

OLGU SUNUMU CASE REPORT

DOI: 10.24179/kbbbbc.2019-72316

Temporomandibular Joint Herniation as a Cause of Objective Tinnitus

Objektif Tinnitusun Nedeni Olarak Temporomandibular Eklem Herniasyonu

 Kerem KÖKOĞLU^a

^aErciyes University Faculty of Medicine, Department of Otolaryngology, Kayseri, TURKEY

ABSTRACT Tinnitus is a common problem in daily otology practise. It is usually subjective. Objective tinnitus which is audible for both the patient and clinician consist of 5% of all tinnitus cases. It is important to distinguish objective tinnitus cases, because they are able to be curable when underlying cause is eliminated. Objective tinnitus is caused usually by environmental structures such as muscles, eustachian tube and temporomandibular joint (TMJ). TMJ disorders can affect the ear due to proximity. This area should not be ignored in differential diagnosis. Dehiscence of TMJ was presented as an objective tinnitus cause in this paper.

Keywords: Mastication; tinnitus

ÖZET Tinnitus günlük otoloji pratiğinde sık rastlanan bir problemdir. Genellikle subjektif tinnitus ile karşılaşılır. Hem hasta hem de hekim için duyulabilir olan objektif tinnitus, tinnitus vakalarının %5'ini oluşturur. Objektif tinnitusun ayrımı önemlidir, çünkü altta yatan sebebin tedavisi ile düzeltilir. Objektif tinnitus sıklıkla çevre yapılardan gelişir, örneğin; kaslar, östaki tüpü ve temporomandibular eklem (TME). TME hastalıkları yakınlığından dolayı kulağı etkileyebilir. Bu alan ayırıcı tanıda ihmal edilmemelidir. Yazıda objektif tinnitusun bir sebebi olarak TME dehisansı sunulmuştur.

Anahtar Kelimeler: Çiğneme; tinnitus

Feeling of sound produced by ear and its surrounding structures is called as objective tinnitus which is audible to both the patient and clinician.¹ Objective tinnitus forms 5% of all patients with tinnitus. Associated pathology is usually caused by surrounding structures such as muscles, eustachian tube, vascular structures or temporomandibular joint (TMJ). While the treatment choice is usually symptomatic in most of time in subjective tinnitus patients, objective tinnitus may be curable with the treatment of underlying cause.² Presenting of a curable objective tinnitus patient was aimed in this paper to boost its awareness in daily practice.

CASE REPORT

A 51-year-old woman was admitted to the otolaryngology clinic with a disturbing voice in her left ear. She had suffered from this condition for 4 months. She had seropositive rheumatoid arthritis (RA) for 5 years and receiving 5 mg/day methylprednisolone and 15 mg/week methotrexate. She denied ototoxic drug use, ear trauma, hearing loss, previous ear surgery, discharge and noise exposure. She did not complain at nights. The voice was in a low pitch. She emphasized that the voice was felt in speaking and mastication merely. In her physical examination there was a soft tissue in her anterior wall of the left external au-

Correspondence: Kerem KÖKOĞLU
Erciyes University Faculty of Medicine, Department of Otolaryngology, Kayseri, TURKEY/TÜRKİYE
E-mail: dr.kokoglu@gmail.com



Peer review under responsibility of Journal of Ear Nose Throat and Head Neck Surgery.

Received: 10 Nov 2019

Received in revised form: 10 Dec 2019

Accepted: 12 Dec 2019

Available online: 14 Jan 2020

1307-7384 / Copyright © 2020 Turkey Association of Society of Ear Nose Throat and Head Neck Surgery. Production and hosting by Türkiye Klinikleri.

ditory canal (Figure 1). The right ear was normal. When the patient was asked to open her mouth, the mass disappeared (Figure 2). The other head and neck examination was normal. There was no crepitation on TMJ and limitation of mouth opening. Her audiogram was normal. In her computed tomography (CT) imaging, there was a dehiscence area between the left TMJ and the left external auditory canal (EAC) (Figure 3). Soft tissues of the TMJ was bulging through the EAC during resting and disappearing when opening of the mouth. The patient was informed about her disease. Surgical repairing and non-surgical follow-up options were presented. The patient chose non-surgical follow-up. There was no alteration in her condition in a 6-month follow-up. (An informed consent was taken from the patient).

DISCUSSION

Objective tinnitus consists of quite small proportion of all tinnitus patients, clinicians should be careful in differential diagnosis. Because it can be curable when the underlying cause is eliminated.²

Because of close proximity, TMJ and ear diseases can effect each other reciprocally. Omidvar and Jaferi recently reported that TMJ diseases and tinnitus had a strong relationship and TMJ disorders should not be underestimated in tinnitus patients.³

There is a bony wall between EAC and TMJ. Foramen Huschke (FH) or foramen tympanicum can be found in different rates in this wall. Herniation of TMJ does not develop in every patient with FH. Er-



FIGURE 1: The left external auditory canal when the mouth closes.

