

**SYNOVIAL CHONDROMATOSIS OF LEFT TEMPOROMANDIBULAR JOINT- A RARE CASE WITH TYPICAL IMAGING FEATURE.****Shraddha Supnekar<sup>\*1</sup>, Siddesh Shenoy<sup>2</sup>, Nikhil Diwan<sup>3</sup>, Rashmi Sapkal<sup>4</sup>, Ashwini Pai<sup>5</sup> and Husna Patel<sup>6</sup>**<sup>1,6\*</sup>Senior Lecturer, Department of Oral Medicine and Radiology, M.A. Rangoonwala College of Dental Sciences and Research centre, Pune.<sup>2</sup>M.D.S Oral Medicine and Radiology.<sup>3</sup>Professor, Department of Oral Medicine and Radiology, M.A. Rangoonwala College of Dental Sciences and Research Centre, Pune.<sup>4</sup>Reader, Department of Oral Medicine and Radiology, M.A. Rangoonwala College of Dental Sciences and Research Centre, Pune.<sup>5</sup>Senior Lecturer, Department of Oral Medicine and Radiology, Sinhgad Dental College and Hospital, Pune.**\*Corresponding Author: Shraddha Supnekar**

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**ABSTRACT**

Synovial chondromatosis (SC) of temporomandibular joint (TMJ) is a rare benign disorder in which mesenchymal remnants of synovial tissue undergo cartilaginous metaplasia. It is usually confined to the superior joint space; however, it can occasionally extend beyond the joint capsule into the cranium, parotid gland, infratemporal fossa, or external auditory meatus. SC of TMJ with intracranial invasion is very rare. In this report, we present a case of a 56 year old female patient with a history of pain in left pre-auricular region and also highlight the importance of cone beam computed tomography (CBCT) for diagnosing very rare disorders like SC.

**KEYWORDS:** Synovial chondromatosis, temporomandibular joint, loose bodies, metaplasia, cone beam computed tomography.

**INTRODUCTION**

Synovial chondromatosis (SC) is a rare condition, defined as a reactive cartilaginous proliferation of synovial membrane, characterized by formation of cartilaginous nodules in the joint space. These bodies can be attached or loose in the articular space. There are several reports of this pathology affecting joints of long bones.<sup>[1, 2]</sup> In these regions, male patients are most affected. Primary occurrence in the temporomandibular joint (TMJ) is rare in a proportion of female/male 1.5:1. Most of the cases are unilateral, at the right side with just a few cases of bilateral occurrence.<sup>[3]</sup>

Symptoms could be similar to that of other TMJ disorders, such as swelling on pre-auricular region, pain and limitation or deviation of mandibular movements. Patients can also present clicking and crepitus of the joint. Moreover, luxation of the mandible, displacement of the mandible to the opposite side, inability to close the jaw properly, vertigo, and tinnitus can also present in patients.<sup>[4]</sup> Symptoms of SC involving the TMJ do not differ from other degenerative conditions affecting the TMJ. Therefore, careful attention must be paid to the

clinical and radiologic features of all lesions affecting this joint.

Imaging modalities available for the diagnosis of SC include plain film radiography, computed tomography (CT), CBCT, magnetic resonance imaging (MRI), and radionuclide scanning.<sup>[1]</sup>

**CASE REPORT**

A 56 year old female patient reported to our department of Oral Medicine & Radiology with a complaint of pain in the left side of jaw since a month. She gave history of extraction of lower left third molar 1.5 months ago and has been experiencing restricted movement of jaw since then. Pain was of continuous and radiating in nature on the left side of her face. TMJ examination revealed the presence of clicking with respect to the left side, mouth opening of 37 mm, and deviation of mandible towards the left side on opening.

OPG was taken which revealed ill-defined radiopacities with left TMJ and an unhealed extraction socket w.r.t lower left third molar .(Figure 1).

