

# An Advanced Case of TMJ Osteoarthritis

Essaadi Fatima Ezzahra<sup>1</sup>, Aicha Merzem<sup>2</sup>, Hasna Bemgadir<sup>3</sup>,  
Nadi Moussali<sup>4</sup>, Naima Elbenna<sup>5</sup>

<sup>1</sup>Residente En Radiologie, Service De Radiologie 20 Aout

<sup>2,3</sup>Professeur Agrégée, Service De Radiologie 20 Aout

<sup>4,5</sup>Professeur De L'enseignement Superieur, Service De Radiologie 20 Aout

## Abstract:

Advanced temporomandibular joint (TMJ) osteoarthritis can present with several complications, including synovial cyst formation. Through this work, we present a case of a 69-year-old patient with bilateral painful swelling in the parotid regions, he previously operated for goiter in 2003 without any complications. Magnetic resonance imaging (MRI) revealed bilateral temporomandibular joint effusion with a cystic formation on the left, extending from the posterior border of the masseter muscle to the anterior margin of the superficial lobe of the parotid gland, communicating with the joint space. Additionally, there were findings of TMJ irregularities, condylar degeneration, and contrast-enhancing synovial thickening indicative of osteoarthritis. Computed tomography (CT) complement highlighted bilateral condylar flattening with joint space narrowing and osteoarthritic changes.

**Keywords:** temporomandibular joint, osteoarthritis, synovial cyst, magnetic resonance imaging, computed tomography

## Introduction:

Temporomandibular joint osteoarthritis (TMJ OA) is a degenerative condition affecting the jaw joint, characterized by progressive cartilage deterioration, joint space narrowing, and bone changes. TMJ OA can lead to various complications such as synovial cyst formation, which may exacerbate symptoms and complicate management. Herein, we present a case illustrating the diagnostic challenges and imaging findings associated with advanced TMJ OA accompanied by a synovial cyst.

## Case Presentation:

A 69-year-old male presented with painful bilateral parotid swelling, notable since a goiter surgery in 2003. MRI with T1-weighted, T2-weighted, diffusion-weighted sequences, axial and coronal T2 sequences, perfusion imaging, and post-contrast T1 FAT SAT. It revealed bilateral TMJ effusion (figure 1 and 2). Notably, a cystic lesion was identified on the left (figure 3 and 4), extending from the posterior masseter border to the superficial parotid lobe anteriorly, showing fluid signal continuity with the joint space. Additionally, there were TMJ condylar irregularities, more pronounced on the left, with synovial thickening and contrast enhancement indicative of arthritis (figure 5). CT imaging confirmed bilateral condylar flattening, joint space narrowing, and osteoarthritic changes (figure 6).

**Discussion:**

Temporomandibular joint osteoarthritis (TMJ OA) presents a significant clinical challenge due to its association with pain, restricted jaw movement, and observable degenerative changes on imaging studies. This condition can progress to advanced stages where synovial cysts develop within the joint, further complicating diagnosis and potentially worsening symptoms due to their space-occupying effects.

Imaging plays a crucial role in the comprehensive evaluation of TMJ OA, particularly in identifying synovial cysts and assessing the extent of joint degeneration. Both MRI and CT scans are valuable modalities in this regard. MRI offers detailed soft tissue contrast, making it ideal for visualizing the synovial lining and cystic structures within the joint. On the other hand, CT scans provide excellent visualization of bony changes and can help assess the integrity of the joint surfaces and the extent of osteophyte formation.

The presence of synovial cysts typically indicates a more advanced stage of TMJ OA. These cysts can contribute to increased pain and functional impairment by further limiting joint mobility and potentially compressing adjacent structures. Therefore, accurate identification and characterization of synovial cysts through multimodal imaging are crucial for guiding appropriate management strategies.

Management of TMJ OA with synovial cysts requires a tailored approach that may include a combination of medical therapy, such as nonsteroidal anti-inflammatory drugs (NSAIDs) or corticosteroids, intra-articular injections (e.g., hyaluronic acid or corticosteroids), and in some cases, surgical intervention. Surgical options range from arthrocentesis and arthroscopy to more invasive procedures like arthroplasty or joint replacement, depending on the severity of joint damage and the patient's response to conservative therapies.

**Legends:**

Figure 1 : axial (a) and coronal T2Fs ( b) : bilatéral TMJ effusion.

Figure 2 : axial T2 FS (a) cystic lesion on the left

Figure 3 : axial T1 GADO :synovial thickening and contrast enhancement indicative of arthritis.

Figure 4: axial section in bone window :joint space narrowing, and osteoarthritic changes.

