
Occult fractures of articular eminence and glenoid fossa presenting as temporomandibular disorder: A case report

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We report an unusual case of occult fractures of the articular eminence and glenoid fossa due to a previous traffic accident presenting as a temporomandibular disorder. A 24-year-old Japanese man was referred for trismus and pain in the right temporomandibular joint, and was suspected of having temporomandibular disorder. Although the magnetic resonance image did not show displacement of the articular disk, T2-weighted images revealed disruption of the cortical low-intensity line of the right articular eminence. On a computerized tomography (CT) scan, an isolated bone fragment of the right articular eminence was clearly seen, and fractures of the right glenoid fossa and articular eminence were noted. The patient was treated by instructing him not to open his mouth widely and to remain on a soft diet for 4 weeks. A CT examination performed 1 year after the treatment showed complete healing of the fracture in the right articular eminence and glenoid fossa.

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Fractures involving the temporomandibular joint (TMJ) are frequently encountered, and most of them are in the condylar process. However, certain types of external force on the mandible are known to result in fractures in the bony structures around the TMJ, such as the articular eminence and glenoid fossa. Since Keith et al.¹ first reported a case of fracture of the articular eminence in 1990, there have been only a few additional reports in the literature.^{2,3} On the other hand, fracture of the glenoid fossa accompanied by mandibular trauma is often reported.⁴⁻⁹ We report an unusual case of occult

fractures of the articular eminence and glenoid fossa due to a previous traffic accident later presenting as a temporomandibular disorder (TMD).

CASE REPORT

A 24-year-old Japanese man was referred in January 2001 to the Department of Dentistry and Oral Surgery, University of Fukui Hospital, for a trismus and pain in the right TMJ and was suspected of having a TMD. The patient had heard clicking in the right TMJ for years and the sound of the click had increased since he had experienced a traffic accident 2 years before. In the accident, his chin struck the steering wheel. Just after the accident, examination of his head and TMJs by computerized tomography (CT) was performed in another hospital and no abnormality was noted.

Because the clicking sound had increased in the previous 2 years, he had come to enjoy producing the clicking sound by opening his mouth widely. In December 2000, he had pain in the right TMJ and trismus.

When referred to our hospital, the patient had a maximum interincisal opening of 28 mm and a deviation of the mandible to the right while opening. No malocclusion was found. The patient had a tenderness and pain in the right TMJ when opening his mouth, and the click was felt in the left TMJ, whereas no click was felt on the right. There was no redness nor swelling in the preauricular areas.

Radiographs using the Schuller method showed limitation of right condylar movement (Fig. 1). A panoramic radiograph (Fig. 2) and orbitramus projection showed no clear fracture of the TMJ regions. Given the diagnosis of TMD, the patient was treated by a splint, myomonitor, and medications such as a muscle relaxant and antiinflammatories. However, no improvement of the symptoms was seen for 1 month except an increase in opening to 33 mm. A magnetic resonance imaging

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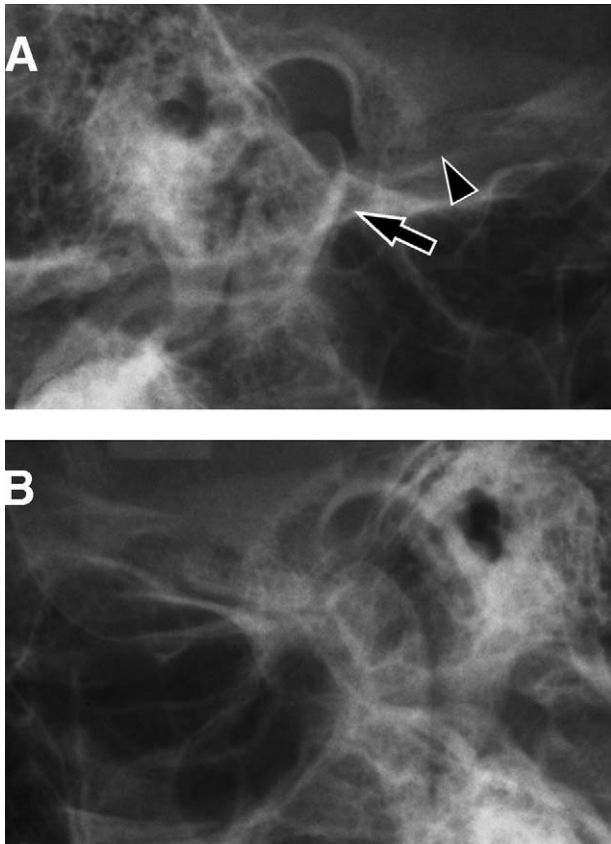


Fig. 1. Schuller method radiographs in the position of opening the mouth. Limitation of the condylar movement is seen in the right (A, arrow) compared to the left (B). There is no sign of fracture in the articular eminence (A, arrowhead).

