CASE REPORT

Minor trauma — major problem Neck injuries, retropharyngeal haematoma and emergency airway management

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INTRODUCTION

Retropharyngeal haematoma as a cause of acute airway obstruction is uncommon and following low velocity neck hypertension is rare.

We report the case of a 76-year-old man who, following a fall with neck hyperextension, developed a retropharyngeal haematoma which caused airway obstruction requiring cricothyroidotomy. Initially he complained of no neck pain. We discuss the importance of airway and retropharyngeal space assessment even after only minor hyperextension injuries in the elderly. We also remind all Doctors who are involved with trauma that they should be able to manage the acutely obstructed airway.

CASE REPORT

A 76-year-old gentleman was seen late one evening in the Accident & Emergency Department after tripping on a small step and striking his forehead on the road. He was alert not amnesic and merely complained of pain in his left thumb and forearm but not his neck.

Examination showed a minor forehead abrasion with no signs in his neck and the Doctor on call arranged a cervical spine X-ray because of the odd arm pain. Due to other emergencies in the Department this patient was not X-rayed immediately.

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Two hours later, after returning from the X-ray department, the patient became rapidly dyspnoeic with a marked stridor and was taken to the resuscitation room. Assessment by the duty anaesthetist, who was in the Department, showed the patient to be unconscious, centrally cyanosed with weak respiratory efforts and a grossly swollen neck.

Management included attempted ventilation with a bag and mask which proved impossible. A muscle relaxant was then given and endo-tracheal intubation attempted. This was also impossible due to the grossly swollen upper airway and pharynx with no sight of the epiglottis. A rapid scalpel puncture was made through the cricothyroid membrane and a tracheostomy tube was inserted. The patient was ventilated on 100% oxygen and transferred to the Intensive Care Unit.

The lateral cervical spine X-ray taken just prior to his respiratory obstruction shows gross prevertebral soft tissue swelling with a maximum space of 45 mm opposite C6 vertebra. The normal prevertebral space below the larynx should be less than the width of the adjacent vertebral body i.e. 25 mm, see Figure 1. A more exact measure of the normal soft tissue stripe in the neck is not possible due to much normal variation. (Wholey *et al.* 1958) The lateral view also shows a fusion of C4 and C5, probably congenital with minor adjacent vertebral subluxation as long term consequence of the fusion. There was no definite fracture reported. He was confused for several days and amnesic for the events, presumably as a result of the hypoxia. In case there was an unrecognised cervical spine fracture he was kept sedated in skull traction, and breathing spontaneously until his mental state improved. Within hours, the neck swelling dispersed spreading mainly into the mediastinum (Fig. 2). He was not on anti-coagulant or anti-thrombotic medication and his clotting studies were in the normal range. He made a full recovery mentally and physically over the next few days.

DISCUSSION

A retropharyngeal haematoma large enough to obstruct the airway is an unusual problem and most of those previously reported have involved complicating factors such as anti-coagulant therapy, tumour, aneurysm, infection or cervical fractures. (Smith *et al.* 1988). Haematoma compromising the airway has also been reported following high velocity severe whiplash injury in a 27-year-old road traffic accident victim by Biby & Santora (1990). Rarely minor blunt head trauma with hyper-extension of the neck has been associated with haematoma and airway embarrassment. As in this Case Report the victims were elderly (O'Neill *et al.*, 1977; Smalley & Pool, 1981) but what makes this case particularly rare is that this patient had no neck symptoms and no local neck tenderness. This emphasizes the subsceptibility of the elderly to major injuries from minor trauma. There were no cervical spine fractures noted in any of the reported cases. Interestingly, without the delay in X-ray this patient would probably have been discharged, as occurred in a similar case, (Smalley & Pool, 1981). In the elderly, a high index of suspicion is required along with full assessment of the airway and soft tissue spaces on the lateral cervical spine X-ray.

Fig. 1 Lateral neck X-ray showing large prevertebral soft tissue swelling (arrowed).

Fig. 2 Swelling dispersed and spreading mainly into the mediastinum.

The initial management of airway obstruction should be within the capability of all doctors involved in emergency work.

If there is any suspicion, particularly if there is reduced consciousness, and in all cases of major trauma, a cervical spine injury must be assumed and the neck stabilized while the Airway Breathing Circulation priorities are carried out. The acutely obstructed airway which is unresponsive to simple manoeuvres is the first priority. When immediate action is required, as in this case, needle cricothyroidotomy is the quickest and safest method for the inexperienced. A large bore 12 or 14 gauge cannula (or two cannulae) can be inserted through the cricothyroid membrane. Muscle relaxants should not be given, but if required short term intermittent positive pressure ventilation can be rigged up just using the wall oxygen, the tubing and connectors (Committee on Trauma American College of Surgeons, 1988). This procedure will buy time (approximately 30 min) prior to surgical cricothyroidotomy in the adult, or formal tracheotomy in the child or adult, by the appropriate surgeon. Damage to the cricoid cartilage should be avoided, especially with children, as it forms the only circumferential support to the upper trachea. Therefore, surgical cricothyroidotomy is not recommended for children under 12 years, although needle cricothyroidotomy may be appropriate (Committee on trauma, American College of Surgeons 1988). The 'Mini Trach II' (made by Portex) system could also be used with assisted ventilation if required to buy time prior to a definitive tracheostomy.

In partial airway obstruction, when the situation is less urgent, awake and non-paralysed, nasotracheal or orotracheal intubation, possibly with the aid of fibre optics, could be attempted in a controlled manner with a team poised to secure a surgical airway if required. There may be a risk of haematoma rupture if endotracheal intubation is attempted (O'Neill *et al.*, 1977). Generally a muscle relaxant should not be given as the cause of the obstruction may preclude intubation and prevent maintenance of an airway. In this case an anaesthetist was able to perform an emergency cricothyroidotomy with insertion of a tracheostomy tube after failed intubation.

A minor head injury with neck hyperextension in the elderly can precipitate acute airway obstruction. This patient's neck was asymptomatic and the only clue to the mechanism was the forehead abrasion. If there is any doubt about the airway and retropharyngeal space a high index of suspicion is required and the patient should be detained for observation.

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