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Invasive or Malignant External Otitis (MEO) Involving the Temporomandibular Joint: A Case Report

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1. Introduction

The Temporo Mandibular Joint (TMJ) and the External Acoustic Canal (EAC) are two adjacent structures and can be affected by the same disease process, breaking not only the literal anatomical boundary but also the metaphorical boundary of surgical specialties. Howeverdespite theclose anatomical relationship, temporomandibular (TMJ) involvement is rare in Otitis Externa, with only a fewcases reported.[1-7]These infections of the external ear cavity invading the TMJ are termed as Invasive or Malignant External Otitis(MEO).[8] Here we arereporting a case of MEOpresentingas Chronic Recurrent Otitis Externa with septic Arthritis of the right TMJ.

2. Case Report

A 59 year old male with Type 2 DM reported to the OPD with complaint of pain and discharge from the right ear for the last 3 months. Previously debridement of the External Acoustic Canal was done twice, however the problem persisted. On examination, the patient had a hard, tender swelling over the right preauricular region. There was purulent discharge from the right ear, with local rise of temperature and restricted mouth opening. Facial nerve function was normal.

HRCT of the temporal bone revealed a bony defect on the anterior wall of the right Auditory canal. MRI of the Right TMJ revealed T2 hyperintensity of the external auditory canal with a fistulous tract communicating with the TMJ capsule. There was also bony erosion of the Right Condylar head. (**Fig. 1**) Endoscopic evaluation further proved the presence of the fistulous tract. (**Fig. 2**) These finding suggested a probability of septic arthritis of the Right TMJ secondary to Otitis Externaand debridement of the TMJ space with condylectomy was planned.

