

# Ganglion Cyst of the Temporomandibular Joint: A Case Report\*

## SUMMARY

*Cysts of the temporomandibular joints (TMJ) are rare. A patient with chief complaints of pain and swelling in the left preauricular region was examined. Clinical examination and magnetic resonance imaging (MRI) findings showed 2 cystic lesions around left TMJ. The differential diagnosis and management of the cysts are discussed.*

**Keywords:** Ganglion Cyst; Temporomandibular Joint

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## CASE REPORT (CR)

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## Introduction

Ganglion and synovial cysts of the temporomandibular joints are very rare. These 2 types of lesions are usually referred synonymously as differential diagnosis usually lacks. They mostly occur on the wrist, ankle, foot and the knee<sup>10,13</sup>. Due to their anatomic locations, temporomandibular joint cysts are usually evaluated as parotid masses. Though the etiology is unknown, some of the cases had a history of trauma and it may be implicated in their origin<sup>2</sup>. Ganglion cysts seem to arise from myxoid degeneration of the joint capsule and are departed from the joint cavity. The filling is a gelatinous material lined with fibrous connective tissue without synovial cells<sup>2</sup>. Synovial cysts are herniations of the synovium into the surrounding tissues. They are lined by the synovial originated cuboidal or flattened cells unlike ganglion cysts<sup>12</sup>. Although both types of cysts may occur following a trauma, only synovial type of cysts may form after a primary inflammatory process<sup>10</sup>.

## A Case Report

### Clinical Examination

A 48-years-old woman was referred by a physiotherapist to the Istanbul University, Faculty of Dentistry, Department of Prosthodontics - Clinic

for Temporomandibular Disorders (TMD) with chief complaints of pain and apparent swelling in the left preauricular region. Her medical history revealed no types of macro trauma, but she obviously had both nocturnal and diurnal bruxism. Due to parafunctional activity, the volume of the masseter muscles was increased and the teeth were worn (Figs. 1 and 2). A smooth firm and mobile swelling which plainly became more evident in the last 6 months was the first symptom that the patient had spotted. The mass was tender to palpation. Maximum mouth opening was 53 mm without any deflection or deviation. TMJ sound or limitation of the mandibular movements were not detected. Maximum mouth opening was painful for the left TMJ. As no sign of muscle tenderness was observed, the pain was solely located to the left TMJ region. The pain level for the left TMJ was 3 (0 = no pain, 1= mild pain, 2= moderate pain, 3= severe pain), where it was 0 for the right TMJ. The present pain was elicited by pressure over the swelling and during movement of the mandible.

### Radiographic Investigation

The conventional and open-closed mouth panoramic radiographs presented the bony structures as normal, indicating the lesions were not bone originated. Then open-closed mouth T1 and T2 weighted MRI scans were performed. The MRI scans approved the mass to be a TMJ cyst (Fig. 3, a-c).

### Surgery

Surgery was done at the University of Istanbul, Medical Faculty, Department of Plastic and Reconstructive Surgery. 2 cystic lesions were found; 1

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lesion was approximately 10 mm in diameter, adjacent to the lateral of the joint capsule, and the other was 3mm in diameter, adjacent to parotid gland. The lesions had no communication with the joint. The cystic lesions were dissected carefully from the capsule completely and excised, preserving their integrity (Fig. 4). Postoperative healing was uneventful. After 15 months of follow-up examination, no recurrence was observed (Fig. 5).

yellow material. The surface of the mass was grey and smooth, and it was also elastic soft.

The excised tissue was fixed in 10% formalin. The sections were stained with hematoxylin-eosin. Histological evaluation of the 11x10x8 mm lesion showed a cystic structure lined by fibrous tissue. The final diagnosis was a ganglion cyst. The histological evaluation of the smaller mass was reactive hyperplastic lymph node.



Figure 1. The increased volume of the masseter muscles

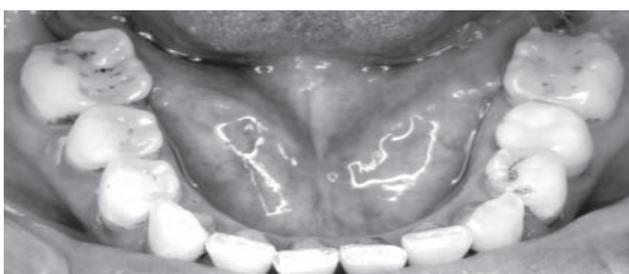


Figure 2. The worn teeth

**Histopathology**

Macroscopic evaluation showed an 11x10x8 mm cyst and a 5x4x2 mm mass (Fig. 6). The cysts surface was light brown and smooth. The consistence was elastic soft, covered by a 1 mm capsule and containing jelly like



Figure 3. MRI image of both cysts;  
(a) T2 weighted MRI image on the coronal plane

