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SYNOVIAL CHONDROMATOSIS OF THE TEMPOROMANDIBULAR JOINT: A CASE REPORT

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ABSTRACT

Synovial chondromatosis is a benign pathology, which is characterized by synovial metaplasia that produces cartilaginous bodies. Its location at the temporo- mandibular joint (TMJ) is infrequent. Clinical manifestations are not specific. The diagnosis is mainly through imaging. The treatment is surgical by arthrotomy or arthroscopy. We report a case of synovial chondromatosis of TMJ, revealed by a painful swelling of the temporo-mandibular region.

Keywords: Chondromatosis, Imaging, Synovial, Temporo-mandibular joint (TMJ).

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INTRODUCTION

Synovial chondromatosis is a benign chronic arthropathy with unknown etiology. It is characterized by a synovial metaplasia that produces cartilaginous bodies. Cartilaginous nodules may become pedonculated and detached from the synovial membrane, which may induce the formation of "loose bodies" within the joint with possibility of ossification. It usually affects large joints, mostly the knee, hip and elbow. The temporo-mandibular joint (TMJ) is rarely affected, with approximately 100 cases reported in literature [1, 2].

CASE REPORT

A 72-year-old woman without any relevant medical history, presented with a chronic right temporo-mandibular joint pain. At physical examination, diffuse swelling was present around the right side pre-auricular region with a limited opening of the mouth. The rest of the examination did not reveal any abnormality. The standard biological tests were normal.

Ortopantomograph (**Figure 1**) showed the presence of multiples calcifications in the TMJ region.

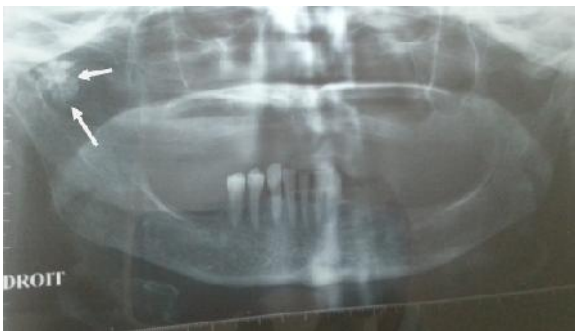

Figure 1: Ortopantomograph. Multiples calcified bodies (white arrows) in the right TMJ region

Craniofacial computed tomography (**Figure 2**) was performed and showed multiple ossified bodies within the right TMJ space associated to bony erosion of the glenoid fossa. There was no temporo-mandibular dislocation. The diagnosis of synovial chondromatosis was suspected.

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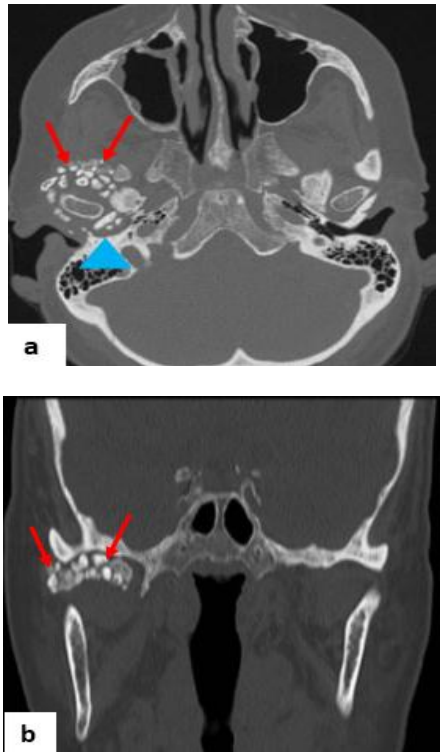
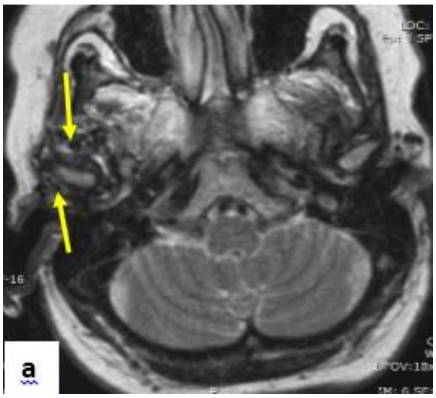


Figure 2: axial (a) and coronal (b) CT image showing multiple ossified bodies (Red arrows) in the right TMJ and erosion of the glenoid fossa (Blue arrowhead) without endo-cranial extension.

Magnetic resonance imaging (Figure 3) was finally performed prior to surgical management; it showed loose bodies within the joint area associated to local effusion.



