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Case Report

TEMPOROMANDIBULAR JOINT SYNOVIAL CHONDROMATOSIS: A RARE CASE

ABSTRACT

Synovial chondromatosis (osteochondromatosis) is a rare lesion originating from the synovial membrane. It develops as a result of metaplasia of the tendon sheath or synovial membrane of the bursa in the joint and causes the formation of chondral or osteochondral foci in the synovium. These cartilaginous lesions can cause secondary degenerative changes as free bodies within the joint. Between the ages of 30 and 50, the knee joint is less commonly seen in the hip, ankle, shoulder and elbow joints. Clinically, joint pain and progressive limitation of motion, effusion and recurrent locking in some cases are seen. In this case, we aimed to present SC radiologic (CBCT and MR) and clinical findings in TME of a 53 years old female patient who applied to our clinic for synovial chondromatosis.

Keywords: Synovial chondromatosis, Temporomandibular joint, CBCT, MR, Direct graphy.

*Doğan Durna[1]
Binali Çakur[1]
Neslihan Bayındır[2]

ORCID IDs of the authors:
D.D. 0000-0001-5341-6024
B.Ç. 0000-0002-8525-1444
N.B. 0000-0001-8955-8091

[1] Department of Oral Diagnosis and Oral Radiology, Faculty of Dentistry, Atatürk University, Erzurum, Turkey.
[2] Regional Education and Research Hospital Radiology Department.

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***Corresponding Author:**
Department of Oral Diagnosis and Radiology, Faculty of Dentistry, Ataturk University, 25240, Erzurum/Turkey.
Phone: + 90 442 231 17 78 **Fax:** + 90 442 236 09 45 **E-mail:** dogandurna@atauni.edu.tr

INTRODUCTION

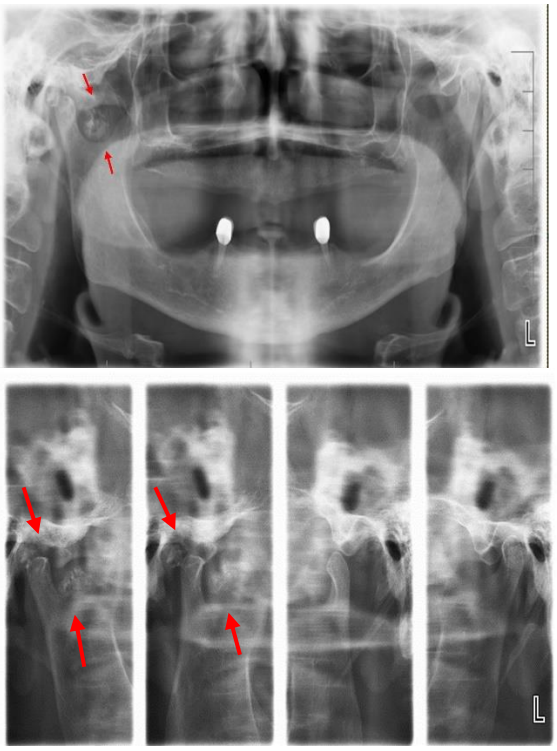
Synovial chondromatosis is a rare proliferative disease in the synovial joints characterized by the formation of metaplastic cartilage foci in the intima layer of the synovial membrane.[1] Sinovyal osteokondromatozis is benign charactered and synovial membrane, bursas, and tendon sheath are characterized by well-differentiated hyaline cartilage neoformation affecting the tendon sheath.[1] It is seen in two forms as primary and secondary. Idiopathic synovial osteochondromatosis (ISO) is the primary form.[2] The secondary form is relatively common.[3] These nodules in the affected areas break off and become liberated and numerous ossified nodules appear in the synovium. The etiology of the disease is unknown, but it is thought that it may develop after the causes that may cause irritation in the synovium.[4] Patients may complain with pain, swelling, limitation of movement, effusion or recurrent locking.[5] Clinical symptoms of patients with synovial chondromatosis characterized by pain and preauricular swelling around TMJ, limitation of mouth opening and joint sounds; there are serious cases of abnormal occlusion with crossbite and facial asymmetry.[6] Synovial chondromatosis of TMJ, first described by Auhausen in 1933, is rare with about 40 cases reported in the literature.[7]

Nonspecific clinical findings may delay diagnosis, and may also cause unnecessary medical treatments. In addition, malignant transformation has been reported, although rare, and treatment and follow-up are important.[8] Conservative or surgical methods are used for treatment. Arthroscopic or open surgical procedures are generally preferred.[9]

In this study, we aimed to present a case of synovial osteochondromatosis which is a rare disease radiologically and clinically and discuss it in the light of current literature.