**Conclusion:**

Advanced TMJ osteoarthritis complicated by synovial cyst formation poses diagnostic and therapeutic challenges. Accurate assessment with MRI and CT imaging is crucial for guiding appropriate management strategies. Early recognition and intervention can alleviate symptoms and potentially mitigate disease progression, improving patient outcomes.

**References:**

1. Okeson JP. Management of Temporomandibular Disorders and Occlusion. 8th ed. St. Louis, MO: Mosby; 2020.
2. Kim KS, Kim KD, Park HJ, et al. Magnetic resonance imaging findings of temporomandibular joint osteoarthritis: diagnostic criteria and associated features. *J Craniomaxillofac Surg.* 2014;42(5):528-534.
3. Ralls F, Woo SB. Temporomandibular joint disorders. In: Flint PW, Haughey BH, Lund VJ, et al, eds. *Cummings Otolaryngology - Head and Neck Surgery.* 7th ed. Philadelphia, PA: Elsevier; 2021:1396-1407.

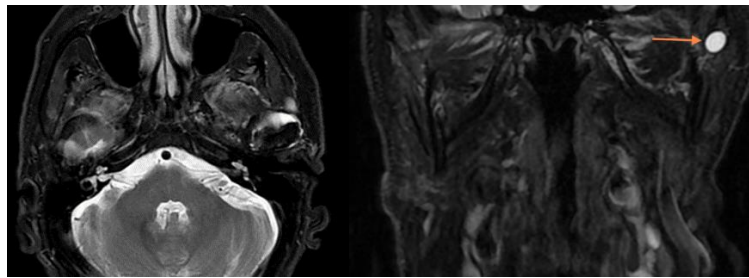


Figure 1 : axial (a) and coronal T2Fs ( b ) : bilatéral TMJ effusion.

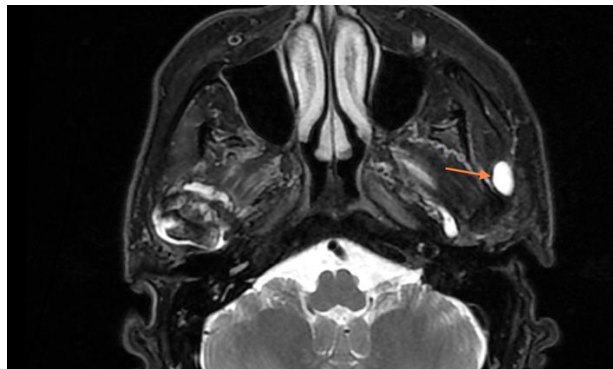


Figure 2 : axial T2 FS (a) cystic lesion on the left

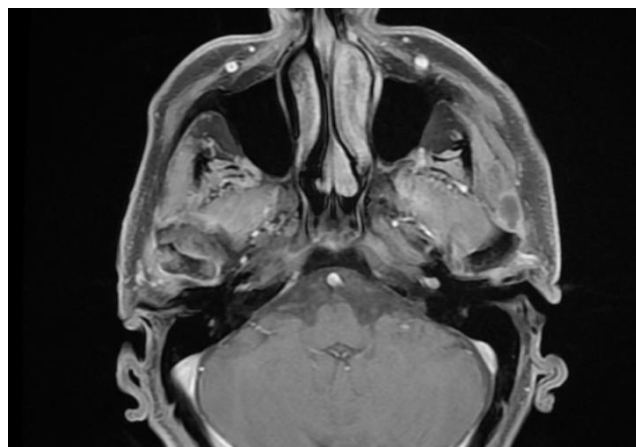


Figure 3 : axial T1 GADO :synovial thickening and contrast enhancement indicative of arthritis.

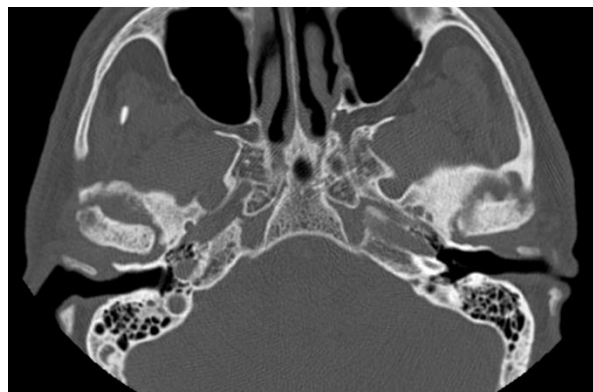


Figure 4: axial section in bone window :joint space narrowing, and osteoarthritic changes.