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Short communication

Bilateral synovial chondromatosis of the temporomandibular joint☆

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ABSTRACT

Purpose: To report an exceptional case of bilateral synovial chondromatosis (SC) of the temporomandibular joint (TMJ) and discuss diagnostic approaches, treatment options and follow-up data.
Patients and methods: A 38-year-old woman presented with left preauricular swelling. Initial imaging studies revealed TMJ effusion only. Six years later, synovial calcifications were detected in the left TMJ; the right TMJ space was widened and presented incipient calcium deposits. Open arthrotomy of the left TMJ was performed, with removal of multiple cartilaginous loose bodies and complete synovectomy. Periodic controls proved the asynchronic development of intra-articular bodies in the right TMJ.
Results: SC is a metaplastic arthropathy that is uncommon in the TMJ. Bilaterality is exceptional. Diagnosis is often delayed due to the non-specific symptoms, progressive developmental stages and clinicians' lack of awareness of the condition. Magnetic resonance imaging (MRI) is particularly helpful in defining disease extension, excluding a possible tumour and detecting internal derangement. Definitive diagnosis requires arthroscopic or open examination and histopathological analysis. Recurrences are infrequent after arthrotomy, removal of loose bodies and complete synovectomy.
Conclusion: SC is an uncommon condition in the TMJ. Bilateral involvement is extremely rare. MRI is effective for diagnosis and postoperative follow-up. Complete synovectomy usually yields an excellent prognosis.

1. Introduction

Synovial chondromatosis (SC) is a rare monoarticular arthropathy of unknown aetiology characterized by the development of cartilaginous bodies in the synovial membrane and joint space. Pathologically, this condition is considered to be a metaplastic disease of the synovial connective tissue (Lieger et al., 2007). It is more common in larger joints such as the knee, elbow, wrist, shoulder and hip, whereas involvement of the temporomandibular joint (TMJ) is unusual (von Lindern et al., 2002; Ardekian et al., 2005; Lieger et al., 2007). The first description of SC of the TMJ was made by Georg Axhausen in 1933. Subsequently about 80 cases have been added to the scientific literature. In the Journal of Cranio-Maxillofacial Surgery, two series (Norman et al., 1988; Carls et al., 1995a) and several isolated cases (Cho-Lee et al., 2008; Guijarro-Martínez et al., 2008) have been reported during the last two decades. The advantages of arthroscopy for diagnosis and a reduction of operative trauma have been documented (Carls et al., 1995a,b; Fernández et al., 2006). Involvement of both TMJs with SC is extremely rare in the scientific literature, only two cases have been reported prior to this one.

The purpose of this article is to present a case of bilateral SC of the TMJ and to discuss current diagnostic approaches, treatment options and relevant follow-up data.

2. Case report

A 38-year-old woman was referred to our Department of Oral and Maxillofacial Surgery with a 12-month history of unilateral preauricular swelling, progressive local pain and intermittent headaches. Her medical history was non-significant.

Clinical examination revealed a tender elastic mass in the left preauricular region. Clicking of the left TMJ and slight deviation of the mandible to the right were evident with mouth opening, which was painful but unrestricted (40 mm).

Initial imaging studies included panoramic radiographs, computed tomography (CT) and magnetic resonance imaging (MRI). These confirmed the expansion of the left TMJ articular space. No

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other bony or soft tissue abnormalities were demonstrated (Fig. 1). Monthly follow-up visits were arranged. The effusion recurred episodically. During follow-up the patient described sporadic hearing loss and persistent local pain. Intra-articular fluid obtained by fine-needle aspiration biopsy (FNAB) and eventually by arthrocentesis was described as non-inflammatory and was negative for malignant cells and articular crystals.

Two years after the first appointment, a control CT scan revealed a soft tissue mass with multiple synovial calcifications occupying the left TMJ. No signs of significant degenerative joint disease or bony erosion were detected. The right TMJ was apparently normal. MRI showed a marked joint effusion and multiple intra-articular nodules in the left TMJ. The mass lesion extended superiorly towards the foramen ovale without skull base erosion or penetration into the medial cranial fossa. Posterolateral extension into the parotid gland and medial extension towards the pterygoid muscles was well demonstrated. Both articular disks were normally positioned.