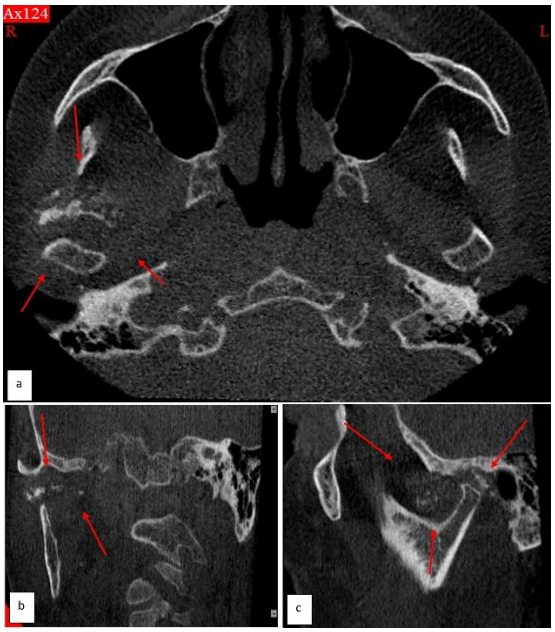
Case Report

A 53-year-old female patient applied to our clinic with the complaint of pain and limitation of movement in her right TMJ for a long time. The patient had no history of trauma. Laboratory results were within normal limits. Clinical examination revealed painful limitations in TMJ extension and flexion. Panoramic and TMJ graphs (PLANMECA ProMax -2019 / Panoramic exposure parameters; 64 kV-6.3mA, TMJ exposure parameters; 66kV-6.3mA) showed multiple, calcified bodies around the condyle in the area from the right articular fossa to the incisura mandibularis. (Figures 1a and 1b).



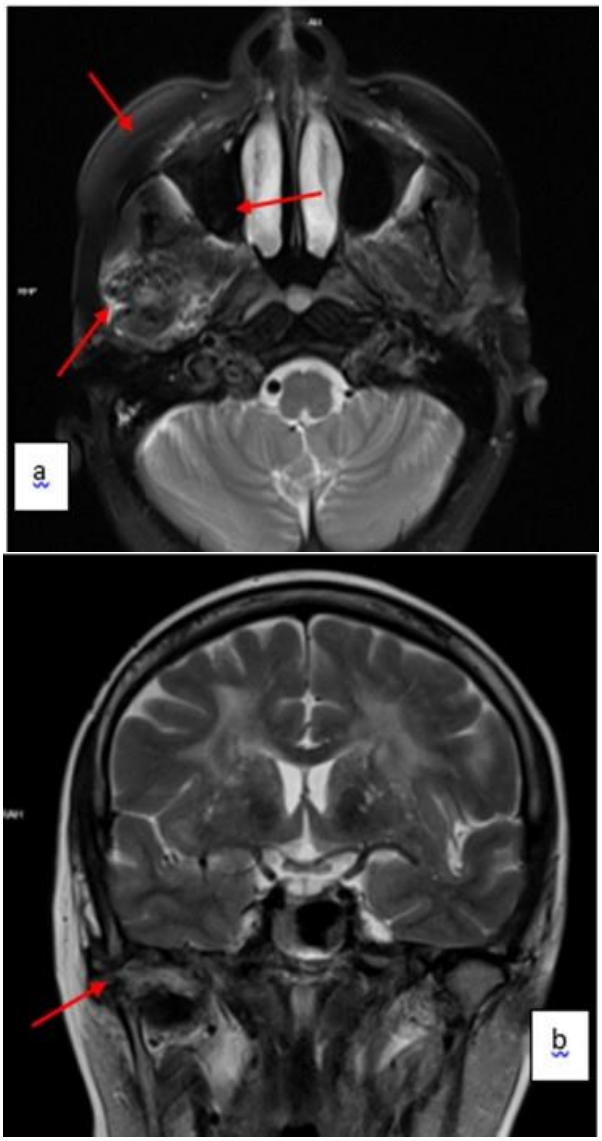
Figures 1a and 1b. Panoramic X-ray showed multiple, calcified bodies (arrows) of different sizes around the condyle in the area from the right articular fossa to the incisura mandibularis.