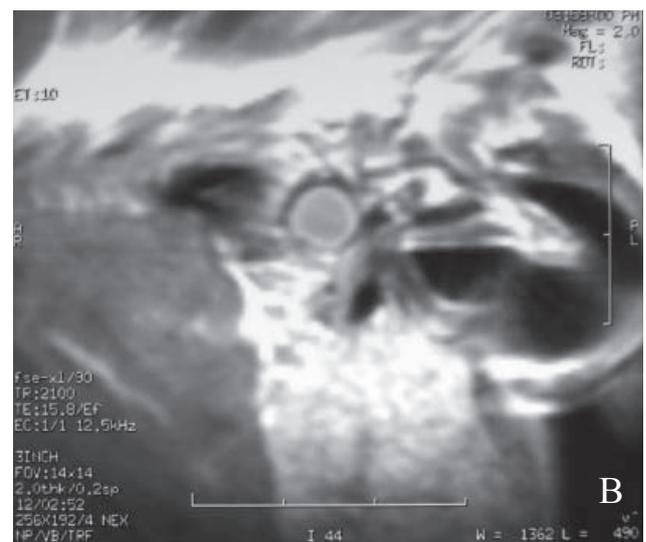


Figure 3. MRI image of both cysts;  
(b) T1 weighted MRI image of the ganglion cyst on the parasagittal image;

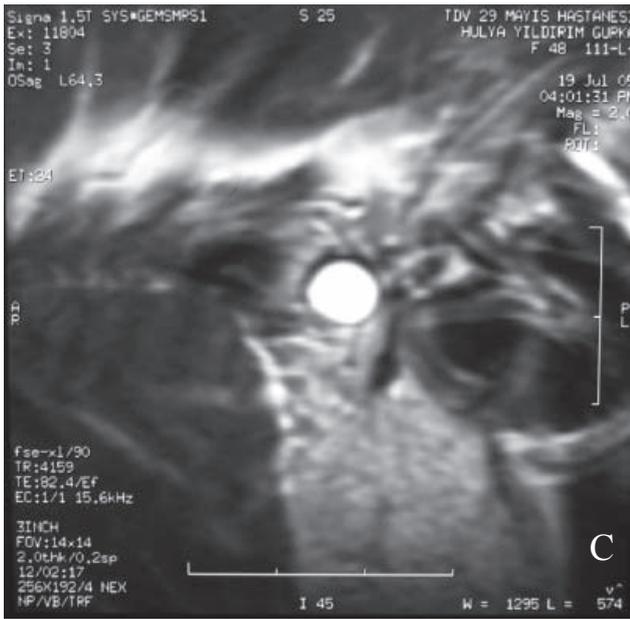


Figure 3. MRI image of both cysts;  
(c) T2 weighted MRI image of the ganglion cyst on the parasagittal image;

