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Retropharyngeal haematoma causing airway obstruction: a multidisciplinary challenge

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Abstract
A case of post-traumatic retropharyngeal haematoma causing airway obstruction in an elderly man on anticoagulant therapy is described. The importance of managing the airway, cervical spine and haemostatic problem with the help of a multidisciplinary team is discussed.

Key words: Haematoma; Pharynx; Airway Obstruction; Anticoagulants

Introduction

Airway obstruction caused by a retropharyngeal haematoma is a relatively uncommon problem. Review of the medical literature would suggest a variety of precipitating factors, including bouts of coughing,[1] sneezing,[2] straining,[3] whiplash injury,[4] blunt head or neck trauma,[5,6] foreign body ingestion,[7] retropharyngeal infection,[8] carotid artery aneurysm,[9] carotid sinus massage,[10] internal jugular vein cannulation,[11] metastatic disease[12] and coagulopathic states.[1]

The management of such a condition is a challenge to everyone involved. Assessing the airway and maintaining adequate oxygenation is of prime importance. However, a simultaneous assessment of the cause of the haematoma is just as important. In traumatic cases, immobilization of the cervical spine is crucial in preventing iatrogenic injury to the spinal cord. Great vessel rupture, coagulation disorders and infections should also be considered in the initial stage.

The following report describes the case of an elderly man who sustained a hyperextension cervical spine injury following a knock on his forehead. He subsequently presented to the Accident and Emergency Department with upper airway obstruction. The importance of involving a multidisciplinary team is emphasized.

Case report

A 78-year-old gentleman presented to casualty with acute dyspnoea, dysphonia, dysphagia and tightness of his throat. Two hours previously, he had collapsed, after getting out of bed, banging his forehead against the wall. There had been no loss of consciousness, nor any other injury. He had a history of transient ischaemic attacks, for which he had been put on long-term warfarin. He also suffered from cervical spondylosis.

On examination, he was mildly tachypnoeic, stertorous, drooling and had a 'hot-potato' speech. His oxygen saturation on air was 86 per cent, improving to 99 per cent on high oxygen. He was haemodynamically stable and had no focal neurological deficit. His oropharynx was unremarkable and he had no obvious swelling, or bruising, over the head or neck. He was tender over the left side of

Fig. 1
Plain lateral neck radiograph at presentation.

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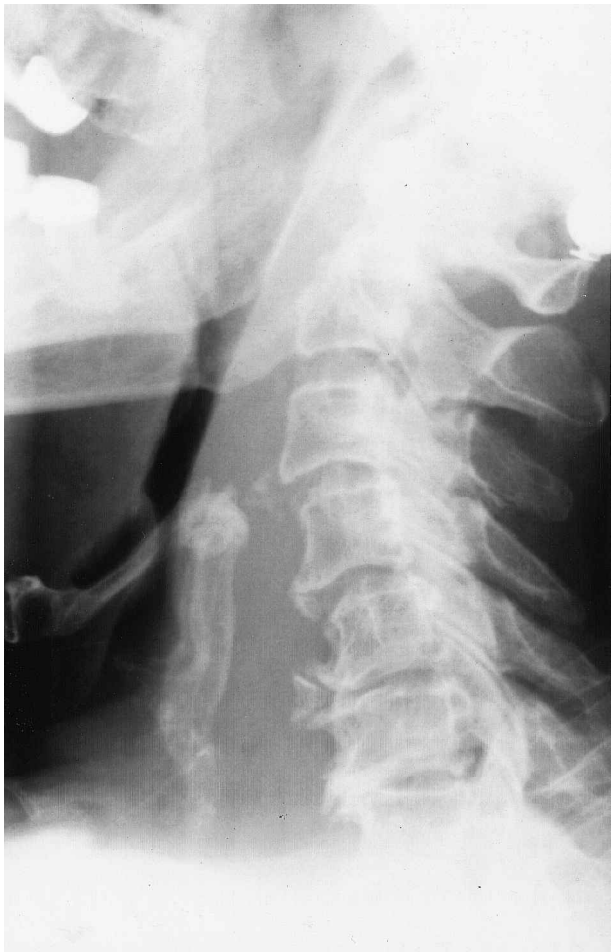

FIG. 2
Plain lateral neck radiograph the day after presentation.

FIG. 3
Plain lateral neck radiograph six weeks after presentation.

his forehead and the left paraspinal muscles. Flexible nasopharyngolaryngoscopy revealed marked bulging of the posterior wall of the hypopharynx and mild oedema of the posterior commissure. His airway was adequate.

A plain radiograph of the lateral neck showed marked widening of the retropharyngeal area, with significant degenerative changes in the cervical spine (Figure 1). The chest X-ray was normal. Urgent clotting studies showed an INR of 2.1. Arterial blood gas analysis showed adequate gaseous exchange. A diagnosis of retropharyngeal haematoma was made.

An urgent orthopaedic opinion was requested, in view of the neck tenderness and abnormal cervical spine radiograph. A cervical spine fracture was ruled out. The bony changes were in keeping with cervical spondylosis, but the possibility of an anterior longitudinal ligament sprain was suggested.

