ROTATORY DISLOCATION OF BOTH ATLANTO-AXIAL JOINTS

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A case of rotatory dislocation of both atlanto-axial joints is presented. A review of the literature reveals two other cases, both in children. This would appear to be the first report in an adult, who survived and made a full recovery.

Traumatic rotatory dislocation of both atlanto-axial joints seems to be extremely rare; the only previously reported cases were both in children (Greeley 1930; Rankin 1936). In this present report a young adult with such a bilateral dislocation is described.

CASE REPORT

While playing rugby, a strongly-built 18-year-old man was tackled around the neck and thrown to the ground. In the mêlée that followed he remembered being kicked on the head and right shoulder, but shortly afterwards lost consciousness for a few minutes.

On admission to hospital he was conscious and complained of pain in his neck and right shoulder. He lay with his head turned over towards his right shoulder and was unable to move it. Passive movement of the neck was resisted. There was anaesthesia of the lateral aspect of his left thigh, calf and foot, and dorsiflexion of his left ankle was weak. Neurological examination was otherwise normal. Plain radiographs showed a bilateral rotatory dislocation of the atlas on the axis (Figs 1 to 3) and a fracture of the base of the right acromion.

Skull traction was applied under local anaesthesia, using Crutchfield tongs and 10 lb (4.5 kg) of weight. The patient was treated on a Stryker frame. Over the next few hours the anaesthesia of his left leg partially recovered and the power of dorsiflexion of his left foot returned to normal. Traction was increased to 12 lb (5.4 kg) and maintained at that level throughout the next day but with no change in the radiological appearances, except disimpaction of the atlas on the axis. The following day, as he was routinely being turned from his side on to his back with the surgeon holding his head, the neck clicked; his head then turned freely and new radiographs confirmed reduction.

Subsequently, he repeatedly removed his traction. He refused a cervical brace, and his behaviour became so disturbed that after 18 days he required transfer to a psychiatric ward. He was discharged from hospital a month after injury wearing a brace which he discarded three weeks later.

Seventeen months after injury he was in full employment in a bakery and had no complaints apart from feeling an occasional click high in his neck when turning his head. There was still some residual numbness over the back of his left calf. Cervical spine radiographs showed no abnormality, and flexion and extension views showed no instability (Figs 4 and 5).

DISCUSSION

Rotatory subluxations and dislocations of the atlanto-axial joint have often been described (Corner 1907; Jackson 1927; Rankin 1936; Jacobson and Adler 1956; Wortzman and Dewar 1968; Iulo and Goldstone 1976; Fielding and Hawkins 1977; Fielding, Fietti and Mardon-Bey 1978) but, apart from two children, all are cases of either unilateral joint displacement or rotatory fixation. These conditions generally follow upper respiratory tract infection or minor trauma, and present with a persistent torticollis with the neck held in a "cock robin" posture. The child reported by Greeley (1930) presented after major trauma, having been struck by an "automobile truck". His neck was turned 90 degrees to the rest of his body and his chin lay over his left shoulder. Bilateral rotatory dislocation was confirmed radiologically. Rankin's case (1936) presented as a torticollis of six weeks' duration, following a fall in the playground, and had the "cock robin" head posture more typical of rotatory fixation, although complete bilateral dislocation was confirmed later at open operation.

The lack of other reports of this injury, even as a post-mortem finding, suggest that it is very rare. From the history and physical signs it seems potentially fatal, but until further cases are reported the risks cannot be defined.

The exact mechanism of injury is not clear from this case. No definite recommendations as to treatment can
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Figures 1 to 3 - Radiographs of cervical spine on admission.
Figures 4 to 5 - Flexion and extension views 17 months after injury.

be made. However, the fact that traction failed to reduce
the fracture but that a simple rotatory manoeuvre did so
with ease suggests that manipulative reduction under
anaesthetic may be the treatment of choice. The
subsequent course in this case suggests that a long period
of immobilisation after reduction may not be essential.

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REFERENCES