

An unusual case of surgical emphysema in the neck following sport injury

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Abstract

Surgical emphysema of the neck following sport injury without direct trauma to the neck is uncommon. We report a case of a flexion-hyperextension injury causing an air leak to the soft tissues of the neck. Diagnosis, management and potential mechanisms are discussed. Patients may initially present with minimal symptoms, but their condition may deteriorate rapidly or insidiously.

In the absence of respiratory compromise, conservative management is appropriate.

Key words: Subcutaneous Emphysema; Athletic Injuries

Case report

A 21-year-old man presented with neck pain, hoarseness and difficulty in swallowing following neck trauma during a rugby match. The mechanism described corresponded to a sudden flexion/hyperextension injury of the neck secondary to a tackle from behind.

The patient presented 12 hours following injury to the Accident and Emergency Department, with dysphagia. There was no history of significant medical problems or other recent neck trauma. General physical examination was unremarkable. ENT examination was normal except for minimal oedema of the aryepiglottic folds and false folds on both sides. Palpation of the neck did not show any evidence of surgical emphysema.

A lateral neck X-ray was performed and showed extensive air leak in the prevertebral soft tissues from the skull base to the thoracic inlet as seen in Figure 1. Chest X-ray and routine haematological examination was normal. The patient was admitted for observation and was managed conservatively with i.v. antibiotics, analgesics and steroids. Oral feeding was continued under close supervision, as the patient showed satisfactory clinical improvement. Repeat soft-tissue neck X-ray on days 2 and 3 showed significant resolution of the surgical emphysema. A one week follow-up appointment showed complete recovery.

Discussion

External laryngeal trauma is rare, accounting for less than one per cent of trauma seen at major centres.¹ Surgical emphysema of the neck from traumatic causes has been well documented. However a flexion/hyperextension injury, without direct trauma to the neck, causing surgical emphysema has not been described. It should be noted that the site and extent of cervical emphysema do not necessarily indicate the anatomical site of injury.² An anatomical weakness at the pharyngo-oesophageal junction predisposes this area to perforation with minimal force. With a blow or fall against the neck and upper chest,



FIG. 1

Lateral neck X-ray demonstrating the extent of surgical emphysema.

the upper airway may be sealed off at the hyoid level. Simultaneously the thoracic cavity is emptied of its inspired air. If these barometric forces exceed the bursting pressure of the pharyngo-oesophageal junction, perforation occurs with the compressed air from the lungs being forced through the ruptured pharynx into the fascial planes of the

neck.² Hyperextension fracture of the hyoid bone causing pharyngeal laceration and surgical emphysema has been described.³ The exact mechanism for the perforation in this case is unsure.

Patients may present with minimal signs and symptoms, but their condition may deteriorate rapidly or insidiously. A tear of the upper aerodigestive tract, somewhere in the larynx, trachea, hypopharynx or oesophagus, must be assumed in the presence of surgical emphysema.⁴ The most common symptoms of a tear in the above area at presentation are hoarseness (including dysphonia and/or aphonia), stridor, dysphagia, odynophagia and surgical emphysema.⁵ It is important to exercise a high index of suspicion and consider a laryngotracheal or pharyngo-oesophageal tear in any patient presenting with these symptoms following direct or indirect trauma to the neck.

A lateral soft-tissue neck X-ray and chest X-ray will disclose the presence of free retropharyngeal and subcutaneous air, pneumomediastinum or pneumothorax. A computed tomography (CT) scan of the neck and chest and a contrast swallow are investigations which must be considered to further define the extent of the injury, especially if the patient's condition is deteriorating.⁶ In the presence of significant trauma, direct laryngoscopy, rigid oesophagoscopy and rigid bronchoscopy should also be considered.

In the absence of respiratory compromise, conservative management with close nursing observation is appropriate.

Conclusion

Surgical emphysema should be kept in mind in sport injuries, even in the absence of direct trauma to the neck. The exact mechanism remains unclear. Further case

reports and research are needed to establish the pathophysiology of this condition.

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