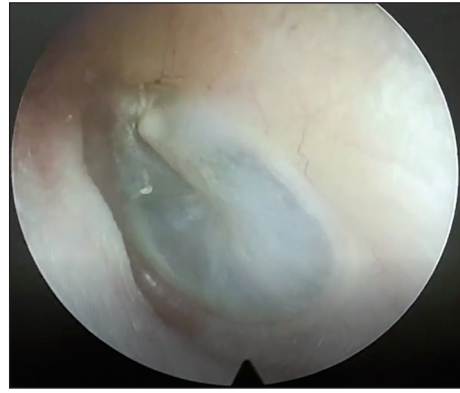


FIGURE 2: The left external auditory canal when the mouth opens.

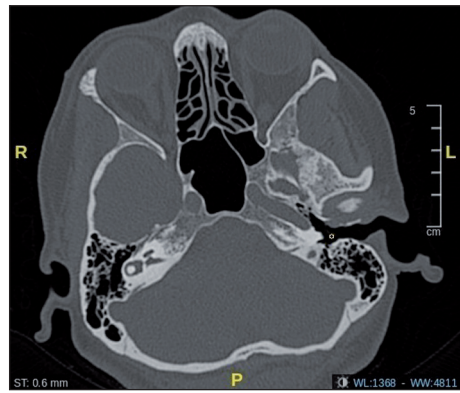


FIGURE 3: Axial section of computed tomography indicated temporomandibular joint dehiscence on left side (asterix).

tugrul and Keskin reported prevalence of FH between 1.5% and 22.7% in tomography studies and between 7.2% and 38.2% in osteological studies.⁴ Unlike, prevalence of TMJ herniation was reported as 0.4% by Park et al. It is a rare disease.⁵

The most common rheumatologic disease affecting the TMJ is rheumatoid arthritis. More than half of RA patients suffer from TMJ involvement. However, TMJ dehiscence develops rarely. Ali and Rubinstein mentioned this possible relationship in 2000 firstly.⁶ They also reported that the dehiscence can be caused by FH. There is no article mentioned a relationship between RA and TMJ dehiscence after that.

Xie et al. reviewed 42 patients with spontaneous TMJ herniation. Twelve of them had objective tinnitus.⁷ Twenty-seven of them were performed a surgical procedure, especially grafting with tragus cartilage. Additionally; fascia, polipropylene plate, au-

tologous bone and titanium mesh were also used for repairing in the literature. Xie et al. mentioned a new endoscopic-assisted approach, while the others performed preauricular or end-aural open approach.⁷ The presented case did not accept any surgical procedure.

As always anamnesis and physical examination are the most important parts of the management of patients with tinnitus. The patient had no symptom at nights. She complained the disturbing sound during speaking and mastication merely. We diagnosed TMJ dehiscence by physical examination. The diagnosis was sharpened by advanced examinations. Because of curability of objective tinnitus, patients with tinnitus must be separated as objective and subjective firstly. Disorders of TMJ should be kept in the mind especially in patients who feel discomfort during mastication and speaking.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

This study is entirely author's own work and no other author contribution.

REFERENCES

1. Salehi PP, Kashe D, Torabi SJ, Michaelides E, Hildrew DM. The etiology, pathogenesis, and treatment of objective tinnitus: unique case series and literature review. *Am J Otolaryngol.* 2019;40(4):594-7. [\[Crossref\]](#) [\[PubMed\]](#)
2. Ducène C, Coolen T, Horoi M, Thill MP. Two cases of pulsatile tinnitus: key points for the clinician. *Eur Ann Otorhinolaryngol Head Neck Dis.* 2019;136(3):S53-5. [\[Crossref\]](#) [\[PubMed\]](#)
3. Omidvar S, Jafari Z. Association between tinnitus and temporomandibular disorders: a systematic review and meta-analysis. *Ann Otol Rhinol Laryngol.* 2019;128(7):662-75. [\[Crossref\]](#) [\[PubMed\]](#)
4. Ertugrul S, Keskin N. Relationship of age to foramen of Huschke and investigation of the development of spontaneous temporomandibular joint herniation. *Int J Oral Maxillofac Surg.* 2019;48(4):534-9. [\[Crossref\]](#) [\[PubMed\]](#)
5. Park YH, Kim HJ, Park MH. Temporomandibular joint herniation into the external auditory canal. *Laryngoscope.* 2010;120(11):2284-8. [\[Crossref\]](#) [\[PubMed\]](#)
6. Ali TS, Rubinstein JT. Rheumatoid arthritis of the temporomandibular joint with herniation into the external auditory canal. *Ann Otol Rhinol Laryngol.* 2000;109(2):177-9. [\[Crossref\]](#) [\[PubMed\]](#)
7. Xie B, Zhang S, Liu Y. Endoscopic-assisted repair of spontaneous temporomandibular joint herniation through a transcanal approach. *Otol Neurotol.* 2019;40(6):772-6. [\[Crossref\]](#) [\[PubMed\]](#)