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Case report

An unusual and difficult diagnosis of synovial chondromatosis: A case report

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ABSTRACT

Synovial chondromatosis (SC) is a reactive joint disorder characterized by the development of metaplastic cartilaginous nodules floating within the joint space. We report a case of SC of the temporomandibular joint (TMJ) which had difficulty in diagnosis in a 40-year-old woman. The patient had TMJ pain with mandibular lateral deviation for two years. CT and MRI revealed well-defined and round-shaped bone resorption at the right mandibular fossa and an ovoid-shaped expansion of the superior articular cavity, which showed heterogeneous high signal intensity on T2-weighted MRI. Following a clinical diagnosis of benign TMJ tumor, the lesion was surgically removed. Histopathologically, it was diagnosed as SC in Milgram's stage 1, mainly involving the upper joint space. This is the first case report of SC in an early stage in which no cartilaginous nodules were generated but instead the mandibular fossa of the temporal bone was resorbed.

1. Introduction

Synovial chondromatosis (SC) is a reactive joint disorder characterized by the development of metaplastic cartilaginous nodules floating within the joint space. SC usually affects large joints of the body, such as the knee, elbow, wrist, shoulder, and hip. It is rarely observed in the temporomandibular joint (TMJ) [1–4]. In cases with SC of the TMJ, the lesion is usually confined to the joint cavity, though extraarticular extension and even intracranial extension have been reported in a few aggressive cases. However, it is rare for bone resorption to advance without loose bodies, and this can cause diagnosis difficulties.

SC can be divided into the following 3 developmental stages by histopathological findings: stage 1 (early) – intrasynovial involvement with metaplasia only in the synovial membrane and no loose bodies, stage 2 (transitional) – intrasynovial involvement and free bodies with metaplasia in the synovial membrane and detached particles, and stage 3 (advanced) – multiple free bodies varying in size from 1 to 10 mm or more together with detached particles and no sign of intrasynovial disease [5].

In this report, a case of early stage SC of the TMJ that was difficult to diagnosis is presented.

2. Case report

A 40-year-old Japanese woman was referred by her general dentist to the Department of Oral Reconstructive Surgery of Niigata University Medical and Dental Hospital complaining a 2-year history of jaw opening pain in the right TMJ and pre-auricular region. She had recently become conscious of mandibular lateral deviation and exacerbation of pain. There was no history of trauma or overuse.

On initial examination, there was spontaneous pain, opening pain and bite pain in the right TMJ without swelling. She had tenderness to palpation of the right TMJ, masseter muscle and temporal muscle. Palpation of the TMJ did not reveal any TMJ noise such as clicking or crepitus during jaw opening in the bilateral TMJs. Overbite and overjet were approximately 0 mm and –0.5 mm, respectively. Her maximum unassisted mouth opening was 34 mm, and maximum assisted mouth opening was 41 mm with pain of the right TMJ and masseter muscle.

On the radiographs of Schüller projection the right mandibular condyle was flattened and that the location of the condyle was slightly deviated anteriorly (Fig. 1). A MRI study demonstrated irreducible anterior disc displacement of the TMJ, and the superior articular cavity had expanded remarkably. The cavity had irregular high signal intensity (SI) with partially low SI on T2-weighted images (WI), and it

Abbreviations: M, male; F, female; ND, not described

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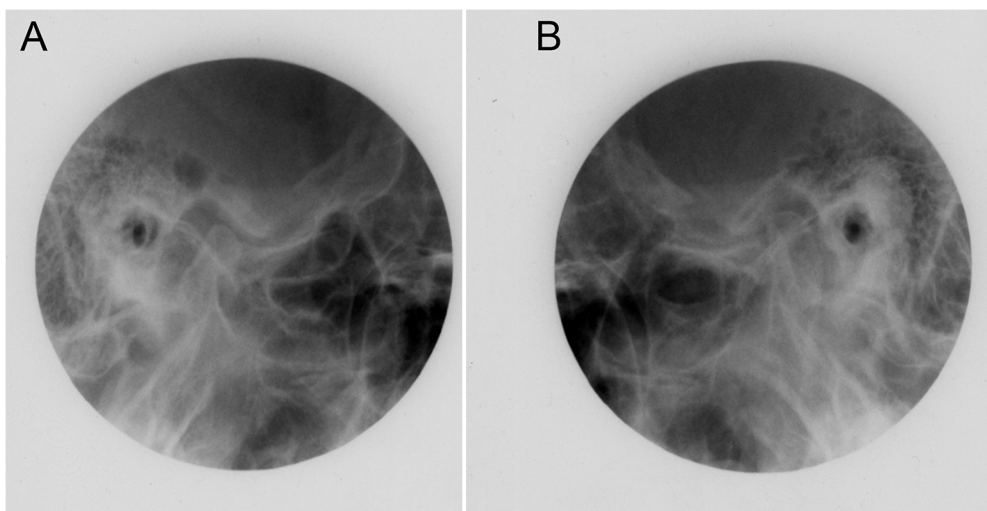


Fig. 1. Radiographs of Schüller projection: (A) right side, (B) left side.