Cone Beam Computed Tomography (CBCT–device name) revealed multiple nodular, hyperdense calcified / ossified bodies (Figures 2a, 2b and 2c).



Figures 2a, 2b and 2c. Starting from the right joint space to the incisura mandibularis, 0.5 mm axial and 1 mm crossectional sections of the multiple calcified areas (red arrows) around the right mandibular condyle were created and tomographic axial (a), coronal (b) and sagittal (c) images.

Magnetic resonance imaging (MRI-Siemens Aera 2016) revealed ossified free fragments of similar size. No pathology was observed in the bone structure and soft tissue formation of the joint. In all sequences of MRI, the periphery of the sebest fragments was hypointense like the cortical bone and the middle was bone marrow intensities (Figures 3a and 3b).



Figures 3a and 3b. Axial (a) and coronal (b) MR images of the sections (red arrows) hypotensively observed in T2-weighted sequences and around the condyle in T2-weighted sequences.

Sagittal oblique T1 and T1 weighted sequences for TMJ were used when the mouth was open and closed. Section thickness 3mm. T1 and T2-weighted sequences in the TMJ interval and around the condyle were consistent with calcification, synovial thickening, and minimal fluid. These described findings were characteristic for osteochondromatosis. Since there was no pathology that could explain the formation of intraarticular free bodies in the bone cortex and medulla on direct X-ray, CT and MRI, the disease was found to be SC and the diagnosis was supported by biopsy.

DISCUSSION

There are two types of synovial osteochondromatosis: primary and secondary. The primary type shows monoarticular involvement, mostly involving large joints such as knees, elbows, shoulders and hips. It is more common in the third and fourth decades of life and in men.[3] The secondary type is encountered at a later age and is secondary to trauma, osteoarthritis and osteochondritis dissecans. It affects knees, hips and shoulders more often. Nodules are smaller in number, larger and may not be similar in size.[3,10] No history of trauma, normal joint spacing and joint-forming structures distinguish the primary type from secondary synovial ostecondromatosis.[11] In our case, the patient's advanced age, osteoarthritis in the right joint, radiographic The presence of a small number of nodules in the study and the large and dissimilarity of the nodules strengthened the diagnosis of secondary type synovial osteochondromatosis. Synovial osteochondromatosis usually presents with nonspecific complaints such as pain, swelling, tenderness, limitation of movement and locking in the involved joint. Physical examination may show effusion, crepitation, instability, and limited range of motion.[2] Murphey *et al.*[10] reported pain in 85-100%, swelling in 42-58%, and restriction in joint range of motion in 38-55%. It is; On physical examination, they found diffuse swelling, tenderness, crepitation, locking, and nodule or mass on the joint. Trias *et al.* Reported that at least 21 patients had muscle atrophy.[12] The disease was insidious and the duration of symptoms before diagnosis was long. Our case was a female patient and she had involvement in TMJ joint where it was rarely localized. Our patient had no history of trauma and had right TMJ pain. Physical examination revealed pain, crepitation and instability during joint movement. Diagnosis of this disease is difficult and delayed due to nonspecific complaints and clinical findings. They may be followed up as chronic joint problems with

