Dual Aural Pathology: Keratosis Obturans and Cholesteatoma in an Adolescent

Çift İşitsel Patoloji: Bir Adolesanda Keratoz Obturans ve Kolesteatom

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ABSTRACT

Keratosis obturans and cholesteatoma has been known as two different entities involving ear. As keratin material are found in both of these entities, it poses a great a diagnostic challenge. Herein, we report on a 14-year-old patient who presented with bilateral reduced hearing with unilateral otalgia which turned out to be right keratosis obturans with left cholesteatoma. We would like to highlight on the possibility of dual pathology in a patient which if overlooked could be detrimental ensuing the possible complications.

Keywords: Keratosis obturans; cholesteatoma; external ear canal; otalgia

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ÖZET

Keratoz obturans ve kolesteatom, kulağı içeren iki farklı varlık olarak bilinmektedir. Keratin materyali bu varlıkların her ikisinde de bulunduğundan, büyük bir tanısal zorluk teşkil eder. Burada sağ keratoz obturans ve sol kolesteatom olduğu ortaya çıkan tek taraflı kulak ağrısı ve bilateral işitme azalması ile başvuran 14 yaşında bir hastayı sunuyoruz. Bir hastada göz ardı edildiğinde olası komplikasyonlara yol açabilecek ikili patoloji olasılığının altını çizmek istiyoruz.

Anahtar Sözcükler: Keratoz obturans; kolesteatom; dış kulak kanalı; kulak ağrısı

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INTRODUCTION

Keratosis obturans (KO) and cholesteatoma are two different aural pathology. Keratosis obturans is a rare condition characterized by the accumulation of desquamated keratin material in the bony portion of the external auditory canal (EAC) (1). Classically, it presents with severe otalgia, conductive type of hearing loss and circumferential widening of the bony ear canal (2). Cholesteatoma, on the other hand, is more common and presents with otalgia and otorrhea (3). Cholesteatoma is described as a destructive cystic lesion lined by keratinizing stratified squamous epithelium with associated bony erosion and periosteitis (4).

Our patient, interestingly presents with keratosis obturans and cholesteatoma in the contralateral ear.

CASE REPORT

A previously healthy 14-year-old girl presented with a one-week history of left-sided otalgia, otorrhea with bilateral reduced hearing. According to patient, hearing loss was noted more than a month ago but claims it was not worsening progressively. One-week prior to presentation, left-sided yellowish, foul smelling otorrhea with non-radiating otalgia and no otorrhagia were noted. Besides that, there was no spinning sensation, headache, facial asymmetry or fever. Additionally, no recurrent nasal symptoms or constitutional symptoms were identified.

Upon examination, patient was comfortable, not septic looking with no facial asymmetry. Otoscopic examination revealed wax over bilateral external auditory canal (EAC) which revealed keratin and widened right EAC, with intact tympanic membrane bilaterally. Rigid nasoendoscopic examination along with other systemic examinations were unremarkable. Pure tone audiometry showed a mild to moderate conductive hearing loss in right ear and mild to profound mixed hearing loss over the left ear. High-resolution computed tomography (HRCT) temporal showed soft tissue density occupying right external ear canal with ballooning effect of the right bony EAC as compared to left EAC with intact middle ear and inner ear structures. The left middle ear showed soft tissue density, occupying epitympanum, mesotympanum and hypotympanum, extending into aditus and antrum of left mastoid air cells with evidence of dehiscence of the left tegmen tympani (Figure 1). Hence, a diagnosis of right KO and left cholesteatoma was made. Patient was counselled and planned for left modified radical mastoidectomy which she refused but patient opted for regular aural toileting for the right KO.