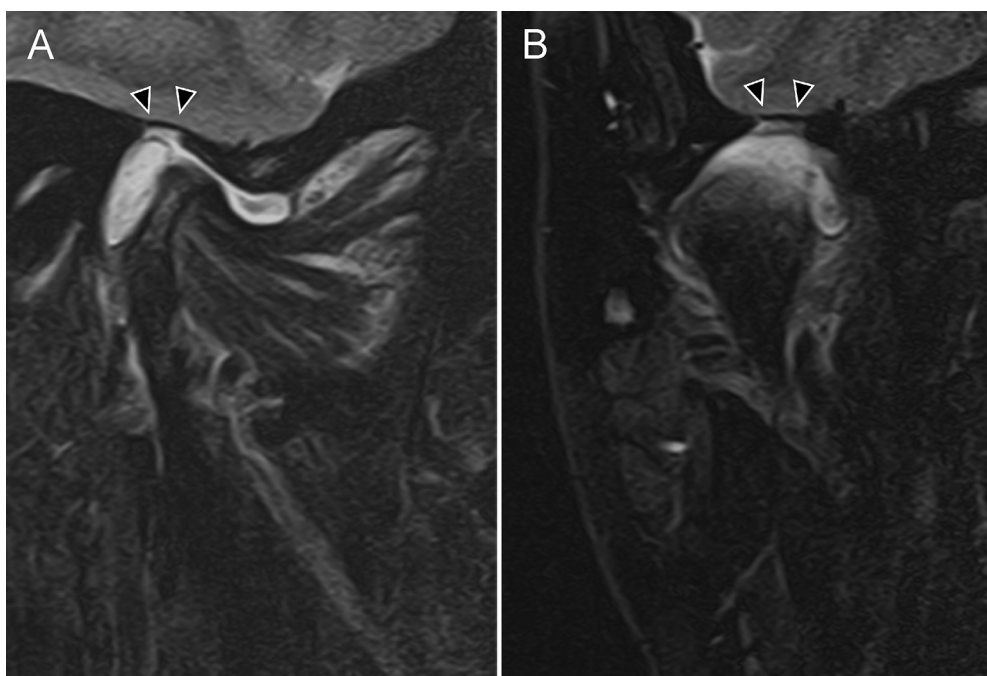


Fig. 2. T2-weighted MRI of the right TMJ at the first visit: (A) sagittal view, (B) coronal view.

was therefore difficult to distinguish whether the lesion in the superior articular cavity was fluid collection or a solid mass. The roof of the mandibular fossa had thinning with a step, presumably induced by the lesion (Fig. 2). CT showed that the roof of the right mandibular fossa had a well-defined and round-shaped bone resorption that was about 5 mm in diameter (Fig. 3). The condyle had concavity in the posterior part and marginal proliferation in the anterior part (Fig. 3A), and the top of the condyle was erosive (Fig. 3B). There were no calcified bodies in the articular cavity.

Although the definitive diagnosis could not be made by radiographs, we carried out symptomatic therapy for the pain and have been continuing follow-up. On MRI performed eight months after the first visit, the septum structure had appeared in the upper anterior synovial pouch, while the size of the lesion and bone resorption had not changed (Fig. 4). On MRI performed eleven months after the first visit, the septum structure of the front region had been changed to a complicated form, and in the medial posterior part of the lesion, the area where the low SI intermingled on T2-WI had increased, and the same portion

contained soft tissue and a hypocalcified structure (Fig. 5). Since the lesion had a tendency to increase with the risk of involvement into an intracranial cavity, we planned right-side temporomandibular joint tumorectomy based on a clinical diagnosis of a right-side temporomandibular joint tumor.

At eleven months after the first visit, an operation via a preauricular approach was performed under general anesthesia. Cholesterol crystals in the synovial fluid of the joint space were observed when incising to the articular capsule. A grayish-white nodal lesion was observed in the superior articular cavity, and the anterior portion of the lesion had adhered to retrodiscal tissue and tapetum of the articular capsule (Fig. 6A). Although the posterior region of the nodal lesion, which was considered to be a core of the lesion, was extracted easily without adhesion to adjacent tissue, the anterior region was extracted from the adjacent tissue using scissors. A round-shaped bone defect that was about 5 mm in diameter was found at the roof of the mandibular fossa, and exposure of the endocranium was observed (Fig. 6B). However, there was neither perforation of the endocranium nor leakage of

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