OS ODONTOIDEUM

A Congenital Abnormality of the Axis: Case Report

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Congenital abnormalities of the axis have long been known but are not often described. Their frequency is unknown, for unless symptoms demand a radiographic examination of the cervical spine they pass unnoticed. In the case described, symptoms led to radiographic examination of the neck, but it seems likely that the appearances discovered were irrelevant to the symptoms and signs.

The odontoid process at birth is separated from the body of the axis by cartilage. The process begins to fuse with the body in the fourth year of life, but some cartilage remains at the centre of the process until an advanced age. Sometimes the odontoid process fails to develop at all; this anomaly has been described by Roberts (1933), Weiler (1942), Scannell (1945) and Stiefel (1950), both with and without symptoms of atlanto-axial subluxation. The process may be ossified but detached, forming an os odontoideum. This anomaly has been rarely described. It is mentioned in older anatomy text-books, and Nievergelt (1948) described a number of examples and gave references to more. The case here reported seems to be another.

![Plain radiographs of cervical spine.](image)

**Fig. 1**

**CASE REPORT**

A man aged fifty-five fell down at home "in a faint." He could not remember the episode clearly. He recovered quickly and came to hospital. He vomited soon after arrival. He gave a history of a somewhat similar attack of "fainting" some years before. He was admitted under a physician. Complete clinical examination revealed no abnormality except some bruising of the back of his head but there were no signs suggestive of bone damage or of injury to the brain or spinal cord. He was discharged five days later.
He did not attend hospital again for four months, when he complained of general symptoms of fatigue and some pain in the shoulders. It was noted that he had some pain on neck flexion, but no other signs were observed. Radiographs of the cervical spine (Fig. 1) appeared to show a subluxation of the atlanto-axial articulation. He was referred for an orthopaedic opinion.

![Antero-posterior and lateral tomographs of cervical spine.](image)

Clinical examination of the neck showed no abnormality. He could move his head freely and painlessly in all directions. No abnormalities were found in the nervous system. The symptoms in the neck were confined to the lower cervical and shoulder regions and could not in any way be related to disturbance in the upper part of the spinal cord or to the upper cervical roots.

Tomography was subsequently carried out and showed an entirely separate odontoid process, displaced upwards and forwards from the body of the axis, surrounded by what appeared to be a smooth cortex (Fig. 2).

**COMMENT**

It is hard to believe that the separation of the odontoid process was due to a fracture four months old, especially as at no time were there signs to suggest a serious cervical bone lesion. It may be that the relative instability of the atlanto-axial joint was responsible either for the "fainting" episode, or for the slight neck symptoms after the fall, or for both. That is a matter for speculation: what seems more certain is that this is an example of an os odontoideum. On that assumption, no treatment was advised.

**REFERENCES**


