Dysphagia and deformity after undetected odontoid fracture in elderly patients

M.A. ISHAQUE, N. MENDOZA & H.A. CROCKARD

Department of Surgical Neurology, The National Hospital for Neurology and Neurosurgery, Queen Square, London, UK

SUMMARY

Trauma in elderly patients is often difficult to evaluate and neck injuries are probably more common than is documented. A case is described of a missed odontoid peg fracture with the unusual presentation of dysphagia and a rapidly developing cervico-dorsal kyphos (head falling forward), which may well have been anticipated at several points in the management chain. The lessons to be learned are outlined, together with the subsequent management of this patient.

Key words: cervical spine, odontoid fracture, odontoid process

INTRODUCTION

It is often very difficult to evaluate minor trauma in elderly patients, but a high degree of suspicion is essential in the management of symptoms and signs that develop after injury. Neck injuries are probably much more common than documented and here we describe an unusual presentation of an odontoid process fracture of the axis, which might have been anticipated at several points in the management chain.

CASE REPORT

A 77-year-old woman attended her local accident and emergency department after falling down three steps and hitting her head without losing consciousness. She reported neck pain without any abnormal physical signs. She was reassured that her 'neck was not broken', and discharged. No radiographs were taken.

Over the next 8 weeks, she reported increasing neck pain and an inability to lift her head up. She

also noticed that her head was slipping forward, causing her chin to rest on her sternum. It became increasingly difficult for her to open her mouth or to eat solid food, to the extent that she was having to have all her food puréed. She had dysphagia and subsequently lost weight. Her general practitioner treated her with analgesics, a soft collar and sent her to a chiropractor. The latter organized cervical spine radiographs and referred her immediately to a neurosurgical unit.

Examination showed a cachectic woman with a cervico-dorsal kyphos. Her head could not be actively or passively extended and her chin rested on her manubrium. Her jaws could only open 15 mm. There was no evidence of lymphadenopathy, hepatosplenomegaly, jaundice or clubbing.

Radiographs of the cervical spine showed a generalized osteoporotic spine with a fracture through the base of the odontoid process and a 10 mm 'forward slip' of the atlantoaxial joint (Fig. 1). Magnetic resonance imaging excluded spinal cord compression, but showed extensive ligamentous damage.

The application of skull tongs and traction did not reduce the fracture dislocation and so an open procedure was performed in which the dislocation was reduced and fixed in position using an occipitocervical implant (Ransford loop) and sublaminar cables (Sof'wire) (Fig. 2).

Post-operatively her mouth could open 45 mm, she could chew and swallow without discomfort and she left hospital 7 days after surgery. After 2 months she had regained her pre-injury weight and set off for an Antipodean holiday.

DISCUSSION

Trivial injury at home may cause fractures in

Correspondence:
Alan Crockard,
Consultant
Neurosurgeon, The
National Hospital for
Neurology and
Neurosurgery, Queen
Square, London
WC1N 3BG, UK

Fig. 1. Pre-operative radiograph of the cervical spine showing forward slip of the atlantoaxial joint.

Fig. 2. Post-operative radiograph of the cervical spine showing reduction and fixation using a Ransford loop.

elderly osteopenic patients¹ and all medical practitioners are familiar with the classical leg deformity associated with a fractured hip. Also it is well known that the elderly too often report of very little pain. A similar force applied to the head may cause an odontoid fracture,² causing little pain but reducing head mobility. The odontoid peg is the axle around which rotation occurs. It is held against the back of the anterior arch of the atlas by the transverse ligament. An extreme flexion or extension force may break the 'axle', a type II odontoid fracture.³ The injury may result in death at the scene of the accident or neck pain and limitation of neck movement in survivors. There is no spectrum of disability and it is estimated that up to 40% of such fractures are undetected in the early post-injury period.⁴ A few may present with weak hands and a myelopathy much later.⁵

This patient had yet another unusual and, we believe, under-diagnosed sequela of such a fracture. With the resultant instability, the atlas has a tendency to slip forwards (anterior translation) and, as this occurs, the neck appears to shorten, a kyphos will develop and the chin moves closer to the sternum.

The forward flexion of the head and approximation of the chin to the chest will prevent the mouth opening. It is also difficult to swallow with the head fully flexed. The deformity associated with dislocation at the atlantoaxial joint will not only impair mouth opening, but will also increase the difficulty of anaesthetic intubation.⁶ Here we describe another problem caused by the deformity — poor mouth opening, dysphagia and weight loss.

What are the lessons to be learned? Firstly, in frail elderly patients who present with considerable neck pain after a history of head and neck injury, serious consideration should be given as to whether cervical spine radiographs are warranted.

Secondly, a rapidly developing cervico-dorsal kyphos (head falling forward) should alert doctors to the possibility of a bony problem (a fracture or metastatic bone tumour) or a myopathy, possibly secondary to an unsuspected malignancy.

Thirdly, cervical manipulative treatment should not be undertaken, especially with an obvious deformity without plain radiographs.

Finally, complicated craniocervical surgery is well tolerated in elderly patients and internal fixation is

more effective than an external arthrosis (collar), which rarely works due to poor patient compliance.

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