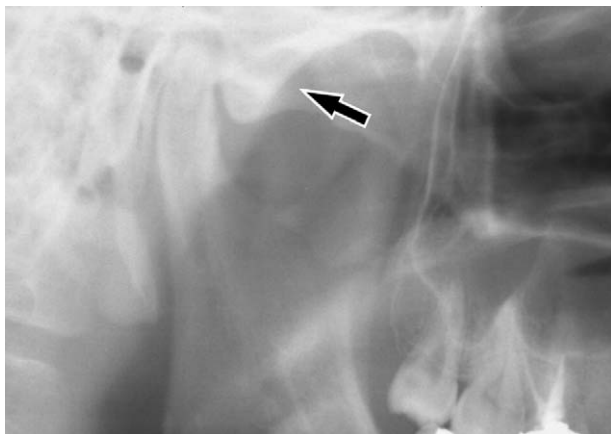


Fig. 2. The right articular eminence of the panoramic radiograph is shown (arrow). The fracture is not seen in the eminence.

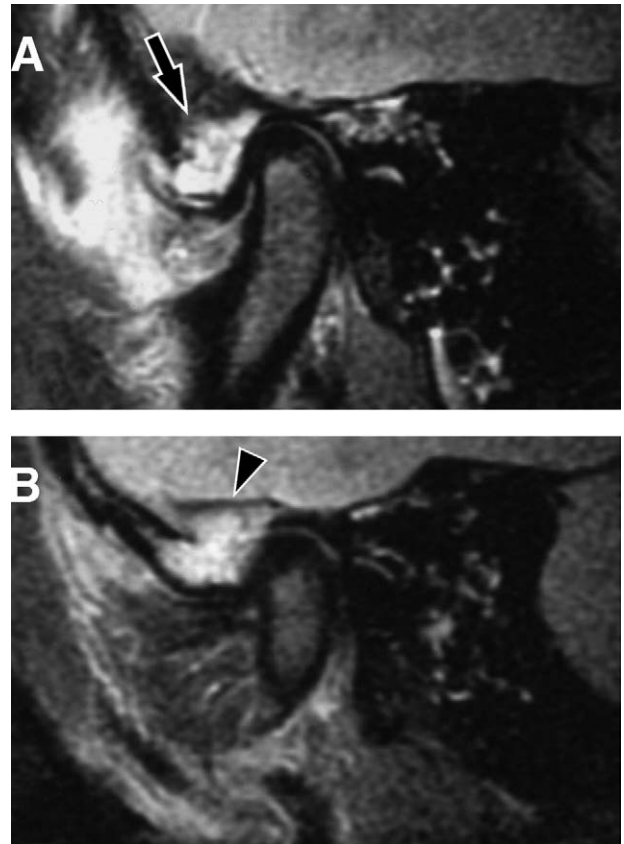


Fig. 3. The T2-weighted MR image shows high-intensity lesion in the right articular eminence. Fracture of the articular eminence (A, arrow) and glenoid fossa (B, arrowhead) is suspected.

(MRI) assessment was carried out. Although the MRI did not show displacement of the articular disk, sagittal T2-weighted images revealed disruption of the cortical low-intensity line at the right articular eminence. The T2-weighted MRI revealed also a very-high-intensity lesion in the articular eminence which was surrounded by soft tissue with moderately high intensity without hemorrhage, joint effusion, or mass lesion. These findings indicated a fracture in the area (Fig. 3). On a new CT scan, an isolated bone fragment of the right articular eminence was clearly seen, and a fracture of the right glenoid fossa also was noted (Fig. 4). There were no remarkable sclerosing changes or remodeling suggestive of chronic bone damage. The patient was immediately referred to the Department of Neurosurgery, and no signs of neurologic injury or other clinical problems were found. To avoid mechanical stress on the fractured right articular eminence, the patient was treated by instructing him not to open his mouth widely and to remain on a soft diet for 4 weeks.

Three months later, the patient had no pain around the TMJ but still experienced clicking on the right. The maximum incisal opening of the mouth was 50 mm, and deviation of the mandible to the right while opening was improved. A CT examination performed in April 2002 showed complete heal-

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