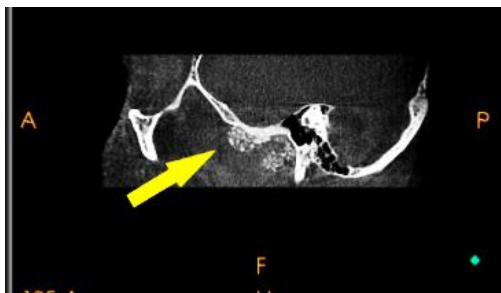


**Fig 1: Panoramic view: Shows multiple radiopaque nodules anterior to the left condyle and articular eminence and are seen extending inferiorly upto the neck of condyle.**

This was followed by CBCT for further evaluation of TMJ.

Sagittal & axial sections revealed the extension of radiopaque nodules from anterior aspect of articular

eminence to posteriorly extending beyond the posterior slope of condyle. (Figure 2 & Figure 3)



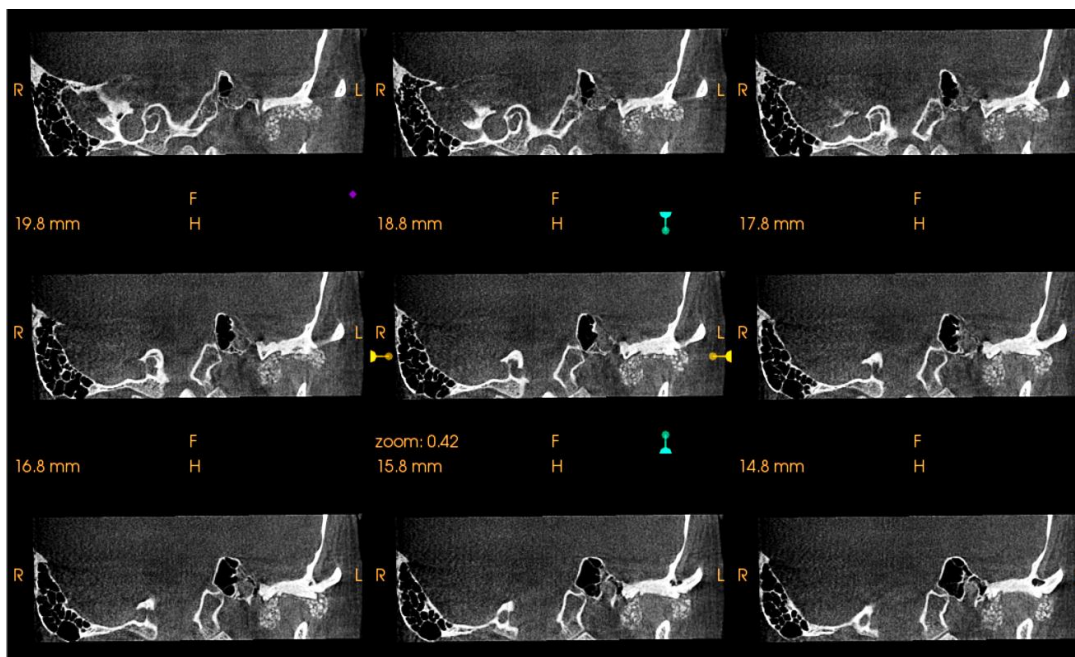
**Fig 2: Sagittal section of CBCT scan reveals the extension of radiopaque nodules in antero-posterior direction.**



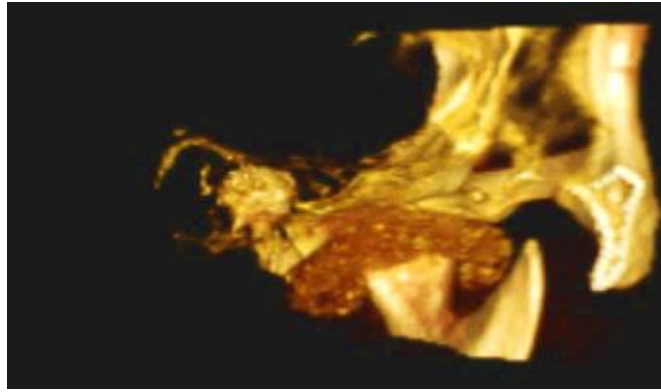
**Fig 3: Axial section reveal the radiopaque loose bodies.**

