Turkish Archives of Otolaryngology
Türk Otolarengoloji Arşivi

Turk Arch Otolaryngol 2014; 52: 145-7

# Spontaneous Herniation of Temporomandibular Joint through the External Auditory Canal

Case Report

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Abstract

Spontaneous herniation of the temporomandibular joint (TMJ) through the external auditory canal (EAC) is a relatively rare condition. It was first described by Hawke in 1987. In this article, 2 cases with spontaneous herniation of TMJ were reported together with clinical and radiological features, as well as the updated literature.

The first case was a 56-year-old female patient, and she applied to our clinic because of itching at the EAC. On physical examination, herniation of the TMJ to the left EAC was detected. On computerized tomography, there was a bony defect at the anterior portion of the left EAC. The second case was a 52-year-old female, and she attended our clinic with sore throat. On routine physical examination, herniation of the TMJ through the left EAC was detected. Both patients were asymptomatic; none of them underwent surgery and follow-up visits were recommended.

In the presence of herniation of the TMJ, a bony defect between the posterior wall of the glenoid cavity and anterior part of the EAC should be taken into consideration. Treatment of TMJ herniation through the EAC is controversial, and presence and the degree of the symptoms are the factors which were taken into consideration for management.

**Keywords:** Temporomandibular joint, herniation, foramen of Huschke

## Introduction

Spontaneous herniation of the temporomandibular joint (TMJ) to the external auditory canal (EAC) is a rarely seen pathology and was first described by Hawke in 1987 (1). In the presence of TMJ herniation, the presence of a dehiscence between the posterior wall of the glenoid cavity and anterior wall of the EAC should be considered (1, 2). This type of dehiscence can develop secondary to trauma, neoplasia, infectious, or inflammatory periods. Also, persistence of patency of a congenital foramen of Huschke is another important factor (1, 3). It has been reported that the foramen of Huschke remains patent in temporal bone dissections in 7% of the adult population (1, 4). The treatment of TMJ herniation to EAC is controversial. It is defended that the patient must be symptomatic and treated according to the degree of the symptoms (3, 5). In this study, 2 patients with spontaneous TMJ herniation to EAC were presented with clinical and radiological findings in the light of up-to-date literature.

## Case Reports

### Case 1

A 52-year-old female patient was admitted to our clinic due to itching in both ears. She did not complain about hearing impairment, ringing in the ears, or buzzing. She did not have earache and ear discharge. Her physical examination revealed no plug or no infectious pathology. There was a pseudomembrane in the tympanic membrane. During the examination, a formation protruding into the left EAC with the movements of the jaw was recognized (Figure 1a, b). When the patient was evaluated after suspecting TMJ herniation via computed tomography (CT), a bony defect was detected adjacent to the glenoid cavity in the anterior wall of EAC (Figure 2). The patient had no history of a previous surgery or trauma. She was informed about her condition and no medical procedure was planned because she did not state any active complaint.

### Case 2

A 56-year-old female patient presented with the complaint of nasal obstruction to our clinic. In her examination performed on admission to our clinic, a mass protruding into the left EAC with jaw movements was observed and was suspected of being TMJ herniation (Figure 3a, b). The patient had no complaints related to the ears and no history of previous infection, surgery, or trauma. When she was informed about the examination results, she specified that she did not want any further examination because the mass did not cause any problem. It was explained to both patients that a case report on this rare condition would be prepared to contribute to the literature without addressing any personal information and their written informed consents were obtained.

**This case was presented as a poster at the 35th Turkish National Otolaryngology-Head and Neck Surgery Congress, 2-6 November, Antalya, Turkey.**

**Bu olgu, 35. Türk Ulusal Kulak Burun Boğaz ve Baş Boyun Cerrahisi Kongresi'nde yazılı poster olarak sunulmuştur, 2 - 6 Kasım 2013, Antalya, Türkiye.**

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**Received Date/Geliş Tarihi:** 28.01.2014
**Accepted Date/Kabul Tarihi:** 06.06.2014
**Available Online Date/Çevrimiçi Yayın Tarihi:** 25.08.2014