chronic and progressive joint pain for a long time. Laboratory tests are not useful in the diagnosis, but may be useful in the differential diagnosis of inflammatory diseases.[13] Therefore, imaging methods are needed to make the diagnosis. The first option is a direct x-ray. In 70% of patients, abnormal findings such as numerous calcified nodules on the joint, bursa or tendon sheaths are seen on radiographs. Periarticular erosion may be observed in 30% of the patients due to the pressure effect on the small joints of the hip, elbow and hand-foot. However, erosions in the knee and shoulder joints are rare. Periarticular erosions may also occur in the absence of calcified nodules. In addition, secondary osteoarthritis findings caused by intraarticular bodies can be observed in untreated disease.[14] Iyengar *et al.*[15] found that physical examination findings were generally non-specific and challenging for differential diagnosis; that the diagnosis can be made mostly by the presence of radiopaque bodies on direct radiographs; reported that synovial biopsy materials should be examined histopathologically for differential diagnosis of other proliferative synovial diseases such as synovial chondromatosis and pigmented villonodular synovitis. Fujita *et al.*[16] mentioned the importance of the presence of calcification or ossification in the nodules observed in direct radiographs in the definitive diagnosis of synovial osteochondromatosis. In addition, it should be kept in mind that the nodule may not be seen on direct radiography because it is non-calcified in 5-30%. Therefore, localization, nature and changes in the neighboring structures can also be detected by computed tomography (CT) and MRI examinations, especially in the stages before ossification.[16,17] CT can show better calcified nodules and bone erosions than direct radiographs. Because of the superior soft tissue contrast and multi-planar imaging features, the typical image detected on MRI is joint articular effusion and intraarticular, intrabursal and tenosynovial soft masses with nodules. These soft masses are hypo / isointense relative to muscle in T1-weighted images and hyperintense in T2-weighted images.[10] MRI is considered the most useful method in early diagnosis.[18] Multiple, calcified and ossified nodules in the popliteal fossa on direct X-ray, Figure 2: calcified nodules on CT scan is an excellent method for the evaluation of synovial pathologies such as osteochondromatosis. MRI imaging features; It depends on the pulse sequence used, the presence and degree of calcifications and / or ossifications.[10] In our case, multiple, different sizes of calcified bodies were observed on the tmj direct radiographs (Figure 1). Conical beam computed tomography (CBCT– device name) examination showed multiple nodular, hyperdense calcified / ossified bodies (Figure 2). Magnetic resonance imaging (MRI-DEVICE NAME) examination revealed large and dissimilar, close to each other, ossified free fragments. Osteophyte and degenerative changes were observed in the bone structure and soft tissue formation of the right joint. In all sequences of MRI, the free fragments were hypointense like the cortical bone and the middle was bone marrow intensities (Figures 3a, 3b and 3c). T1 and T2 weighted sequences in the TMJ interval and around the condyle were hypotensively observed with calcification, synovial thickening and minimal fluid. The described findings are characteristic for osteochondromatosis.

CONCLUSIONS

In conclusion, synovial osteochondromatosis may cause joint pain alone or secondary to many causes. It should be kept in mind that it often involves large joints, usually monoarticular, and should be considered in such cases. CBCT and MRI should be the first choice after direct radiography in patients with a diagnosis of synovial osteochondromatosis. In addition to assisting the diagnosis, CBCT and MRI will be a good guide before surgery in the patient group planned for surgery. Treatment should be planned considering the risk of malignancy and especially the risk of early degeneration of the burdened joints. Conservative treatment may be effective in non-load-bearing upper extremity joints; however, early degeneration risk should be considered and surgical treatment should be recommended.[19]

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None

CONFLICT OF INTEREST STATEMENT

The authors deny any conflicts of interest related to this study

ÖZ

Sinoviyal kondromatozis (osteokondromatozis) sinoviyal membrandan kaynaklanan nadir bir lezyondur. Eklemde bursanın tendon kılıfının veya sinovyal zarının metaplazisi sonucu gelişir ve sinovyumda kondral veya osteokondral odakların oluşmasına neden olur. Bu kıkırdak lezyonlar, eklem içinde serbest cisimler olarak ikincil dejeneratif değişikliklere neden olabilir. 30-50 yaşları arasında diz eklemi daha az sıklıkla kalça, ayak bileği, omuz ve dirsek eklemlerinde görülür. Klinik olarak eklem ağrısı ve bazı vakalarda ilerleyen hareket kısıtlılığı, efüzyon ve tekrarlayan kilitlenme görülür. Bu olguda sinovyal kondromatozis nedeniyle kliniğimize başvuran 53 yaşındaki kadın hastanın SC radyolojik (CBCT ve MR) ve TME klinik bulgularını sunmayı amaçladık.

Anahtar Kelimeler: *Sinoviyal kondromatozis, Temporomandibular eklem, CBCT, MR, Direkt grafi.*

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