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Case Report
TMJ Disorders

Osteoblastoma of the temporal articular tubercle misdiagnosed as a temporomandibular joint disorder

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Abstract. The case of a 17-year-old female with a benign osteoblastoma in the temporomandibular joint (TMJ) is reported. The patient had a 2.5-year history of reduced mouth opening accompanied by tenderness and swelling in the left TMJ. Initial treatment included stabilization of the occlusion with a splint, jaw exercises, and analgesics. At first the patient's symptoms decreased, but they then increased 18 months later, prompting a cone beam computed tomography (CBCT) evaluation of the joint. The radiographic findings showed a somewhat ill-defined, radiolucent, expansile lesion containing small scattered calcifications located in the temporal articular tubercle. The lesion was removed under general anaesthesia and sent for histopathological examination. At the 12-month follow-up, the patient had normal TMJ function without clinical symptoms. CBCT examination showed a small recurrence of 3 mm. Another 12 months later, CBCT showed a 1-mm increase in the recurrence. Her function was normal, with slight tenderness lateral to the left TMJ. The decision from a multidisciplinary meeting was further annual follow-up. The present case illustrates the importance of initial radiographic examination together with clinical examination in patients with TMJ dysfunction.

Keywords: dentistry; osteoblastoma; temporomandibular disorders.

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Osteoblastoma is a rare benign bone tumour representing less than 1% of all bone neoplasms. The tumour normally involves the long bones, spine, and sacrum, and less than 10% of osteoblastomas are located in the maxillofacial region.[1–4] Around 77 cases of osteoblastoma involving the cranial bones have been described to date in the literature, with the posterior body of the mandible being the most frequent location.[2] Clinically the osteoblastoma may be associated with a rapid onset, dull persistent pain, and swelling.[2,3] Even if the patient is treated with non-steroidal anti-inflammatory drugs (NSAIDs), there is little or no relief; this is in contrast to what is observed in patients with osteoid osteoma or other inflammatory processes.[2]

Radiographically the lesion can be expansile, with internal structures ranging from radiolucent, to a mixed pattern with varying degrees of calcification, to a more radiopaque variant. Variations in pattern are thought to be related to the age of the

tumour, although the possibility that some lesions are 'pre-programmed' to produce more calcified products cannot be excluded. Tooth roots may be displaced or resorbed, but the lesion, in contrast to benign cementoblastoma, never fuses with the cementum. Typically the osteoblastoma has clinical and radiographic features more consistent with a benign process, respecting cortical boundaries and not invading soft tissue.

Histopathologically, osteoblastomas are characterized by numerous plump osteoblastic cells producing and lining the haphazardly arranged lesional trabeculae of osteoid and woven bone. Numerous blood vessels are often seen in the osteoblastic and fibrous stroma filling the lesional inter-trabecular areas.[5] Scattered multinucleated giant cells resembling osteoclasts are also generally seen. Mitotic figures may be seen, but these are usually sparse and have a normal configuration.

Osteoblastoma involving the temporomandibular joint (TMJ) area causes symptoms of pain and tenderness that can easily be misinterpreted as a TMJ disorder (TMD). About 5–15% of the adult population has some kind of dysfunction in the temporomandibular area that needs treatment.[6] Signs and symptoms of TMD include pain associated with the TMJ and jaw muscles, pain on jaw movement, impaired jaw mobility, and locking of the jaw. Therefore the clinical examination of a patient with TMD should include an evaluation of the jaw muscles and TMJ, as well as the registration of jaw movements. Most patients with TMD symptoms are treated conservatively with splints, physical therapy, pharmacotherapy, and/or intra-articular injection.[6,7] However, in situations where conservative treatment does not give the expected effect, a radiographic examination is indicated.[1,8]

The clinical, radiographic, and histopathological findings in a case of osteoblastoma located in the TMJ are reported herein.

Case report

Clinical and radiographic findings

The patient, a 17-year-old female, had a 2.5-year history of reduced mouth opening accompanied by tenderness and swelling in the left TMJ area. Her initial treatment included clinical examination, stabilization of the occlusion with a splint, jaw exercises, and analgesics. At first, the patient's symptoms decreased, but they then increased 18 months later, prompting a cone beam computed tomography (CBCT) evaluation of the TMJ. Radiographic findings showed a somewhat ill-defined, radiolucent, expansile lesion containing small scattered calcifications. The lesion was located within the articular eminence of the temporal bone and had expanded the bone structure (Fig. 1a). The lesion measured 11 × 8 × 8 mm and had a well-defined cortical border towards the articular surface of the eminence, but was radiographically ill-defined within the temporal bone.

