High cervical pain and impairment of skull mobility as the only symptoms of an occipital condyle fracture

Case report

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Occipital condyle fractures are rarely reported in survivors of trauma. Most cases involve patients with a major head trauma, lower cranial nerve palsy, and/or suspected lesions demonstrated on plain x-ray films of the skull or cervical spine. The authors describe a traffic-accident victim in whom an atlanto-occipital joint lesion was suspected based only on mobility investigation of the skull. Axial high-resolution computerized tomography of the atlanto-occipital joint showed a fracture of the right occipital condyle.

KEY WORDS • occipital condyle fracture • head injury • skull mobility • cervical pain

Occipital condyle fractures are uncommon findings in survivors of trauma. Patients with this type of fracture usually present with major head trauma and/or lower cranial nerve palsy. This lesion may be suspected from plain x-ray films. We describe the case of a patient presenting with impairment of skull mobility and high cervical pain as the only symptoms of an occipital condyle fracture.

Case Report

This 27-year-old man was admitted to the emergency department of our hospital on January 9, 1992, the victim of a traffic accident. A car had hit the left front door of his van. During transportation in the ambulance, he was wearing a cervical collar. He never lost consciousness.

Examination. On admission, the patient's Glasgow Coma Scale score was 15. Except for a contusion of his left shoulder and high cervical pain, he had no complaints. Examination of the central and peripheral nervous system was normal. Standard x-ray films of the skull and cervical spine showed no traumatic lesion, so the collar was removed. Palpation of the occipitocervical region was very painful. Active flexion-extension and lateral bending of the head were also very painful. Initiation of rotation was less troublesome. Based on the clinical findings, we decided to obtain a computerized tomography (CT) scan of the atlanto-occipital joint, which showed an avulsion fracture of the right occipital condyle with anteromedial displacement of the fragment (Fig. 1). There was no medullary compression.

Treatment and Follow-Up Evaluation. The patient was immobilized in a Philadelphia collar for 10 weeks and received nonsteroidal anti-inflammatory drug therapy. Follow-up CT scans on March 30, 1992, and September 27, 1993 (Fig. 2) showed good consolidation of the fracture. Ten months after the accident,
the patient had regained complete mobility of the skull and cervical spine. All cranial nerve functions were preserved.

Discussion

In 1817, Bell\(^4\) was the first to describe a case of a fractured occipital condyle at autopsy. The first radiological in vivo evidence was presented by Ahlgren, et al.,\(^1\) in 1962. In 1983, the first CT scans of an occipital condyle fracture were published.\(^5,7\) Bozboga, et al.,\(^5\) were the first to perform surgery on this kind of lesion, in 1992.

A postmortem radiological examination of victims of traffic accidents by Alker, et al.,\(^2\) revealed a fractured occipital condyle in 0.6% of cases. Milten, et al.,\(^7\) found this type of fracture in 4.2% of a comparable autopsy group. Data on the incidence of occipital condyle fractures in survivors of traffic accidents do not exist. About 35 cases have been published in the literature so far.

In 1988, Anderson and Montesano\(^3\) divided occipital condyle fractures into three types according to the mechanism of injury (Table 1). According to their classification, our patient had a Type III fracture. He could describe how his head was pushed to the left in extreme lateroflexion so it was concluded that the right condyle was fractured by avulsion of the right alar ligament. A CT scan obtained on the day after the accident showed a subluxation of the odontoid process to the left side with regard to the atlas.

The most sensitive radiological examination is undoubtedly a high-resolution axial CT of the atlanto-occipital joint. Standard x-ray films of the skull and cervical spine usually do not show any abnormality because of the superposition of the facial skeleton. Indirect signs such as prevertebral soft-tissue swelling have been reported. Classic tomography can miss discrete compression fractures.

Surgical decompression for occipital condyle fracture has been reported only once.\(^8\) All other patients were treated conservatively with immobilization in a cervical collar. Functional loss of lower cranial nerves usually disappeared after a few weeks. In one case, the patient developed a hypoglossal paresis during consolidation.\(^8\) Initially, that patient was not immobilized in a cervical collar because the diagnosis was missed.

Conclusions

This case demonstrates an unstable fracture of an occipital condyle that could have had serious complications when mobilized (in rotation).\(^4\) It is also an illustration of the danger of removing a cervical collar after trauma when the standard x-ray films seem to be normal. The suspicion of an atlanto-occipital lesion was based purely on the nature of the pain and clinical examination of the cervical spine, which revealed aggravation of the pain with flexion-extension and lateral bending and no pain with initiation of rotation. The final diagnosis was made by high-resolution CT.

References


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