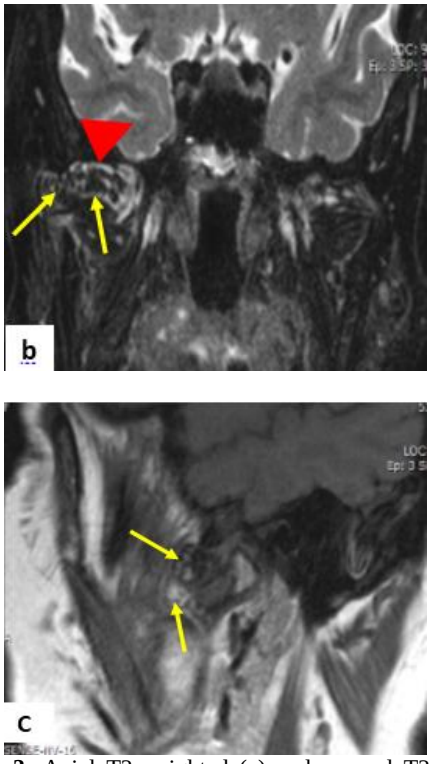


Figure 3: Axial T2-weighted (a) and coronal T2 STIR images (b) displays both the presence of low-signal intensity loose bodies (yellow arrows) and fluid effusion (arrowhead) in the right TMJ. Sagittal-oblique T1-weighted (c) image show loose bodies in high-signal intensity because they are ossified.

Open surgery was decided after reeducation. Multiples whitish, cartilaginous bodies have been removed from the articular space. Pathologic examination of the surgical specimen confirmed the diagnosis of synovial chondromatosis without any sign of malignancy. Evolution was good.

DISCUSSION

Synovial chondromatosis is characterized by synovial metaplasia with proliferation of cartilaginous nodules originating from the synovial membrane. It usually affects large joints, mostly the knee, hip and elbow. The TMJ is rarely affected. Synovial chondrmatosis of TMJ was described for the first time in 1933 by Axhausen [1, 3].
Its pathogenesis is still uncertain. It results from a benign metaplasia of the mesenchymal tissue of the synovium. Based on histological findings, three stages are described according to Milgram [1]:

- Active intra-synovial diseases with no loose bodies.
- Transitional lesions with both active intra-synovial proliferation and loose bodies.
- Multiple free osteochondral bodies with no demonstrable intra-synovial disease.

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Women are more likely to be affected than men between 40 and 50 years. Clinical symptoms aren't specific and include pre-auricular pain, swelling, limited mouth-opening and crepitus sounds [1, 4].
The diagnosis of synovial chondromatosis of the TMJ is usually made using several imaging modalities. Plain X-rays is often the first imaging technique performed in the exploration of TMJ disorders. When the "loose bodies" are calcified, they could be detected in peri-articular region. Widening of the joint space and irregularity of the joint surfaces may be displayed [1, 4, 5].
Computed Tomography (CT) is far more reliable than conventional radiography in detecting the disease and determining its prognosis; it easily allowed identifying soft tissue swelling, calcified bodies, large mass lesion near the cranial dura mater and also bone resorption. CT is better than conventional radiography and MRI in detecting the calcified loose intra-articular bodies and bone resorption [4 - 6].
When MRI is performed, synovial chondromatosis of the TMJ is characterized by multiple loose bodies in low and iso-intensity signals in the joint area. The low signal intensity nodules may appear as both small round and punctuate forms which correlate with calcified and ossified ones in pathology. The spherical "ring-like" nodules only occurred in 50% of patients and are less frequently visible than punctuate nodules. Amorphous intermediate signal structures to low signal cartilaginous nodules on T2-weighted could be seen. T1-weighted following intravenous administration of gadolinium can show well thickening and intense enhancement of the synovial capsule, anterior displacement of the mandibular condyle and intracranial [1, 7]. A large mass lesion near the cranial dura mater and bone resorption of the cranial base can be observed in MRI, without invasion into the brain. The signal intensity of the tumor mass is intermediate in diffuses weighted imaging and mixed heterogeneous; high signal intensity and spotted low signal intensity regions are present in T2-weighted [4].
Pathological findings show nodules of cartilage and was surrounded by a capsule of synovial connective tissues, with mineralization of the cartilage [4].
Differential diagnosis occurs mainly with synovial chondrosarcoma, which should be investigated for radiological and histological signs of malignancy such as the presence of spindle cells, the existence of myxoid rearrangements and foci of necrosis, and the extracapsular extension of the nodules cartilaginous. Other differential diagnosis are all pathologies that can release cartilaginous fragments in the TMJ, namely osteoarthritis, trauma, osteochondritis dissecans, aseptic necrosis or chondrocalcinosis[2, 3].
Treatment depends of the severity of the disease. Open surgery and arthroscopy for the treatment of synovial chondromatosis of the TMJ have their advantages and disadvantages [8].
The evolution is favorable with healing [3]. Malignant transformation of synovial chondromatosis of the TMJ appears to be very uncommon. Some authors reported a relative risk of 5% of malignant evolution in large joints. In the English literature only three cases of malignant transformation of SC involving the TMJ have been described [2]. Careful follow-up is mandatory and is often made using CT and/or MRI [1].

CONCLUSION

Chodromatosis of TMJ is rare or underestimated. CT and MRI are two complementary imaging techniques for the diagnosis.

There is no conflict of interest.

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