

Necrosis of the articular tubercle after repeated injections of sodium hyaluronate in the temporomandibular joint

A case report

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Abstract. A case of partial bone necrosis of the articular tubercle of the temporomandibular joint is presented. It was probably caused by repeated injections of sodium hyaluronate in the joint. A sequestrectomy was performed under general anesthesia, and the postoperative course was uneventful.

Key words: necrotic bone; arthrocentesis; temporomandibular joint; complication; temporomandibular joint puncture.

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Since the advent of arthrography, arthroscopy and arthrocentesis, puncture of the temporomandibular joint (TMJ) has been widely used in TMJ disorders^{1,4,6,7,9}. The main complication of TMJ puncture is neurologic and otologic injury particularly during arthroscopic surgery, hence, procedures that involve TMJ puncture may produce similar complications^{2,3}. This paper describes a case of partial bone necrosis of the articular tubercle after repeated TMJ puncture and injection of sodium hyaluronate.

Case report

A 46-year-old man was referred to our department complaining of spontaneous pain in the preauricular region and limited mouth opening. The history revealed that the patient had received weekly intra-articular injections of sodium hyaluronate in the right TMJ for five weeks. Three years later, the

pain increased around the right TMJ. The patient denied history of trauma to the maxillofacial area.

Clinical examination revealed tenderness and slight swelling in the right preauricular area. The maximum mouth opening was 31 mm. The mandible shifted towards the affected side during mouth opening. Conventional radiographs showed an indistinct defect on the right articular tubercle. T₁-weighted magnetic resonance images disclosed an area of high signal intensity in the lateral part of the right articular tubercle. Computed tomography (CT) revealed an osteolytic mass surrounded by sclerotic bone. The mass measured 10 mm in diameter (Fig. 1). The tomographic findings of the institution where he had been treated before, showed no signs of bony changes in the right articular tubercle. Based on these findings, the tentative diagnosis was partial necrosis of the articular tubercle.

Three months after presentation, a sequestrectomy was performed under general anesthesia. The TMJ was exposed through a preauricular incision. A reddish-purple area was

found on the lateral surface of the articular tubercle, which was curetted (Fig. 2A). Intraoperative examination of the joint showed no other abnormality.

Microscopically, the specimen obtained showed necrotic bone with loss of viable osteocytes with few inflammatory cells (Fig. 2B).

The postoperative course was uneventful. At the one-month follow up, pain and swelling of the affected joint had decreased. The maximum mouth opening had increased to 40 mm. There was no clinical or radiographic evidence of recurrence.

Discussion

Complications of TMJ puncture are mainly caused by arthroscopic surgery and rarely occur after arthrography or arthrocentesis^{2-4,9}. Most complications occur in structures surrounding the TMJ^{3,5,8,10}. WESTESSON et al.¹⁰ reported that the surface of the posterior slope of the articular tubercle is likely to be scratched, because instruments are

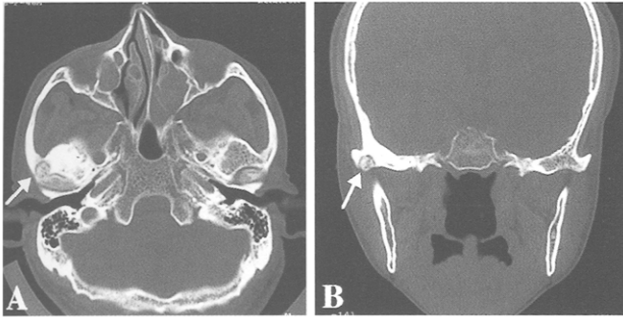


Fig. 1. CT scans in axial (A) and coronal plane (B) showing lesion (arrow) in articular tubercle and osteosclerotic changes in surrounding bone.

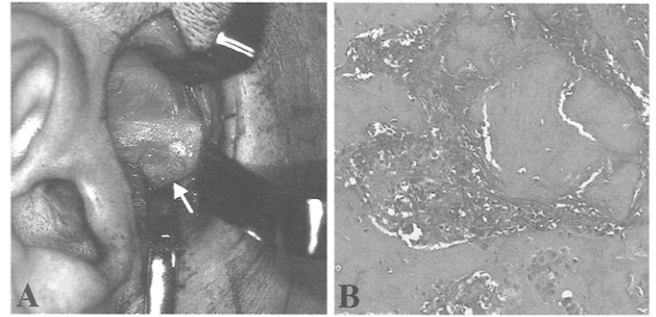


Fig. 2. A) Intraoperative photo of lesion (arrow) in articular tubercle. B) Photomicrograph of removed specimen demonstrating necrotic bone (HE×100).

usually aimed toward this region during TMJ puncture. In the present case, the microscopic findings ruled out the possibility of infection. We, therefore, attributed the bone necrosis to the injected sodium hyaluronate. Sodium hyaluronate alone, however, does not cause bone necrosis¹. Sequestration, therefore, was most likely caused by mechanical irritation produced by the needle tip during the intra-articular injections. The reported case illustrates the need for a gentle technique when carrying out TMJ arthroscopy or arthrocentesis, particularly when repeated treatment is deemed necessary.

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