CASE REPORT

Occipital condylar fractures in children: rare or underdiagnosed?

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A 6-year-old female is described who sustained a fracture of the left occipital condyle after colliding with a car at low speed. The fracture was only visible on thin-slice CT of the neck, which is not routinely recommended in children following a road traffic accident. Fractures of the occipitoatlantoaxial complex are difficult to diagnose by plain radiography, and awareness of this problem needs to be raised among clinicians treating children. *Dentomaxillofacial Radiology* (2012) 41, 175–176. doi: 10.1259/dmfr/59348986

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Case report

A 6-year-old female trying to cross a road was hit on the left side of the body by a car travelling at a speed of around 20 mph. She did not lose consciousness and stood up by herself. Her mother, who had witnessed the incident from a distance, drove her in her own car to the local casualty department. On arrival she was assessed by a senior house officer and a registrar. She had a short period of anterograde amnesia and complained of nausea and neck pain on the left side. No imaging studies were requested but the child was admitted to the paediatric ward for observation. On the consultant ward round the next morning she complained of pain in the midcervical spine on palpation. She showed abrasions and bruises above the left eye, on the left cheek bone, the right hip and the lower back. A CT of the cervical spine was arranged, which revealed a fracture of the left occipital condyle and of the left occipital bone (Figure 1). No abnormality was seen on a plain lateral radiograph (Figure 2). After discussion with a neurosurgeon it was decided to treat the patient conservatively with a soft collar for 8 weeks. A repeat CT scan 1 week later showed signs of healing and no displacement of the bone fragment.

Discussion

The occipital condyles are two prominences located on the undersurface of the skull on either side of the foramen magnum. Together with the atlas and axis

Figure 1 CT scan of the basal skull and upper cervical spine demonstrating fracture lines through the left occipital condyle (top left and bottom right corner of black rectangle)

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Figure 2 Lateral radiograph of cervical spine with black ellipse indicating the region of the occipital condyle

vertebrae they form the complex occipitoatlantoaxial joint. Occipital condylar fractures (OCF) are generally considered rare, but the reported incidence in the literature varies from 1% to 16% in patients with significant craniocervical injuries.^{1–3} Detection of unilateral or bilateral OCFs by conventional radiography is difficult, and thin-slice CT is the diagnostic method of choice. These fractures are clinically relevant because they can lead to lower cranial nerve palsies (~30%) and other neurological and vascular complications. OCFs can be divided into three types: I = comminuted fracture; II = basal skull fracture extending into occipital condyle (this patient); and III = same as II but with displacement of bone fragment. Treatment of OCFs is mainly conservative with a soft or hard collar, or a traction vest. If the craniocervical junction becomes unstable or a fracture fragment presses onto a neurovascular structure, surgical intervention is required. Current National Institute for Health and Clinical Excellence head injury guidelines recommend plain radiographs as a screening method for neck injuries in children because of the lower radiation exposure.⁴ It is therefore advisable to include the occipitoatlantoaxial joint when performing a CT scan following a head trauma. This case demonstrates that OCFs in children are not necessarily associated with a reduced Glasgow Coma Score, that they can be missed on conventional radiographs and that a high degree of clinical suspicion is required for making the diagnosis.

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