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OPERATED CASE OF RECURRENT DISLOCATION OF THE ATLAS

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Dislocation of the atlas was first described by *Bell* (1830). Surveys of the literature have since been published by *Sullivan* (1949), *Boever & Hennebert* (1953) and *Werne* (1957). Some 225 cases are now on record, which suggests that the condition is not so rare as initially assumed. The aetiology of the disease is not properly understood. Most authors have found it to be related to adjacent inflammatory foci, e.g. tonsillitis, mastoiditis. *Werne* (1957) claims that the dislocation is usually due to slight traumatisation of a pathologically changed transverse ligament. *Donaldson* (1956) ascribes it to the existence of some anomaly. This opinion is shared by *Felton* (1957) who believes it to be due to maldevelopment of the atlo-axoid joint and that on traumatisation the previously mobile atlas dislocation becomes fixed with development of the typical symptoms.

REPORT OF CASE

The patient was a man, aged 38, referred to the Department in 1957 because of severe pain in the neck and torticollis.

History.—In 1953 he was sitting in his parked car which was bumped into by another car. The collision was only gentle and he experienced only a slight jerk, but at the same time felt something snap in the neck. Two days later neck pain and torticollis developed. After a while he sought medical advice. Physical and roentgen examination failed to reveal any explanation for the pain. He received short wave therapy, massage and later alo roentgen therapy but without relief. In January 1957 he was referred to the Department for examination.

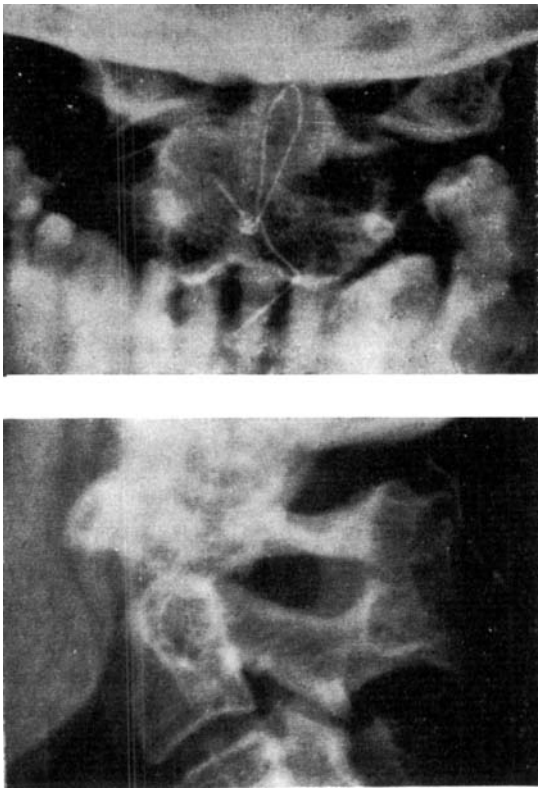

Fig. 1.
Anteroposterior and lateral roentgenograms showing the fusion between the atlas and the axis.

On admission.—The patient complained of severe pain in the neck. Examination revealed torticollis, the head was tilted to the right and turned to the left. The range of rotation to the right was severely limited, as was tilting to the left. Immobilization produced no effect. Roentgen examination in the beginning of February now revealed suspected left-sided backward dislocation of the atlas. As he had clear clinical signs of a dislocation, he was admitted and placed in a Glisson's sling for 8 days. Subsequent check roentgenography showed that the dislocation was reduced, and a plaster cast was applied. This immobilization of the neck was continued until May. After removal of the cast the patient could hold his head in normal position and felt hardly any discomfort. A few days later, however, torticollis and pain recurred.

Since the wryneck and pain were due to an old dislocation—probably 4 years old—further conservative treatment was considered of no purpose and operation (fusion) was decided upon. He was again placed in a Glisson's sling. After reduction of the dislocation (5 days) a plaster cast was applied from the buttocks up to the forehead. The operation was performed under intubation anaesthesia. The spinous processes and the arches of the axis and atlas were surgically exposed via a window in the plaster cast. The bone was refreshed by means of a gouge, so that the marrow began to bleed. A piece of bone 2 by 4 cm. from the iliac crest was shaped so that the spinous processes of the atlas and the axis fitted into ridges in the bone graft. Bone chips were placed underneath the plate, which was then tied in position with steel wire. The postoperative course was smooth. Four months later the cast was removed and a plastic collar applied. Five months after operation he began to work, and after a further two months (7 months after operation) the collar was removed. The head was then in the correct position and the patient was symptom-free (Fig. 1).

COMMENTS

In the treatment of spontaneous dislocation of the atlas, slow reduction by continuous traction appears to be the rule. Check roentgenography at short intervals is necessary to avoid the risk of over-traction, over-distension of the ligaments favouring recurrences. Immobilization in a cranio-thoracic plaster for about 4 months followed by immobilization in a plastic collar for a further 2 months appears to be sufficient. Such treatment will usually produce the desired effect, though re-treatment because of recurrence is sometimes necessary. Occasionally, however, surgical vertebral fusion has proved necessary to secure firm fixation. The first operation of this type was performed by *Mixter & Osgood* (1910) because of atlas dislocation with fracture of the dens. In fractures of the atlas and in anomalies (such as aplasia of the dens epistrophei) extensive fusions have been performed from the occipital bone to the second, third or even fourth cervical vertebra (*Kahn & Yglesias* 1935, *Cone & Turner* 1937, *Colsen* 1949, *Lipscomp* 1957). It appears that only 5 cases are on record in which the patients were operated on because of dislocations without fracture or demonstrable anomaly (one case by *Rogers* 1942, two by *Grogono* 1954, and two by *Nicholson* 1956). In all of them the atlas was fused to the axis by a steel wire around the arch of the atlas and the spinous process of the axis,

fixing bone transplants. In one of the cases, however, the dislocation recurred with rupture of the steel wire. This recurrence was probably due to inadequate immobilisation after the operation. In our case no steel wire was placed around the arch of the atlas; this eliminated the risk of injury to the medulla in case of wire rupture. The bone plate was instead tied with steel wires drawn through the soft tissue on either side of the spinous processes. This procedure requires perfect post-operative immobilization. The advantage of limiting the fusion to the first and second cervical vertebrae is that practically normal range of movement of the head is preserved.

SUMMARY

A case is described of recurrent dislocation of the atlas treated by fusion of the first and second cervical vertebrae without steel wire around the posterior arch of the atlas. The importance of perfect post-operative immobilization is stressed and the advantage of limiting the operation to fusion of these two vertebrae is pointed out.

RESUME

Il est décrit un cas de dislocation récurrente de l'atlas avec fixation des première et seconde vertèbres cervicales sans fil d'acier autour de l'arc postérieur de l'atlas. L'importance d'une immobilisation post-opératoire est soulignée et il est relevé qu'on peut généralement limiter l'operation à la fusion entre ces deux vertèbres.

ZUSAMMENFASSUNG

Ein Fall von rezidivierender Luxation des Atlas, der durch Fusion des ersten mit dem zweiten Halswirbel ohne Zuhilfenahme von Stahldraht um den rückwertigen Bogen des Atlas behandelt wurde, wird beschrieben. Die Wichtigkeit einer vollkommenen Ruhigstellung nach der Operation wird betont und der Vorteil der Begrenzung der Operation auf die Vereinigung dieser beiden Wirbel allein wird hervorgehoben.

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