Surgical procedure and follow-up

Due to clinical symptoms and radiographic findings suggestive of a tumour with features of osteoblastoma, surgical removal was scheduled. Surgery was performed under general anaesthesia. The TMJ was exposed with a pre-auricular approach, according to Rowe,[9] to gain access to the articular tubercle. The tumour was identified in the lateral part of the tubercle and excised after removal of the lateral

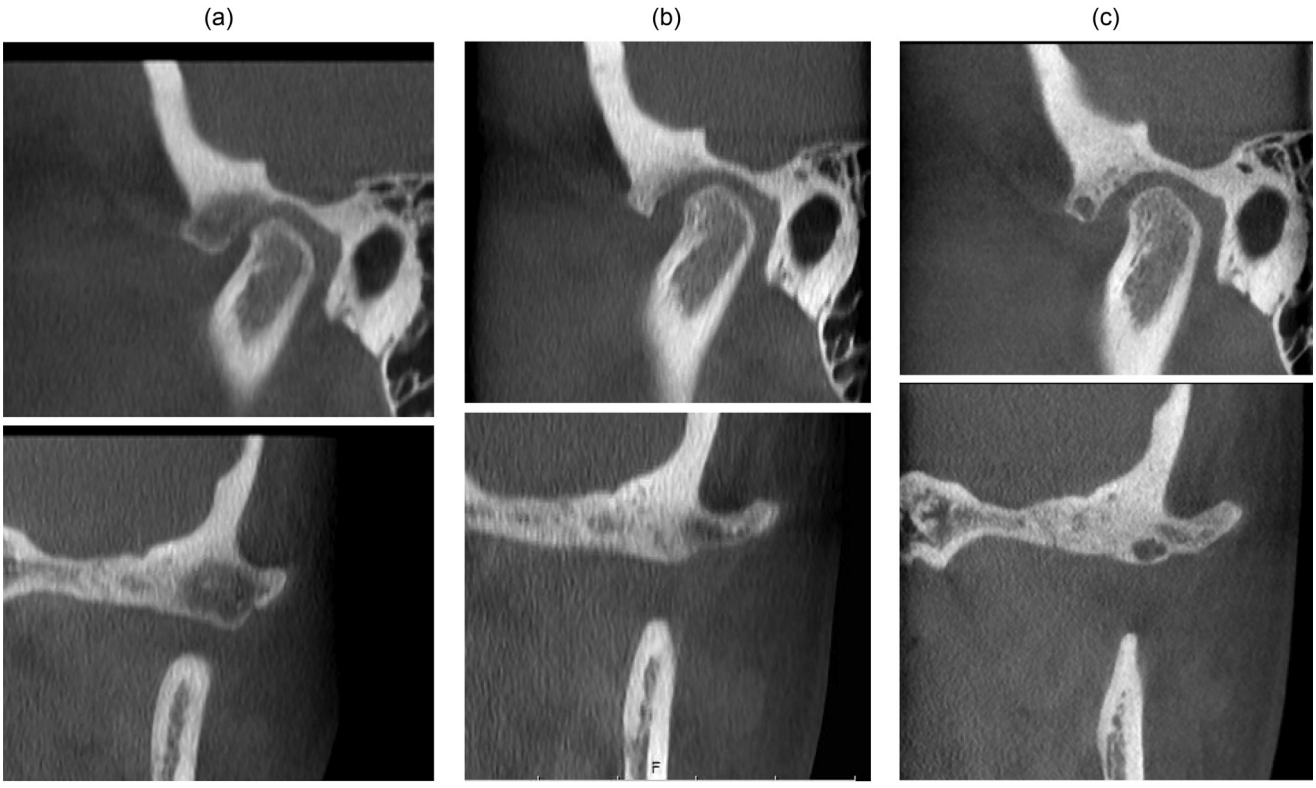

Fig. 1. (a) Sagittal and frontal CBCT showing a somewhat ill-defined radiolucency with scattered small foci of calcification in the articular eminence of the temporal bone; pre-operative examination, September 3, 2013. (b) Sagittal and frontal CBCT showing healing at 6 months after surgery; examination, May 8, 2014. (c) Sagittal and frontal CBCT showing signs of recurrence in the articular eminence of the temporal bone; examination, May 24, 2016.