EMERGENCY CASEBOOK

Case of the month: Dislodged tracheo-oesophageal valve: importance of rapid replacement or stenting

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Emerg Med J 2006;23:322–324. doi: 10.1136/emj.2005.024174

Dislodgement of a tracheo-oesophageal prosthesis needs prompt action to ensure patency and prevent aspiration in patients with total laryngectomy. Failure to do so may lead to an unnecessary repeat tracheo-oesophageal puncture. This case report is about a patient who needed a repeat procedure under general anaesthetic. It highlights the need for emergency physicians to be aware of this not uncommon event in a patient with a laryngectomy and to refer them immediately for ENT review.

Figure 1 A stent being placed through the tracheo-oesophageal fistula. Reproduced with permission from Shah J, Patel SG, eds. *Head and Neck Surgery and Oncology*, Elsevier, 2004.

A 65 year old man who had undergone a total laryngectomy and a tracheo-oesophageal puncture with insertion of Provox speech valve presented to the emergency department with a dislodged prosthesis. The prosthesis had dislodged two hours before.

On examination the patient had a clear airway with a respiratory rate of 14 breaths per minute. The lungs were clear to auscultation on both sides and the oxygen saturation was 96% on air.

As the patient was well, referral was deferred until the ENT clinic commenced, which was three hours later. Unfortunately when the patient was examined in this clinic it was found that the tracheo-oesophageal fistula had narrowed and almost closed off. It was not possible to replace the valve or place a 14 G Ryle's tube through the puncture (as is normal practice in such cases). The patient required a repeat tracheo-oesophageal puncture under general anaesthetic.

DISCUSSION

Approximately 1500–2000 new cases of pharyngeal and laryngeal cancers are diagnosed each year,¹ some of which go on to have a total laryngectomy. Laryngectomy involves total excision of the larynx and formation of a tracheostoma in the suprasternal notch. Loss of voice following the procedure is a major functional disability.²

Ever since the first successful total laryngectomy was performed by Billroth in 1873, many surgical procedures and prosthetic devices have been devised in an attempt to restore speech. The entire field of vocal rehabilitation after laryngectomy was revolutionised when Singer and Blom described an endoscopic voice restoration procedure that involved creating a fistula between the trachea and oesophagus.³ This allowed tracheo-oesophageal voice. With the potential for spontaneous, effortless speech production, tracheo-oesophageal voice restoration is currently the best alternative for alaryngeal speech.⁴ The force of expired air entering the oesophagus from the trachea causes the pharyngo-oesophageal membranes to vibrate. This produces sound which is converted into speech through articulation by the tongue, teeth, and lips. A valve is placed through the fistula to

maintain patency and prevent aspiration. These valves (fig 1) are usually changed every three to six months as an outpatient procedure.

If there is dislodgement of the prosthesis the fistula tract can close within hours or remain patent causing aspiration. Fistula closure necessitates a repeat procedure under general anaesthetic. As long as the fistula is patent, phonation is possible and should be encouraged. The patency of the fistula can also be tested by a drink of water, preferably with blue dye.

Ideally the valve should be replaced immediately. However, the same type of prosthesis may be difficult to find, and the attending doctor may not be experienced in placing the prosthesis. The safest option would be to place a naso-gastric tube through the fistula. Stenting the tracheo-oesophageal fistula with a naso-gastric tube is a simple procedure and can be done in the emergency department. It does not require a sedative or a local anaesthetic. With the patient in a sitting position and good light, a lubricated naso-gastric tube of at least 14 G is inserted through the fistula to the stomach. Encouraging the patient to swallow after inserting the tip helps its caudal course. The fistula opening is situated at the roof of the stoma (see fig 1). The tube is then secured to the neck with tapes, and the patient discharged with an appointment with their head and neck surgeon the next day.

As the fistula closes rapidly after dislodgement of the valve in a proportion of patients and there is a risk of aspiration, it is vital that the emergency department doctor is aware of this condition and takes prompt action.

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Competing interests: none declared

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Accepted for publication 29 April 2005

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Emergency casebook

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Accidental asphyxia due to closing of a motor vehicle power window ►

A 34 month old girl was left inside a car as her father went into a grocery store. She was in the front passenger seat unrestrained. Minutes later, her father found her unresponsive, apnoeic, with her neck pinned between the top of the window and the upper door frame. Basic life support was initiated and she was driven to an emergency centre. On arrival in the emergency department she was seizing. After anticonvulsive drugs administration, she was transported to our PICU where, on admission, she was self ventilating, with a Glasgow coma score (GCS) of 7. Tomography showed only mild cerebral oedema. After 24 hours of neurological observation her GCS was 15. She was later discharged home with normal neurological status. Injuries among children left unattended in motor vehicles are frequent despite their easily preventable nature. These injuries are poorly recognised and receive less attention than vehicle crashes. Power window associated injuries usually affect children, particularly those under 6 years, and are often under-reported. Protective actions that could avoid such injuries include installation of reversal systems or anti-trapping features. Current legislation only requires accidental actuation resistant switches. Parental education would also be effective in this case where current recommendations were not followed.