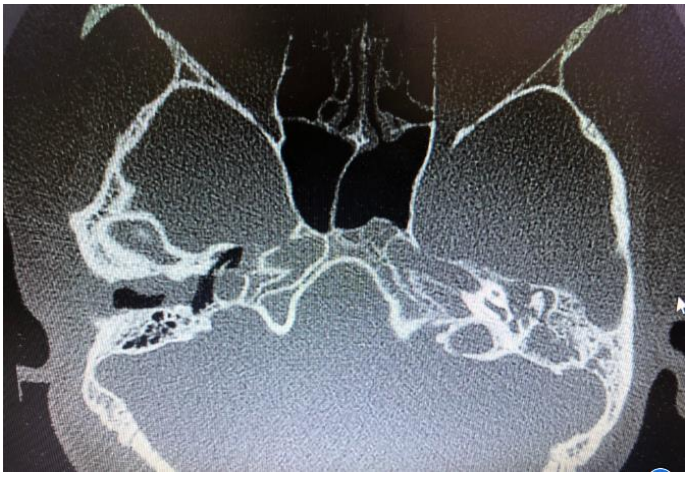

Figure 1: HRCT Temporal revealing right widened bony ear canal with left soft tissue in the middle ear and mastoid cavity

DISCUSSION

KO is a rare condition of the bony part of EAC ensuing hyperkeratosis of epidermis and disorders of migration process. Hyper-accumulation of desquamated epidermis in the EAC leads to hearing loss, otalgia and inflamed skin of EAC (5). It is noteworthy that, KO is closely related to canal cholesteatoma as both these conditions have overlapping sign and symptoms which oftentimes is overlooked (6).

Canal cholesteatoma often presents with otalgia, otorrhea, normal hearing with keratin present in random pattern and localized osteitis or erosion of the EAC with sequestration of the bone (7). Canal cholesteatoma requires surgical clearance of cholesteatoma sac, degeneration tissues and sequestrum (5). KO presents with circumferential widening of the EAC, chronic otorrhea and otalgia, with no concomitant bone lysis (8). Therefore, presence of erosions of the bone of EAC particularly in the inferior or posterior wall along with keratin plug must always raise the suspicion of cholesteatoma instead of KO (6). Other differential diagnosis includes post- inflammatory medial canal fibrosis, malignant otitis externa, and neoplasms of the EAC.

Imaging is crucial to aid in determining diagnosis, as presence of bony erosion, evidence of canal ballooning, presence of soft tissue in the middle ear can be detected which might be inapparent in clinical examination. HRCT temporal as performed in our patient aids in detecting possibility of dual pathology.

Although diagnosis can be made with combination of clinical and imaging the gold standard in diagnosis is histopathological examination based on the pattern of keratinization.

Treatment for cholesteatoma and KO differs. KO requires frequent aural toileting whereas cholesteatoma requires mastoidectomy either canal wall-down or canal wall-up depending on the extent and location.

CONCLUSION

KO and cholesteatoma are two different aural entities that needs to be diagnosed and differentiated by radiologically. High index suspicion is needed owing to the possibility of dual pathology as in our case.

Conflict of interest

No conflict of interest was declared by the authors.

REFERENCES

1. Persaud R, Chatrath P, Cheesman A. Atypical keratosis obturans. J Laryngol Otol. 2003; 117: 725-727.

2. Glynn F, Keogh IJ, Burns H. Neglected keratosis obturans causing facial nerve palsy. J Laryngol Otol. 2006; 120: 784-785.

3. Seidu A, Li Qiang, Zhi GL. A giant cholesteatoma of the mastoid extending into the foramen magnum: A case report and review of literature. Neurol Int. 2018 Mar 30; 10(1): 7625.

4. Aswani Y, Varma R, Achuthan G. Spontaneous external auditory canal cholesteatoma in a young male: Imaging findings and differential diagnoses. Indian J Radiol Imaging. 2016;26(2):237-240. doi:10.4103/0971-3026.184419

5. Al-Juboori AN. Keratosis Obturans: A Rare Cause of Facial Nerve Palsy. Austin J Otolaryngol. 2015;2(4): 1039.

6. A. Sivakumar. Keratosis Obturans Manifesting As Sensory Neural Hearing Loss: A Rare Case Report. Journal of Evidence based Medicine and Healthcare; Volume 1, Issue 12, November 24, 2014; Page: 1480-1483.

7. Dubach P, Mantokoudis G, Caversaccio M. Ear canal cholesteatoma: meta-analysis of clinical characteristics with update on classi cation, staging and treatment. Curr Opin Otolaryngol Head Neck Surg. 2010; 18: 369-376.

8. Carrillo-Munoz A. Cholesteatoma of the External Auditory Canal: A Case Report. J Otolaryngol ENT. 2016; Res 5(2): 00138.