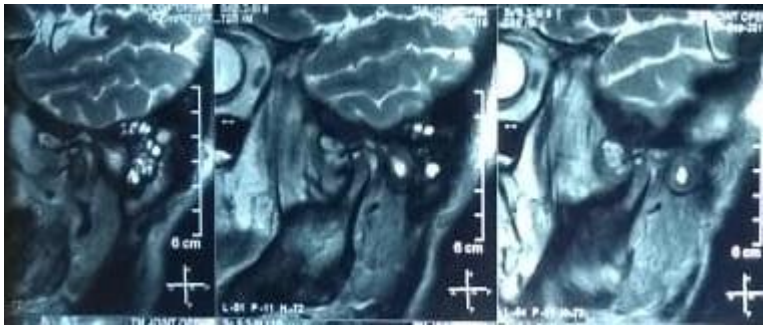

Figure 1: MRI of the Right TMJ

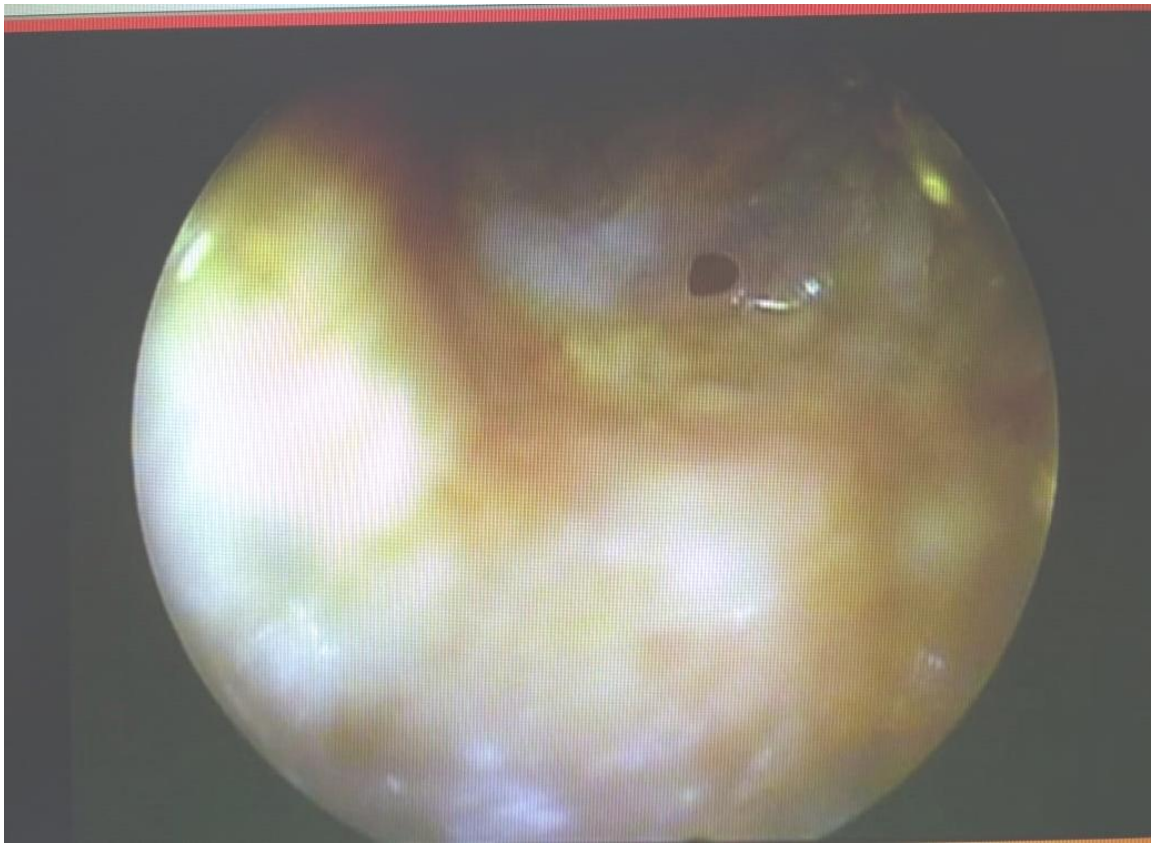

Figure 2: Endoscopic Picture showing the fistulous tract from the EAC

Under General Anaesthesia, the right TMJ was exposed using Alkayat-Bramley Incision with the provision of harvesting a Temporalis Myofascial Flap. On Exposure, the TMJ capsule was found to be filled with pus and granulation tissue. The Articular disc was eroded and was removed along with a thorough debridement of the TMJ space. The condylar head showed bony erosion and a lack of bleeding from the marrow spaces when drilled. Condylectomy was done removing the condylar head and portion of the condylar neck Condylar shave was done until fresh bleed could be elicited from the marrow space. After that Following which, the opening of the fistulous tract was identified and found to be communicating with the External Auditory Canal. (**Fig.3)**The fistula was removed followed by Thorough debridement was carried out. Temporalis Myofascial flap was placed as an interpositional material for the TMJ space and also to cover the bony defect communicating to the Anterior wall of the EAC to prevent reemergence of the fistula. Closure was done in layers with a drain placed for 24 hours.

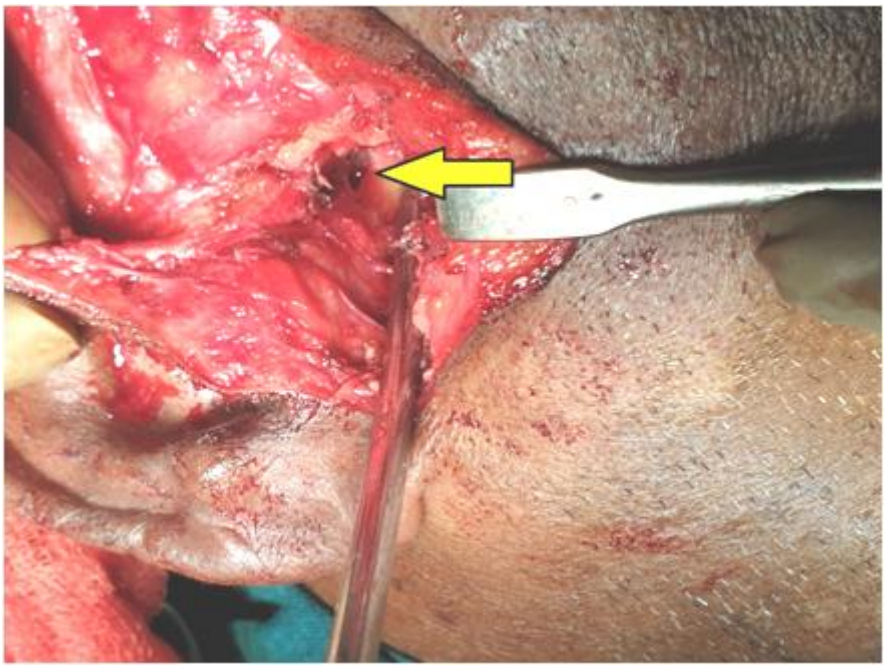

Figure 3: Opening of the fistulous tract communicating with the External Audtory Canal

In the following post operative days, there was no presence of discharge from the right ear and the mouth opening of the patient started improving from 1st week postop with normal mouth opening by the 3rd week. Subsequent 1st month and 3rd month follow-up showed complete remission of the infection.

3. Discussion

Historically, Otitis Externa extending to surrounding spaces was grouped with Skull Base Osteomyelitis. But, Chandler et al in 1968 termed it as Malignant External Otitis (MEO) to represent its high mortality. Although later, other authors termed it as a misnomer and named the disease Invasive External Otitis, but the term MEO stayed as a common usage.[8]

Involvement of the TMJ in MEO is less frequent, a study by Mardinger et al[8] showed 16%involvement of TMJ whereas another study by Doroghazi et al[3]showed 23% involvement.

To invade the TMJ space, the infectious process can erode the bony wall separating the two spaces [8], however there is also a possibility of an anatomical defect in the tympanic rim known as Huschke's foramen, which normally closes by 5 years of age, however it can remain patent in certain cases which potentiates the spread of infection.[9]

The presence on MEO is seen mostly in elderly patients with suppressed immunity such as Diabetes, Cancer or patient under long term Steroids. [5, 7, 8]

Due to the rare presentation, the management of these cases lack any protocol or guidelines. Some authors suggested surgical debridement followed by broad spectrum antibiotics, whereas some preferred more conservative meatal debridement and drainage. In debriding the TMJ, use of condylar shave or condylectomy with interpositional gap Arthroplasty has also been reported [7, 8, 10]

In our patient comorbidities were present in terms of Diabetes mellitius which could have contributed to the chronicity of the pathological presentation. A multidisciplinary approach to such patients is of utmost importance. The presence of fistula makes the disease control less amenable to medical management. Definitive intervention with fistula closure is key to the complete resolution of the infectious process along with appropriate medications.

4. Conclusion

Due to the anatomical proximity of the External Ear Cavity and the TMJ capsule, chronic suppurative infections can spread from one area to the adjacent. This obviates the need of a Multidisciplinary approach in this region. The chance of MEO in should be considered in non resolving Otitis Externa, especially in patients with comorbidities.

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