A soft cervical collar was applied, 8 mg of intravenous dexamethasone was administered promptly and humidified oxygen was continued via a facemask. The warfarin was stopped and 4 mg of dexamethasone given on a six-hourly basis. The patient was closely monitored with frequent pulse oximetry. The anaesthetist was informed lest his condition should deteriorate.

The patient's voice and swallowing improved remarkably over the following four hours and his saturations were well maintained on 40 per cent oxygen. Repeat nasendoscopy, the next day, showed significant reduction in the posterior wall bulge. A large neck X-ray confirmed this (Figure 2). Oral intake was encouraged.

The dexamethasone was stopped on the third day. Serial lateral neck X-rays showed gradual resolution of the retropharyngeal swelling, in keeping with the clinical improvement. The patient was restarted on warfarin a week after his admission and discharged home. A final X-ray, six weeks later, showed complete resolution of the swelling (Figure 3).

Discussion

A retropharyngeal haematoma, secondary to a hyperextension cervical injury, causing airway obstruction is a well-described phenomenon.[13–15] Whilst the haematoma can develop as a result of a tear in the anterior longitudinal ligament,[15] it can more seriously be associated with a cervical spine fracture.[16] The presentation can be dramatic, as in this case, or the haematoma can develop more insidiously in a patient admitted after a head or neck injury. Corbanese *et al.*[17] described a case of retropharyngeal haematoma presenting with severe airway obstruction eight hours after cervical trauma, whilst the initial lateral neck X-ray showed no abnormal prevertebral soft tissue. In traumatic cases, one cannot overemphasize the importance of managing the cervical spine and the airway simultaneously. Whilst efforts are being directed at ensuring adequate oxygenation, spinal immobilization

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ought to be made an equal priority, even in the setting of minor injury. Cusmano *et al.*[18] recently reported on cervical spine fractures, resulting from minor craniocervical trauma, escaping initial diagnosis.

It is not unusual to find cases of retropharyngeal haematomas with a background of abnormal platelet function, or clotting factor deficiency.[1,2,4] The abnormal bleeding tendency also needs to be addressed at the initial stage.

The initial assessment must include pulse rate, respiratory rate, temperature, blood pressure, pulse oximetry on air and on oxygen. Nasendoscopy is crucial in assessing any obvious swelling, laceration of the posterior pharyngeal wall and the adequacy of the airway. The quickest and easiest way to make a diagnosis is with a lateral neck X-ray. This allows an assessment of the airway, the size of the retropharyngeal swelling, any mediastinal extension and also any spinal abnormalities. A chest X-ray is essential to rule out thoracic abnormalities causing breathing difficulties. Blood tests must include a full blood count, coagulation screen, urea and electrolytes, group and save or crossmatch, and blood cultures, if indicated.

If pulse oximetry is satisfactory on oxygen delivered via a facial mask, a conservative approach would be appropriate. Immediate intravenous dexamethasone, followed by a six hourly maintenance dose, would help to reduce soft tissue oedema, that often accompanies the haematoma. It would be sensible to prescribe regular intravenous antibiotics in cases of open injury, preceding upper respiratory tract infection, the presence of pyrexia and a raised white cell count. Any abnormality of the platelet count or clotting profile needs to be addressed with the help of the haematologist. In cases of trauma and/or an abnormal cervical spine X-ray, an orthopaedic opinion is mandatory. The patient needs to be closely monitored and frequent pulse oximetry readings charted. It is a good idea to inform the anaesthetist in case there is any deterioration, requiring endotracheal intubation. The size of the retropharyngeal swelling can be monitored by repeat nasendoscopy and serial lateral neck X-rays. Computed tomography (CT) scan can help to elucidate the cause of the haemorrhage, when in doubt. It can also differentiate between oedema and haematoma. Once the patient is stable, further investigations may be required, for example, to rule out metastatic disease, which can present as retropharyngeal haematoma.[12]

In the unstable, hypoxic, stridulous or exhausted patient, endotracheal intubation or a tracheostomy is essential. A senior anaesthetist must be present, especially in traumatic cases, where spinal immobilization may be necessary. Endotracheal intubation with a small diameter tube can result in inadequate ventilation and oxygenation.[19] Therefore, in cases of large retropharyngeal haematomas a tracheostomy would be more appropriate. This may need to be performed under local anaesthetic. In exceptional cases, a cricothyroidotomy may be necessary whilst the operating theatre is being organized. The concurrent presence of a mediastinal haematoma will require a longer tracheostomy tube to bypass any obstruction. The need to drain a large haematoma via a lateral cervical approach needs to be assessed on an individual basis. Postoperatively, the patient must ideally be monitored on the intensive care, or high dependency unit, depending on their general condition.

In cases managed conservatively, complete resolution of the haematoma can take several weeks. Infection of the haematoma and abscess formation is a possibility, especially when a foreign body is implicated. The need for prophylactic antibiotics needs to be assessed on its own merits. With careful management, uncomplicated recovery should be the rule.

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Mr D. Sandooram takes responsibility for the integrity of the content of the paper.
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