▲ Branco RG, Broomfield D, Rampon V, et al. Accidental asphyxia due to closing of a motor vehicle power window. *Emerg Med J* 2006;**23**:e25. <http://emjonline.com/cgi/content/full/23/4/e25>. doi: 10.1136/emj.2005.028027

Near fatal haemorrhage 35 years after radiation for laryngeal cancer: emergency embolisation of a vertebral artery aneurysm ►

This is a case of a patient who presented 35 years after radiotherapy to the oropharynx for tonsillar carcinoma with recurrent bleeding from a mouth ulcer. He developed osteoradionecrosis through the body of a cervical vertebra and into the vertebral artery. Initially he was resuscitated and investigated. On his way to the operating theatre for examination under anaesthesia he developed significant bleeding causing upper airway obstruction and in turn a cardiac arrest. He was induced rapidly and the cavity was packed to arrest the bleeding. Post-operatively an angiogram showed the left common carotid was occluded at its origin, but the brain was perfused adequately. He then underwent embolisation of the left vertebral artery and a check angiogram showed adequate brain perfusion. However, he later developed a brain stem cerebrovascular accident. Fortunately, the patient made a complete recovery. The algorithm to follow in this case is: fluid resuscitation of the patient, packing of the bleeding cavity followed by an angiogram to establish the source of bleeding, and the perfusion of the brain. Once this is established the options are to embolise or ligate the parent vessel. If the brain cross-circulation is inadequate, a cerebral revascularisation procedure is advisable.

▲ Martinez Del Pero M, Majumdar S, Coley SC, et al. Near fatal haemorrhage 35 years after radiation for laryngeal cancer: emergency embolisation of a vertebral artery aneurysm. *Emerg Med J* 2006;**23**:e26. <http://emjonline.com/cgi/content/full/23/4/e26>. doi: 10.1136/emj.2005.027896

Mesenteric injury caused by minor blunt abdominal trauma ►

Mesenteric injury from blunt abdominal trauma is uncommon and can be difficult to diagnose. The mechanisms of injury to the mesentery are complex and multifactorial, including shearing forces and contusion against the vertebral column. The diagnosis of mesenteric injuries tends to be delayed. Early detection and surgical intervention, when necessary, are critical in improving the outcome of treatment. We present a case of mesenteric injury due to minor blunt abdominal trauma caused by a 3 year old child's head and a thorough review of the literature. Our patient showed that the diagnosis of mesenteric injury should be considered even in patients who sustain only minor abdominal trauma and rapid diagnosis depends on a high index of suspicion of the emergency physician.

▲ Wang R-F, Chong C-F, Hsu H-T, et al. Mesenteric injury caused by minor blunt abdominal trauma. *Emerg Med J* 2006;**23**:e27. <http://emjonline.com/cgi/content/full/23/4/e27>. doi: 10.1136/emj.2005.031658

Penetrating orbital trauma by stilettos causing complex cranial neuropathies

► Penetrating orbital injuries pose a serious threat to vision, ocular motility, and in some cases, life. Stiletto objects, characterised by their slender, tapering shape, may penetrate deeply, causing catastrophic damage to orbital structures, despite seemingly trivial entry wounds.

We present two cases of penetrating orbital injuries by stiletto objects, both entering via small eyelid wounds. Traumatic optic neuropathy occurred in both cases, and was treated with corticosteroids, however the globes escaped direct injury. Injuries to the IIIrd and VIth cranial nerves were also observed.

Deep orbital and intracranial injuries must be excluded in patients presenting with small eyelid wounds caused by sharp penetrating objects.

▲ Cleary G, Nischal KK, Jones CA. Penetrating orbital trauma by stiletto causing complex cranial neuropathies. *Emerg Med J* 2006;**23**:e28. <http://emjonline.com/cgi/content/full/23/4/e28>. doi: 10.1136/emj.2005.029983

Pontine haemorrhage mimicked by an olanzapine overdose ►

Olanzapine, an atypical antipsychotic of the thienobenzodiazepine class, has been on the market since 1996. Its popularity has increased over recent years because of excellent clinical results as well as a favourable side-effect profile. Mirroring this increased olanzapine use has been a rise in the number of non-accidental overdoses.

The clinical picture of olanzapine overdose can be surprisingly variable. In the case presented, the patient's low GCS prevented an accurate history being taken. Examination revealed bilateral up-going plantars, pinpoint pupils, increased tone and brisk reflexes; however, initial investigations, including an urgent CT were normal. The patient required 24 hours of ITU care before he regained consciousness and admitted to the overdose.