DOI:10.5152/tao.2014.416

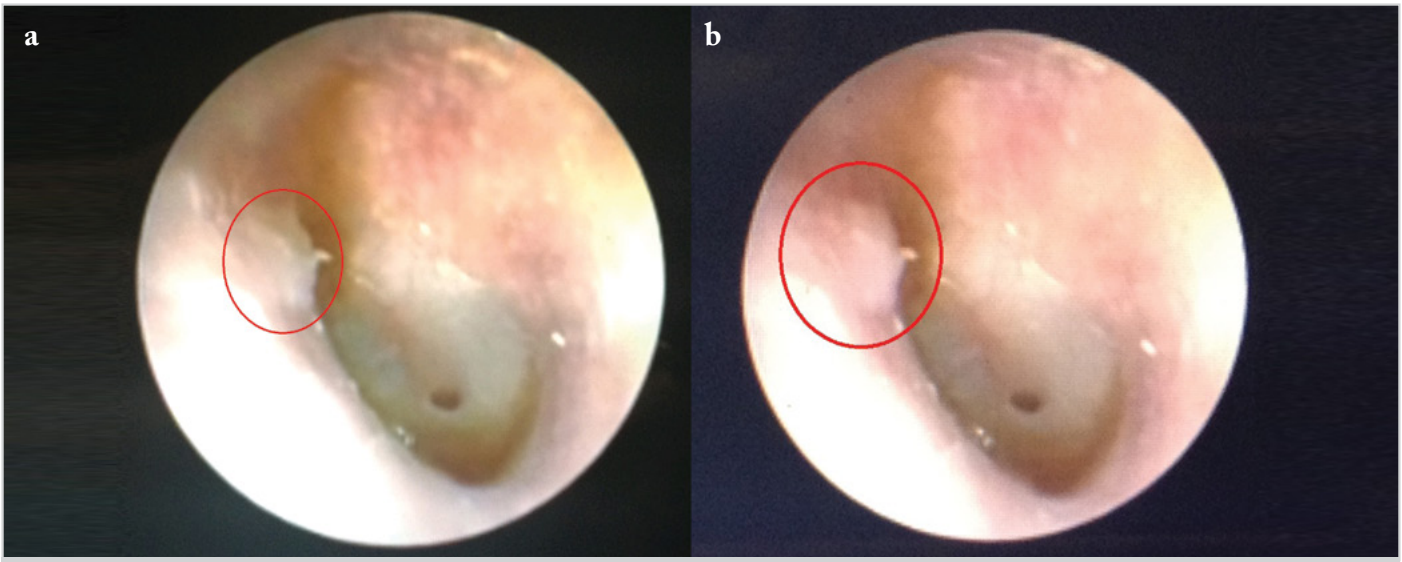


Figure 1. a, b. The defect in the anterior wall of EAC with TMJ protrusion being more apparent with jaw movements

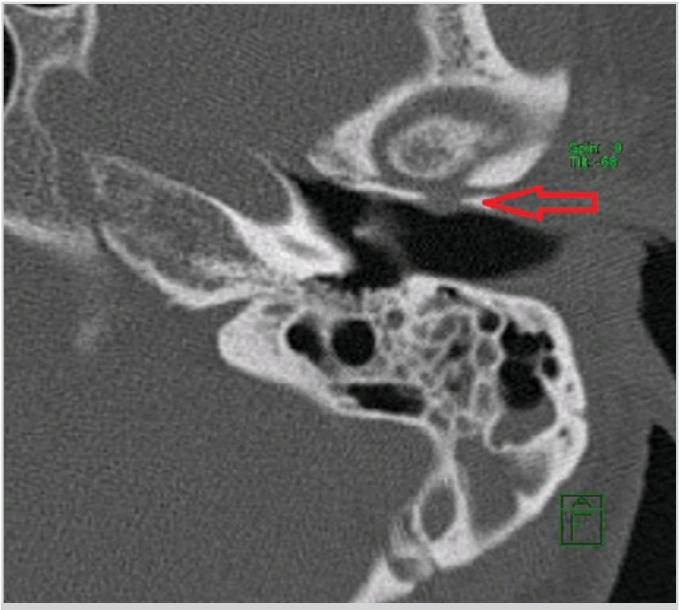

Figure 2. CT image of the bone defect between the anterior wall of EAC and glenoid cavity

## Discussion

Spontaneous herniation of TMJ through EAC is a rarely seen situation. Temporomandibular joint is a synovial joint type formed by the mandibular condyle and glenoid cavity. The anterosuperior, posterosuperior, and posterior parts of the glenoid cavity are formed by the temporal bone, which is a thin structure and EAC is just posteriorly adjacent to the joint (1). While this type of dehiscence is secondary to trauma (iatrogenic or ordinary), neoplasia, infectious, or inflammatory periods is seen more frequently. Congenital patency of the foramen of Huschke and this defect being more apparent with chewing movement in time are thought to be the main cause of spontaneous herniation (1, 2, 5). In this paper, due to the absence of a history of previous surgery, trauma, infectious, or inflammatory periods, both cases were accepted to be spontaneous TMJ herniation.

Patients are generally asymptomatic, but they can also present with the complaints of earache and otorrhea (1). Otorrhea with a watery, colorless, and odorless discharge can also be seen also as a result of a fistula leading to synovial fluid leak (1, 2). On otoscopic examination, the content of TMJ protruding to the anterior wall of EAC with jaw movements is diagnostic (1-3). Often, degenerated intra-articular soft tissues due to changing glenoid cavity dynamics with joint movements are observed, rather than mandibular condyle with herniation into EAC (1, 4).

During fetal growth period, two protrusions occur anteriorly and posteriorly for the formation of the annulus in the tympanic part of the temporal bone. As the growth increases, a fusion extending from the lateral to the medial region between these two protrusions is observed. Fusion is a progressive process that continues in the early years of life. This congenital patency is called the foramen of Huschke and is expected to stop approximately at the age of 5 years with ongoing growth of the temporal bone (1, 2). The cadaver studies revealed the incidence of the foramen of Huschke as about 7% (3).

