

Severe penetrating neck injury, successfully repaired epiglottis

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Abstract

Penetrating traumatic laryngeal-pharyngeal injuries are relatively rare and traumatic injuries to the epiglottis are extremely rare. The incidence varies between countries. Most of these cases are dealt with by ear, nose and throat specialists, and trauma surgeons deal with such trauma when concomitant injury is present. In our institution laryngeal-pharyngeal trauma occurs 3-5 times per year. The literature records one case of penetrating injury to the epiglottis with complete transection but without an attempt at surgical repair^[1]. This report describes a traumatic laceration with subtotal trans-section of epiglottis which was successfully repaired.

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Keywords

Neck injury; penetrating; laryngeal-pharyngeal trauma; repaired epiglottis.

Case report

A 42-year-old man was brought to the emergency department unconscious in Class 3 shock at 0410 h. He had been found at 0310 h unconscious, lying in a puddle in a pool of blood with a severe slash wound of the neck, breathing through the open wound. His blood pressure at the scene was systolic and his pulse was 125 with a Glasgow Coma Scale (GCS) of 5. After initial resuscitation with 1 l of saline his BP rose to 90/50.

On arrival in the resuscitation room the patient's GCS had risen to 6, his pulse was 126 and his BP was 90/60. There was a large transverse penetrating wound at the level of the thyroid cartilage from the lateral border of the sternocleidomastoid muscle on each side. The external jugular veins had been transected and were clotted and there was damage to the surrounding muscles. The lower pharynx had been sectioned for 2/3 of its circumference; the epiglottis was hanging on by a tiny bridge of 2 mm of mucous membrane and there was moderate bleeding. The patient was intubated initially through the pharyngeal wound as a temporary measure according to ABC protocol, following standard trauma series X-rays. The patient was brought to theatre while resuscitation continued.

The operation began 35 min after admission. At operation a tracheostomy was performed for intubation. There was an epiglottic stump of 4 mm, the rest of it hanging on a tiny bridge of mucous membrane of 2 mm. The oesophagus was intact. The external jugular vein stumps were ligated. The carotid vessels were intact. The epiglottis was sewn back on to its stump by interrupted absorbable sutures to the perichondrial layer on each side with some difficulties. The stump was then realigned with the rest of the epiglottis using two Lambert sutures on each side with bites 5 mm away from the suture line. Satisfactory alignment was achieved. The lower pharynx was sutured using interrupted

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absorbable sutures. All muscles and other structures were restored in layers. Multiple lacerated wounds of the face and scalp were sutured. A laparotomy to exclude abdominal injury was performed at the end of the operation and was negative.

A computed tomography (CT) scan of the head was done postoperatively and showed a significant brain contusion but with no intracranial hemorrhage or skull vault fracture.

On the first post-operative day a feeding gastrostomy was carried out. He remained in the intensive care unit (ICU) on ventilation. He developed aspiration pneumonia which was treated aggressively and he regained consciousness on the 9th post-operative day. He was transferred to the ward on the 12th day and 2 days later the tracheostomy was closed. Oral nutrition was gradually introduced and he was discharged 3 weeks after the injury. At 1 year follow-up, the patient has no difficulties in swallowing and does not cough when taking solid or liquid food. Direct laryngoscopy revealed no change in the shape of the epiglottis (Figs 1 and 2).

Unfortunately due to the emergency nature of the operation it was not possible to take photographs of the damaged epiglottis.

Discussion

In the past 20 years there have been no reported cases of a severed epiglottis, subsequently successfully repaired. Concomitant laryngeal-pharyngeal trauma is extremely rare.

Most trauma surgeons rarely deal with this kind of trauma and the experience of its management has still to be gathered. Few reports of this kind of trauma have been published and only one mentioned epiglottic injury^[1]. There are several aspects to this problem, which should be addressed.

Firstly, the question of exploration vs. conservative treatment has been addressed. The decision seems to depend on the degree of litigation culture present in a particular country. In our institution, which takes trauma from a population of 3.5 million, the incidence of severe laryngeal-pharyngeal trauma is 3-5 per year. Our patient obviously needed urgent surgery. Our experience shows that early exploration of a wound has less subsequent

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Fig. 1. The neck scar 1 year after injury and repair, showing the extent of the original injury.

morbidity and mortality. Any missed damage to the alimentary tract or larynx as well as delay in repair due to extensive diagnostic testing can increase hospital stay with subsequent re-operation and a higher mortality^[2-10].

Secondly, according to ATLS protocol neck trauma should have priority over concomitant head trauma unless concomitant tentorial herniation is present in which case neurosurgery

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Fig. 2. The epiglottis on direct laryngoscopy at 1 year followup.

and neck surgery should be performed simultaneously. Temporary intubation through a wound in the larynx or pharynx is the method of choice and should be considered as a life saving procedure.

Teaching points

There was concern about possible necrosis of the severed epiglottis. However we have shown in this case that even an almost completely severed epiglottis can be sutured without subsequent necrosis. Tissues in the head and neck generally have an excellent blood supply. Reinforcement of the suture line with Lambert sutures can be sufficient to keep alignment and this is as good as if not better than other forms of splintage. There

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was also concern that perichondritis might develop. Followup direct laryngoscopy did not show any evidence of severe chondritis or distortion of the normal shape of the epiglottis.

We hope that our experience may help in the management of this rare kind of trauma should it be encountered in the trauma centres.

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