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Case Report

Traumatic dislocation of the mandibular condyle into the middle cranial fossa: A case of cranial base reconstruction and review of the literature

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ABSTRACT

In patients with orofacial trauma, dislocation of the mandibular condyle into the middle cranial fossa is extremely rare. This article describes the case of a 51-year-old man who sustained dislocation of the right mandibular condyle into the middle cranial fossa due to a traumatic blow to the chin during an accidental fall. His chief complaints were severe malocclusion, restricted jaw movement, and difficulty opening and closing his mouth. Glenoid fossa fracture and condylar penetration were observed by computed tomography and magnetic resonance imaging. The patient had no neurological complications despite the risk of cerebral contusion and dural tears. A combined neurosurgical-maxillofacial treatment was planned for the patient. Mandibular reduction and cranial base reconstruction were performed through a craniotomy using a combination of a titanium plate and a galeal flap. Postoperatively, intermaxillary fixation was maintained for 28 days to prevent recurrence of displacement of the condyle. The patient continued to show good function of the mandible at 18 months postoperatively, without complications.

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1. Introduction

Dislocation of the mandibular condyle into the middle cranial fossa through the fractured glenoid fossa caused by orofacial trauma is a rare event. To the best of our knowledge, only 47 such cases have been previously reported, and approximately half of these have occurred in subjects under the age of 21 [1–30]. In fact, only three cases of patients aged 40 years or older have been previously reported [1–3]. We encountered a rare case of a 51-year-old man with mandibular condyle dislocation into the middle cranial fossa caused by a traumatic blow to the chin. Mandibular reduction and cranial base reconstruction were successfully performed through craniotomy. Here we present this case, and discuss the

clinical status and treatment of this disease based on a literature review.

2. Case report

A 51-year-old man accidentally fell down onto the point of his chin after drinking alcohol in December 2012. Subsequently, he experienced a reduced ability to open or close his mouth, along with bleeding from the chin. On the same day, the patient visited the outpatient department of an emergency hospital by himself. He was fully conscious and without neurological complications. Computed tomography (CT) images revealed superior dislocation of the right-sided mandibular condyle into the middle cranial fossa, without intracranial bleeding. He was admitted to the hospital, where his chin laceration was sutured. In addition, he received an intravenous infusion of antibiotics to prevent infection. Three days later, he was transferred to our hospital for thorough examination and treatment.

On initial physical examination, he had no neurological complications and could walk and take liquid food. He did not have any past history of temporomandibular disorder (TMD) or other notable

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diseases. On extraoral examination, right preauricular swelling and deviation of the mandible to the right side were noted. Intraoral examination revealed a significant malocclusion with cross-bite, deviation of the mandibular midline to the right, and he was unable to open or close his mouth. There were no soft-tissue wounds or tooth fractures (Fig. 1). CT scans revealed that the entire head of the right condyle was dislocated into the middle cranial fossa through the fractured roof of the glenoid fossa, with superiorly displaced fragments of the temporal bone producing a “trapdoor defect”. The shape of the condylar head was almost intact, with slight incomplete fractures (Fig. 2). T2-enhanced magnetic resonance images (MRI) revealed a high density area in the temporal lobe, suggesting cerebral contusion (Fig. 3A). In addition, the articular disc was completely displaced anteriorly (Fig. 3B). Following neurosurgical consultation, a craniotomy was planned for condyle reduction and cranial base reconstruction, owing to the potential of cerebral contusion and dural tears. A 3-point fixator was used to secure the head to the left orientation. Maxillary and mandibular arch bars were placed. A right coronal incision was made to expose the mandibular condyle, after which a temporal bone window



Fig. 1. Intraoral view during the initial examination. Malocclusion, mandibular midline shift to the right side, and cross bite are observed.

