pain and hearing loss. Both ear canals were filled with firm keratin plugs and conclusive otoscopy was not possible despite of successive attempts for keratin removal. The tuning fork test did not lateralize and test of Rinne was bilaterally negative. In order to rule out middle ear involvement or bone affection due to an impending potential infectious complication a CT scan was performed.

CT evaluation and findings

Computed tomography (CT) is the first imaging method to evaluate the middle ear and bony structures of the petrosal bone. CT allows to reformate images in different projections [3] facilitating the diagnosis of the regular circumferential distention of the external ear canal by the keratin plug [4,5] with “suspended annulus” [6] typically found in KO (Figure 1A and Figure 1B). Both features are typical findings in KO and stand in contrast to any irregular focal canal erosion or even invasion, as typically seen in EACC or malignant ear canal diseases [2] (i.e. carcinoma, multiple myeloma, histiocytosis).

Comment: Only after adequate pre-treatment with keratinolytic agents and analgetics complete otoscopic removal of the keratin plug in several stages (Figure 2A) was tolerated by the patient. The final otoscopy correlated with CT evaluation by an extremely wide, circumferentially distended ear canal with an intact annulus “suspended in the air” (Figure 2B: arrow). Following regular cleaning the patient remained free of disease.

Figure 1: CT scan after multiplanar reformation in axial (1A) and coronal planes (1B) illustrating the regular distension of the ear canal and the very low density of the plug due to its high fat content pushing the tympanic membrane to the middle ear.
Figure 2: Removed Plug (2A) and otoscopic image of circumferentially distended bony ear canal (2B) by the pressure of the KO. Distention of KO respects the integrity of the tympanic annulus and tympanic membrane “suspended” at the wide medial canal wall (arrows)

References

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