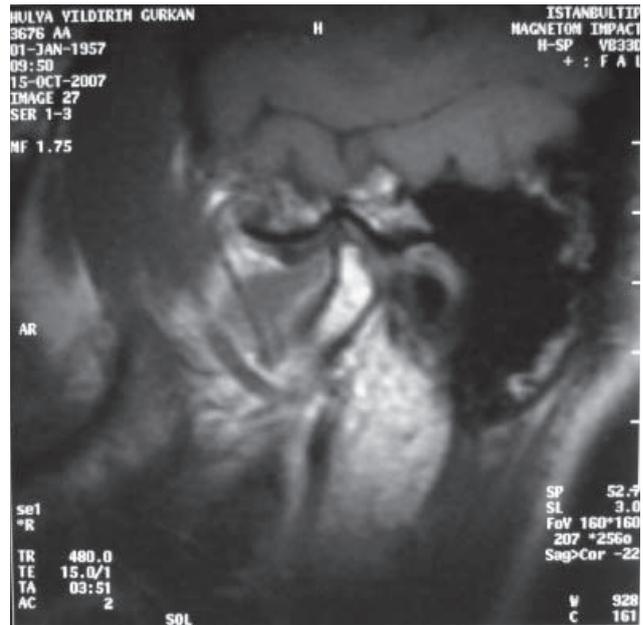


Figure 5. MRI image of the TMJ after 15 months

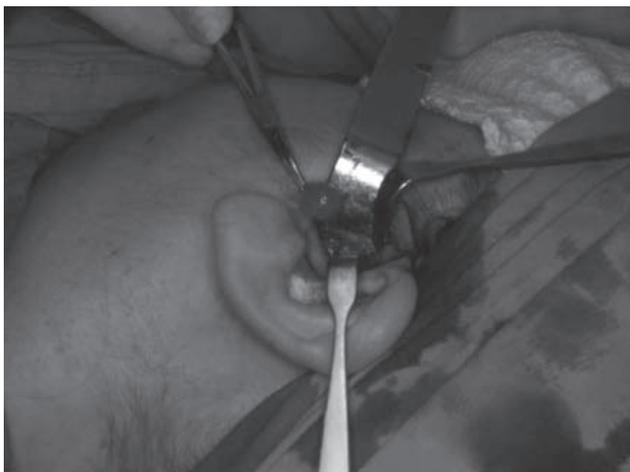


Figure 4. The ganglion cyst dissected from the capsule completely

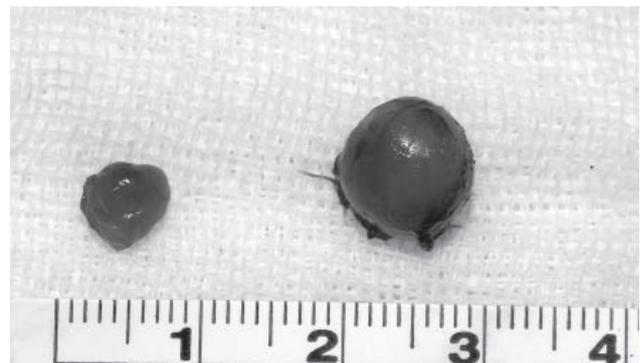


Figure 6. Macroscopic view of the excised ganglion cyst (right) and the hyperplastic lymph node (left)

## Discussion

Cysts of the TMJ are rare compared to other joints. They may occur at any age, but are usually seen between the second and fourth decade. Female preponderance is in the ratio of 3:1<sup>3,7,12</sup>. The present case was a 48-years-old female.

Usually terms ganglion cyst and synovial cyst have been used interchangeably and are erroneously considered to be synonymous. Although both cysts occur near joints, the histology and the origin of these cysts are different<sup>1,</sup>

<sup>8</sup>. Synovial cysts are lined by synovial cells and called as true cysts. They are usually filled with gelatinous fluid and the lining consists of cuboidal or flattened cells consistent with a synovial origin. Synovial cysts may or may not communicate with the joint cavity<sup>2,8,12</sup>. Ganglion cysts are lined by fibrous tissue and called as pseudocysts. They may arise from myxoid degeneration and cystic softening of the collagenous tissue of a joint capsule. They are filled with viscous fluid or gelatinous material and do not contain synovial lining cells on histological examination. Ganglion cysts are not connected with

joint cavity and are usually seen with diameters ranging between 10-25mm<sup>1,2,8,12</sup>. In the present case, a ganglion cyst and a reactive hyperplastic lymph node were diagnosed by histological evaluation.

Although the aetiology is unknown, post-traumatic development has been reported for 3 cases<sup>5,6,11</sup>. Synovial cysts seem to develop by the rupture of the capsule and herniation of the synovial membrane into the parotid parenchyma by the increase of intra-articular pressure due to trauma or inflammation. On the other hand, ganglion cysts develop by mixoid degeneration and cystic softening of the joint capsule<sup>2,5</sup>. Our patient has history of chronic micro-trauma as a result of nocturnal and diurnal bruxism. Due to parafunctional activity, the volume of the masseter muscles was increased and the teeth were worn. Although our patient had no history of macro-trauma or inflammation, micro-trauma as a result of bruxism might be an etiologic factor.

Diagnosis of a mass located in the preauricular region is very difficult. The differential diagnosis of the mass in this region includes parotid tumours and cysts, tumours of the condyle, cysts of the TMJ, benign cervical lymphoepithelial cysts and benign vascular or neural masses<sup>1,2,4, 12</sup>.

Computerized Tomography (CT) and MRI are the most frequently used diagnostic tools for diagnosis of a preauricular pathology<sup>2,5,12,13</sup>. McCuirt and Myers<sup>9</sup> and Farole and Johnson<sup>4</sup> have reported positive values of using MRI for the diagnosis of synovial and ganglion cysts. Lopes et al<sup>8</sup> advocated that preoperative use of ultrasound is very helpful to locate and diagnose the swelling. In our case, T1 and T2 weighted MRI scans were performed. T1 weighted images have showed that lesion had heterogeneous low signal intensity and on the T2 weighted image, a homogenous high intensity signal was obtained. MRI findings showed that the mass was a TMJ cyst.

TMJ cysts are usually asymptomatic and patients' chief complaint was a mass in the preauricular region. There may be pain and obvious deformity. If the operation is not contraindicated treatment is surgical. After incomplete excision, recurrence may be seen<sup>1,12</sup>. Therefore, in the present case, optimal attention was given to resect the cysts completely.

## Conclusion

Ganglion cysts are pseudocysts with a fibrous tissue lining. Excision of the presented cyst provided definitive treatment and microscopic examination confirmed the diagnosis. Because of the rare nature, patients who present themselves with somewhat atypical

TMJ dysfunction symptoms need a detailed clinical examination and proper imaging to avoid the risk of misdiagnose.

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