In coronal section; the radiopaque nodules appear to be suspended between the glenoid fossa superiorly and condyle inferiorly. The radiopaque loose bodies appear

to be suspended within the soft tissue resembling “grains of rice in sushi”.<sup>[6]</sup> (Figure 4)



**Fig 4: Coronal sections: Presence of dense multiple nodules between the glenoid fossa and condyle on left side.**



**Fig 5: 3 D reconstructed view.**

The bony structure of TMJ appears to be preserved except for flattening of posterior slope of condyle.

Considering the history and clinical examination and specific radiological features a presumptive diagnosis of synovial chondromatosis of TMJ was made.

The patient was explained about surgical treatment required in this case.

Since the patient was not willing for surgery, surgical management was deferred and patient was kept under regular follow-up.

#### **DISCUSSION**

SC is an uncommon, benign, monoarticular arthropathy that is characterised by the formation of cartilaginous bodies in the synovial membrane. This disease usually affects large joints. The clinical features of SC in the TMJ are pain, swelling, limitation of the movements of the jaw and crepitation on mouth opening. The presence of cranial nerve dysfunction indicates that the disease has reached the advanced stage.<sup>[7]</sup>

The pathogenesis of SC is unknown. Some contributing factors, such as previous trauma, parafunctions, degeneration, inflammatory disease and infections, have been suggested but these do not seem to be the main causes of SC.<sup>[7]</sup> Some previous studies have suggested that fibroblast growth factor 2 and fibroblast growth factor receptor 1 play important roles in the pathogenesis of SC.<sup>[8]</sup>

SC shows radiographic features such as widening of the joint space, presence of multiple calcified loose bodies within the joint space, and sclerosis of glenoid fossa on CBCT.

Noyek and co-workers pointed out radiologic features of synovial chondromatosis in the TMJ, namely.

- 1) Widening of the joint space,
- 2) Limitation of motion,
- 3) Irregularity of the joint surface,
- 4) Presence of calcified loose bodies (cartilage), and
- 5) Sclerosis or hyperostosis (overgrowth) of the glenoid fossa and mandibular condyle. These radiologic features,

however, are also commonly seen in osteoarthritis involving the TMJ, except for the presence of calcified loose bodies.<sup>[9, 10]</sup>

CBCT facilitates thorough examination of TMJ anatomy permitting analysis of bone morphology and joint space in all three dimensions without superimposition and distortions. CBCT offers several advantages over other imaging modalities, including reduced radiation exposure, clearer imaging of the jaw, and simplicity of instrument use.<sup>[5]</sup> In our case, CBCT was successful in depicting calcified loose bodies, bony changes of the articular surfaces of the condyle, glenoid fossa perforation, and widening of the joint spaces of the condyle.<sup>[1]</sup>

MRI is the best modality to evaluate the lesion extension as it can depict the degree of extrinsic bone erosion and marrow invasion. MRI shows a distinctive appearance of joint effusion and intra articular soft tissue mass with internal nodules. This mass is characterized as hypo/isointense to muscle on the T1 weighted image and hyper intense on the T2 weighted image. MRI examination is the best to evaluate lesion extension along bursae away from the intra articular component.<sup>[11]</sup>

Another method rarely used for diagnosis, but also included among the forms of treatment, is arthroscopy. It allows the visual inspection of intra-articular compartments and of the cartilaginous bodies.<sup>[12]</sup>

SC treatment depends on the size of the nodules, structures involved, and the extent of the lesion. Although there are reports of clinical and imaging follow-up (when there is no interference in jaw functions), the first choice of treatment, by most authors, is the removal of the cartilaginous bodies, through arthroscopic or open surgery, combined with synovectomy.<sup>[3]</sup>

SC is a benign disease with a wide differential diagnosis, which does not respond to nonsurgical treatment and does not show spontaneous resolution. Early diagnosis is very important for selecting appropriate treatment and for a better prognosis.

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