Patent foramen of Huschke can cause external otitis, otitis media, TMJ arthritis, and synovial fistula formation in addition to TMJ herniation (2). It is claimed that chewing movements lead to recurrent trauma, the growth of patent foramen of Huschke, visible defect, and occurrence of possible symptoms over time (1-3, 5). Both patients presented in this study were at an advanced age and they stated that they had never been told about such a situation in previous examinations. This suggests that a defect existed for a certain time and was congenital and became apparent after being traumatized with chewing movements.

Computed tomography has quite a high sensitivity in the evaluation of TMJ herniation. The size of the defect and its relationship with mandibular condyle can be assessed with the images

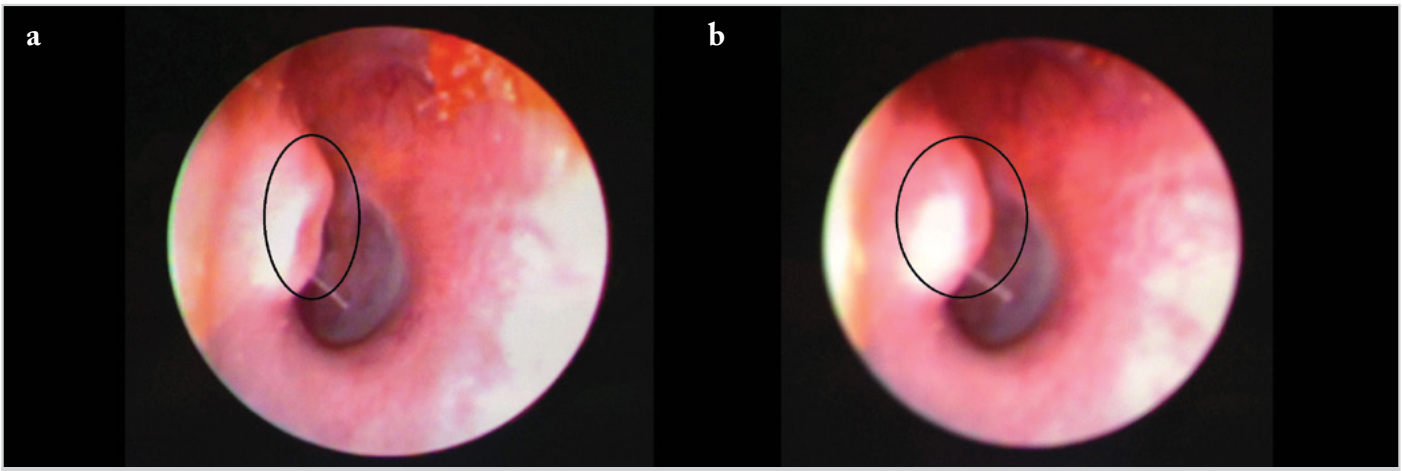


Figure 3. a, b. The defect in the anterior wall of EAC with TMJ protrusion being more apparent with jaw movements

of sagittal and coronal planes. Magnetic resonance imaging can provide data about the soft tissue herniating from the defect into EAC and the relationship between the existing defect and the parotid gland (1, 2). In this study, the existent defect of the first patient was proved with CT. The second patient did not want to be evaluated with any imaging technique.

The treatment of TMJ herniation through EAC is controversial. No intervention is recommended for patients who are asymptomatic and advanced aged and who have co-morbidities (1-5). In symptomatic cases, surgery should not be planned without confirming the location and size of the bone defect via imaging techniques (2, 3). A titanium patch with pre-auricular approach or the use of autologous cartilage (tragal, conchal) was reported in literature for the repair of defect (1-3). In literature, data about the possible complications of surgical alternatives or their long-term results are not enough (2). These possible complications include some conditions such as the development of hematoma and abscess and resorption or replacement of autologous cartilage graft. In addition, facial nerve paralysis and damaged TMJ are also among the rare complications that may develop (2, 3). In this article, no intervention was planned for both patients because they were asymptomatic, but they were recommended to be followed-up.

## Conclusion

The herniation of TMJ into EAC develops as a result of congenital or acquired defect between the posterior wall of the glenoid cavity and the anterior wall of EAC. The diagnosis of spontaneous herniation is established after the elimination of the histories of neoplasia, inflammatory diseases, and previous trauma and surgery. While conservative monitoring is recommended for asymptomatic patients, surgery should be planned for symptomatic cases after performing appropriate imaging techniques.

**Informed Consent:** Written informed consent was obtained from patients who participated in this case.

**Peer-review:** Externally peer-reviewed.

**Author Contributions:** Concept - B.K., E.T.; Design - B.K.; Supervision - D.B., E.T.; Funding - B.K., C.C., R.O.G.; Materials - B.K., C.C.; Data Collection and/or Processing - B.K., C.C.; Analysis and/or Interpretation - B.K., R.O.G.; Literature Review - B.K.; Writing - B.K., C.C.; Critical Review - D.B., R.O.G., E.T.

**Conflict of Interest:** No conflict of interest was declared by the authors.

**Financial Disclosure:** The authors declared that this study has received no financial support.

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