A presumptive diagnosis of SC of the left TMJ was established. The patient was offered surgery but declined. Six monthly reviews, annual CT and MRI were arranged. A painful joint effusion recurred and her crepitus and hearing loss worsened. Imaging studies demonstrated no significant changes until 3 years later, when a small widening of the right TMJ and small ovoid bodies were detected on MRI, suggesting an early development of SC in the contralateral TMJ (Fig. 2).

The patient eventually accepted surgical treatment of the left TMJ, postponing her decision about the right TMJ as it was still asymptomatic despite the radiological changes. The TMJ capsule was exposed through an Al-Kayat incision. A Wilkes articular retractor fixed on the zygomatic arch and the condylar neck was used to expose the joint space (Fig. 3). Through a T-shaped incision across the capsule, all joint compartments were explored and dozens of intra-articular loose bodies were removed from the superior joint space (Fig. 4). Surgery was completed with total synovectomy and meniscopexy. The patient was discharged 3 days later with anti-inflammatory and analgesic drug therapy and a soft diet.

Histopathological analysis confirmed SC with the demonstration of multiple nodules of hyaline cartilage 5–10 mm in diameter, some of them showing peripheral fibrosis and central calcification. Synovial tissue showed no abnormalities. No histological features of malignancy were detected.

At 1-year follow-up, her clinical condition was much improved; joint effusion did not recur and her crepitus and hearing loss resolved. She experienced only occasional pain and achieved a maximum interincisal opening of 35 mm at 12 months. No radiographic evidence of recurrence or residual disease was detected in the operated side.

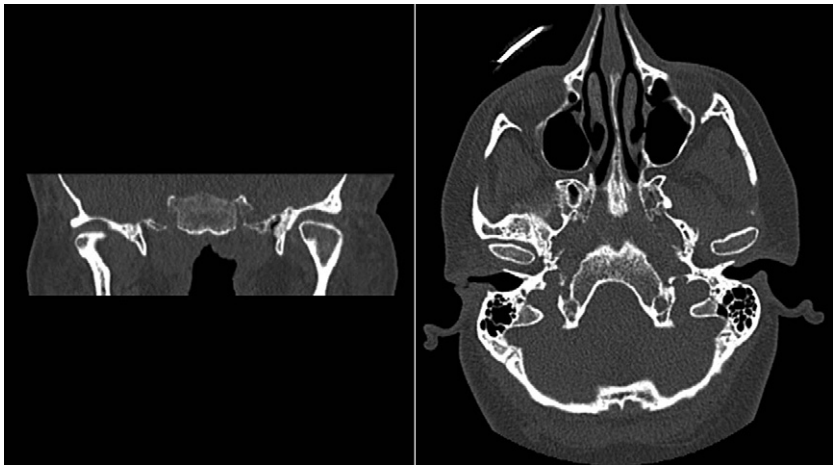

Fig. 1. Initial CT (coronal and axial sections): expansion of the left TMJ articular space.

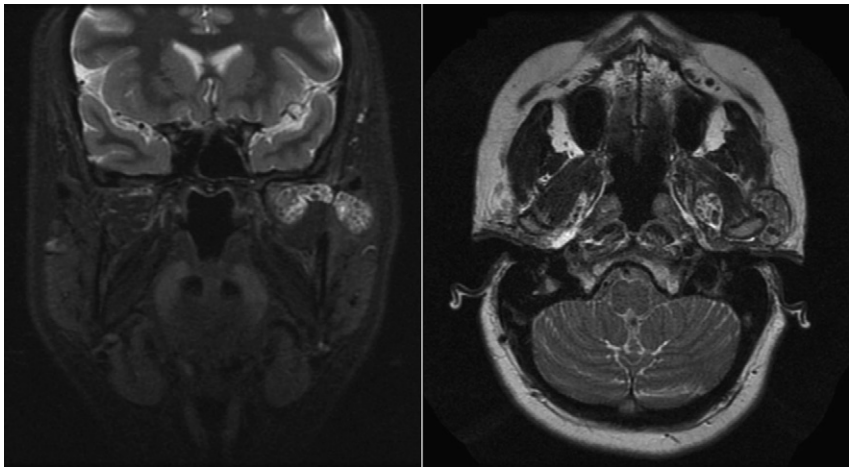

Fig. 2. Preoperative coronal and axial sections of MRI. Left TMJ: intra-articular bodies and thickened synovium. Right TMJ: joint effusion and scarce calcifications in the medial joint space.