**Intraoperative complications**

**General anaesthesia**

Complications associated with general anaesthesia usually required for LP should be considered, especially with the larger horse breeds that most commonly develop RLN, although LP can be successfully performed in standing draught horses (N.Ducharme personal communication 2013). Kraus et al. (2003) reported that 4% of draught horses had prolonged anaesthetic recovery, with 7% suffering myopathy or neuropathy, following LP with ventriculectomy (VE) or ventriculocordectomy (VCE). Dixon et al. (2003a) reported anaesthesia related mortality of 1% in LP cases.

**Haemorrhage**

Intraoperative surgical haemorrhage reduces visualisation, increasing the difficulty of surgery, and can later predispose to incisional complications (Ahern and Parente 2008). The linguofacial vein or one of its branches may be damaged, especially if the surgical wound has to be extended during surgery. The cranial thyroid artery and extensive adjacent venous plexus may be inadvertently punctured when dissecting the caudal aspect of the cricoid, or when inserting a needle through the cartilage (Dixon 2009), although tightening the LP suture usually minimises this haemorrhage (Ahern and Parente 2008). The dorsal boundary between the cricopharyngeus and thyropharyngeus muscles often contains a moderate-sized artery that can be damaged during separation of these muscles. Occasionally, horses that have no significant, or fully controlled intraoperative haemorrhage, will develop gross swelling of the LP site post operatively, presumably due to extensive head and neck stretching during an anaesthetic recovery, resulting in haemorrhage. Perilaryngeal swelling caused by a haematoma will develop within hours of anaesthetic recovery, unlike perilaryngeal swellings caused by a seroma or infection, which usually take several days to develop. It is advisable to delay draining LP haematomas until 24–48 h post operatively, to reduce the likelihood of immediate haemorrhage recurrence. The rostral aspect of the LP wound should be opened and the haematoma gently removed using a blunt curette before lavaging the wound with sterile saline. It is prudent to insert a Penrose drain into these wounds and despite the risk of ascending infections; such wounds invariably heal without complication.

**Needle breakage**

Needle breakage during LP is most likely to occur when penetrating the muscular process of the arytenoid. This risk can be reduced by not attempting to change the direction of the needle once the muscular process has been penetrated. Having an adequate incision length and good retraction provided by assistants is also of value in this respect (Ahern and Parente 2008). If possible a broken needle should be retrieved; however, excessive dissection should be avoided, as this may predispose to post operative dysphagia and provided the needle fragment does not penetrate the laryngeal lumen, it may be left in situ (Fulton et al. 2012).

**Laryngeal and nasopharyngeal penetration**

Penetration of the dorsocaudal aspect of the laryngeal lumen can occur during suture placement through the cricoid cartilage and this can later cause LP wound infection, with sequelae, including chronic incisional wound drainage and coughing, as described in the article by Bienert-Zeit et al. (2014). Laryngeal penetration can be prevented by using a long towel clamp on the caudolateral aspect of the cricoid cartilage to rotate its dorsal aspect dorsorostrally, in addition to rotating it laterally, when the needle is being passed through the cricoid.

**Reference:** <http://onlinelibrary.wiley.com/doi/10.1111/eve.12131/epdf?r3_referer=wol&tracking_action=preview_click&show_checkout=1&purchase_referrer=www.google.tt&purchase_site_license=LICENSE_DENIED_NO_CUSTOMER>