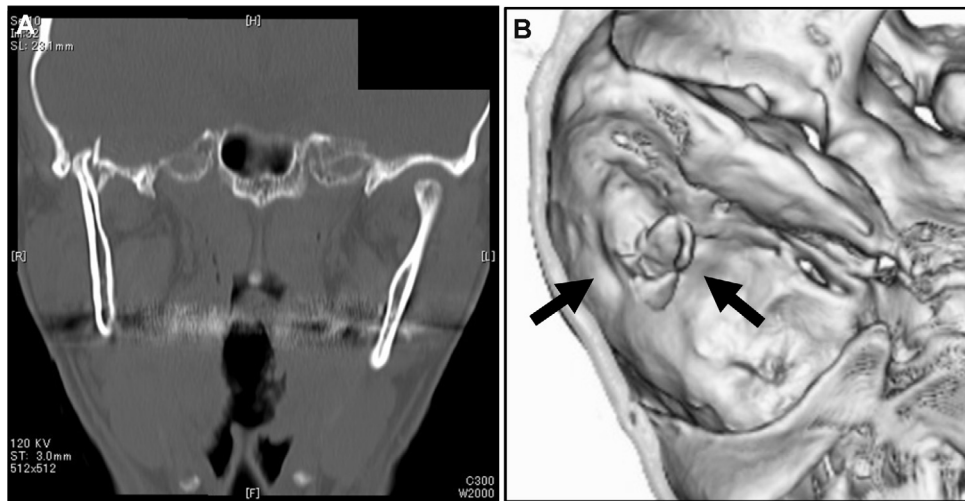


Fig. 2. Computed tomography (CT) at the first visit. (A) Coronal slice CT. (B) Three-dimensional CT. The mandibular condyle penetrates the roof of the glenoid fossa (arrows).

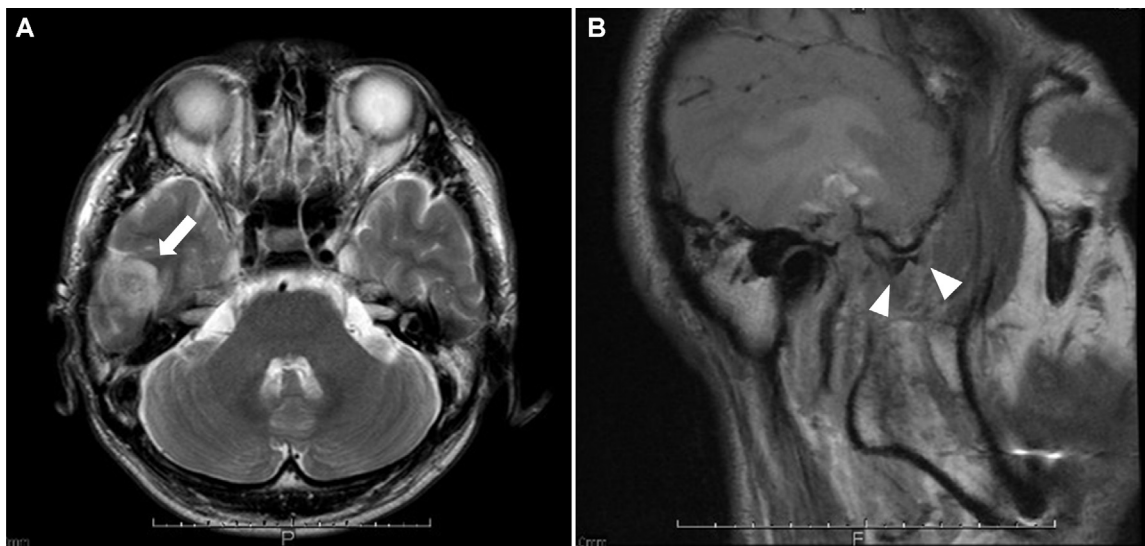


Fig. 3. Magnetic resonance images (MRI) at the first visit. (A) T2-enhanced MRI image reveals a high density area in the temporal lobe (arrow). (B) The articular disc is completely displaced anteriorly (arrow heads).

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