Case Report

Synovial Chondromatosis of the Temporomandibular Joint: Long-Term Postoperative Follow-Up of the Residual Calcification

Junichi Ishii¹, Koji Kino², Junji Kobayashi and Teruo Amagasa¹

1) Maxillofacial Surgery, Maxillofacial Reconstruction and Function, Division of Maxillofacial and Neck Reconstruction, Graduate School;
2) Temporomandibular Joint Clinic, Faculty of Dentistry; Tokyo Medical and Dental University

Synovial chondromatosis of the temporomandibular joint is a rare disease, and extra-articular synovial condromatosis of the temporomandibular joint is even rarer. A review of the English literature from 1980 to 2000 has revealed 51 cases of synovial chondromatosis affecting the temporomandibular joint.

We report a case of extra-articular synovial condromatosis, for which we carried out a long-term follow-up of the postoperative course using diagnostic images.

Key words: Synovial chondromatosis of the TMJ, Long-term follow-up, Extra-articular synovial chondromatosis, Conservation of the loose body

Introduction

Synovial chondromatosis of the temporomandibular joint is a rare disease with chief symptoms of the preauricular swelling, pain, limitation of opening and crepitus¹-². The condition is characterized by formation of multiple foci of highly cellular cartilage. The cartilage seems to arise from mesenchymal cell nests in the synovial membranes. These free bodies tend to increase in size in response to bathing in synovial fluid.

We report a case of extra-articular synovial condromatosis, for which we carried out long term follow-up of the postoperative course.

Report of a case

A 38-year-old Japanese woman was referred to the First Department of Oral and Maxillofacial Surgery, Tokyo Medical and Dental University, on March 13, 1991 with pain and a 3cm × 3cm firm area of swelling in the left preauricular region. Three years earlier, she first experienced left-sided facial pain and noticed clicking at maximum mouth opening, but left it untreated. Although the patient consulted orthopedists for treat-

Fig. 1. Panoramic radiograph delineating small radiopaque density areas posterior to the left mandibular condyle (arrows).
ment, the above symptoms persisted for six months prior to the patient’s initial visit. She had no history of trauma to the area.

Clinical examination showed that the maximum mouth opening was restricted to 20 mm between the upper and lower left central incisors, and that mandibular movement was painful. A panoramic radiograph and tomograms revealed irregular radiopaque density particles scattered throughout the area surrounding the joint (Fig 1). CT showed the following abnormalities: (a) a soft tissue density mass localized in a slightly increased joint space around the left side condyle (arrow head); (b) multiple irregularly shaped calcifications in the mass lesion; (c) extra-articular calcification in the lateral pterygoid muscles (Fig 2). A technetium-99 bone scan showed marked uptake in the left condyle (Fig 3). This uptake corresponded with the calcification identified by CT.

On the basis of clinical and radiographycal findings, a tentative diagnosis of synovial chondromatosis was made.

On June 13, 1991, the left temporomandibular joint was exposed under general anesthesia by means of a
preauricular approach incision. Numerous loose bodies of varying size were present in the upper joint space, which were removed. In both the lower and upper joint cavity, several calcified bodies were removed as completely as possible. However, a few calcified bodies remained in the joint, and thus the disc and the affected synovium of the upper joint cavity were removed. All of the calcified bodies in the encapsulated mass and accessible synovium were also removed (Fig 4). A high condylar shave was performed and a temporary silicone implant was placed on the temporal aspect of the articular surface. We elected to leave the extra-articular calcification in the lateral pterygoid muscles to avoid causing excessive bleeding. The patient has been followed regularly.

The tumor consisted of chondroid, fibrous tissue. Transitional forms between the two tissue types were observed, and transition of cartilage into bone was observed. These histologic findings were consistent with a diagnosis of synovial chondromatosis (Fig 5).

Fig. 4. Extirpated loose bodies of different shapes and sizes.

Fig. 4A. Microscopic examination of chondromas confirmed diagnosis of synovial chondromatosis through evidence of synovium (arrow) attached to benign cartilaginous loose bodies. (Hematoxylin and eosin stain, original magnification ×50.)

Fig. 5A. Transition of cartilage into bone was observed. (Hematoxylin and eosin stain, original magnification ×100.)

Fig. 5B. Axial follow-up CT of the patient four years and seven months after operation. Arrowhead indicates residual calcification.

Fig. 6. Axial follow-up CT of the patient four years and seven months after operation. Arrowhead indicates residual calcification.
Postsurgical recovery was uneventful. With routine postsurgical physical therapy, the patient was ultimately able to open her mouth 40 mm without pain, but deviation of the mandible to the left side was observed. A regular follow-up CT scan of the residual calcification in the pterygoid muscle revealed no changes in size or location for ten years after surgery (Figs 6, 7) (Table 1). There has been no sign of recurrence or any mandibular opening limitation.

Discussion

Synovial chondromatosis of the temporomandibular joint is uncommon, and extracapsular extension is even rarer. Although we cannot deny myositis ossificans or osteochondroma perfectly, it seems natural to diagnose extracapsular mass as synovial chondromatosis due to the number of intra-articular cartilaginous loose bodies.

A review of the English literature (from 1980 to 2000) has revealed 51 cases of synovial chondromatosis affecting the temporomandibular joint. Females are more commonly affected than males (33:18), and this finding is compatible with past reports. Twenty nine cases described a follow-up period in the literature; twelve cases were within one year, seven cases were within two years, five cases were within three years, three cases were within six years and only two cases were ten years or longer.

We found 10 cases (20%) of extracapsular extension, including six men and four women.

The site of extension was as follows; within the lateral pterygoid muscle in three cases, intracranial in three cases, temporalis, masticator and parotid spaces in one case, anterior to the condyle into the soft tissues, an external auditory canal and parotid gland in one case each.

In the past reports, all extra capsular free bodies were removed. In the present case, we did not remove particles present outside of the joint capsule. Some authors have advocated total resection of the synovial membrane and loose bodies, arguing that the remnants might be a source of recurrence.

However, we did not remove the particles, but rather followed the course for the following reasons:

1. We reasoned that the extracapsular cartilaginous body would not grow any more, since the cartilaginous body could survive on nourishment from the capsule.

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Fig. 7A. Axial follow-up CT demonstrated residual calcification (arrowhead) in the pterygoid muscle, but no change in size or topographic location (10 years and three months after the operation).

Fig. 7B. Coronal follow-up CT also demonstrated residual calcification (arrowhead).
the synovial fluid.

2. We felt that removal might induce excessive bleeding.

The particles did not change in size or topographic location as demonstrated by follow-up CT studies for 10 years after the operation. Although we cannot make any definitive conclusions based on only one case, unless the symptoms are more severe, we consider it unnecessary to remove particles present outside of the capsule in such cases. In our experience, when performing a total synovectomy and discectomy, there may be no recurrence even if the extracapsular particles are preserved.

References