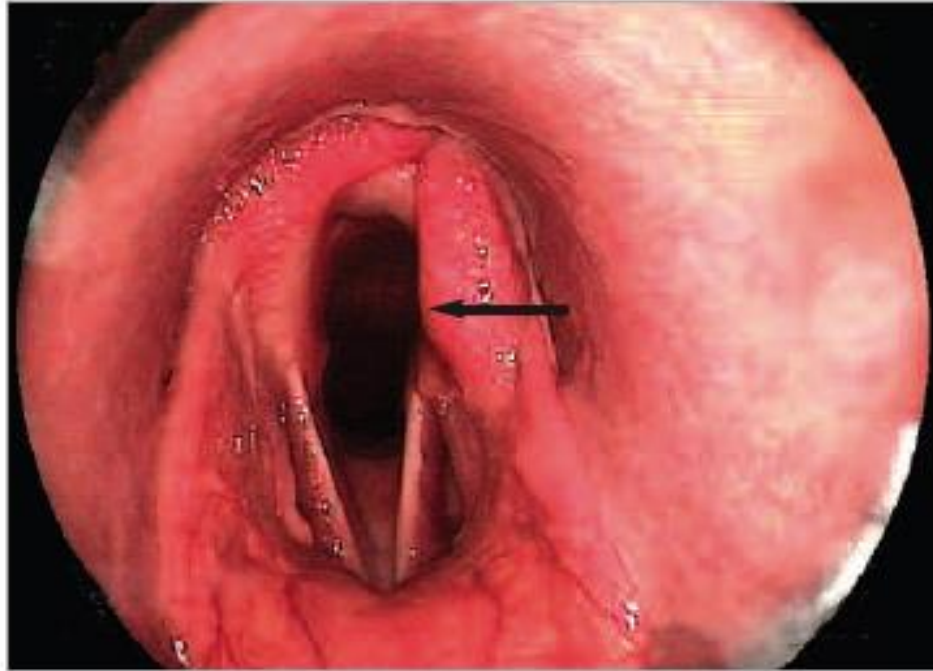


# TREATMENT OF RECURRENT LARYNGEAL NEUROPATHY (RLN)



**Figure 5. Recurrent laryngeal neuropathy (RLN).** Grade 4 left RLN is present. The right corniculate process of the arytenoid cartilage is fully abducted, while the left corniculate process (arrow) of the arytenoid cartilage is drawn axially into the airway, resulting in a reduced rima glottidis cross-sectional area.

Several procedures have been proposed to relieve the obstructive effects of RLN, the most notable of these are:

- 1. Ventriculo-cordectomy (Hobday or Williams procedure) (performed by conventional or laser surgery) depends upon the removal of the mucous membrane lining from the laryngeal ventricle(s) and excision of the vocal fold(s). The benefits of the Hobday procedure are at best slight, and the technique should be reserved for horses with less marked RLN and those horses which, on dynamic endoscopy, are shown to be obstructed by the collapse of the vocal fold rather than by collapse of the arytenoid cartilage.

- 2. Prosthetic laryngoplasty (abductor prosthesis operation – ‘tie-back’) is considered to be the treatment of choice for RLN in most countries. The procedure and its variants aim to implant a suture between the caudal border of the cricoid cartilage and the muscular process of the arytenoid to mimic the action of the crico-arytenoideus dorsalis (CAD) muscle as if it were in a semi-contracted state. However, the procedure should be regarded as a gross physiological disturbance because when the rima glottidis is fixed in an abducted position, the ability of the larynx to protect the lower airways during deglutition is compromised, and a degree of dysphagia is inevitable.
- Nevertheless, most horses show relief of laryngeal obstruction and are only sub-clinically dysphagic. Physiological studies have confirmed that prosthetic laryngoplasty is effective in the restoration of normal respiratory function and in the prevention of dynamic collapse of the paralysed arytenoid in cases of RLN.

- 3. Nerve/muscle pedicle grafting aims to transplant small cubes of muscle taken from the omo-hyoideus together with their motor supply through the first and second cervical nerves into the atrophied CAD muscle to restore abductory function to the larynx. Following surgery the grafts grow in response to mechanical stimulation so that at least a year must be allowed to achieve optimum results. Abduction of the arytenoid cartilage only occurs during exertion because the omo-hyoid is an accessory muscle of respiration, and the technique has the advantage over prosthetic laryngoplasty that no complications can arise from aspiration through a permanently abducted rima glottidis.
- 4. Total, partial and sub-total arytenoidectomy aim to remove the intra-laryngeal structures which are causing obstruction. The usual indications for arytenoidectomy are the removal of infected cartilage in cases of chronic chondropathy and the removal of the left arytenoid cartilage when other techniques to treat RLN have failed.

- 5. Tracheotomy intubation. The purpose of these tubes is to provide an alternative airway and to by-pass the site of airway obstruction. Tracheotomy tubes are not permitted under the rules of some racing and equestrian authorities. When permitted they may be used where other surgical techniques for RLN have failed. Their major virtue is that intubation is performed under local analgesia, and disruption of the training programme is minimal. Tracheotomy tubing provides a short-term expedient to racehorses which would otherwise be side-lined by alternative surgery. When the tracheotomy tube is eventually removed the defect heals quickly by second intention, and the option to perform a more enduring surgical correction will not have been compromised.
- 6. Permanent tracheostomy, the creation of a fistula between the tracheal lumen and the skin surface of the ventral neck, has been used for horses and ponies, but the results are generally not aesthetically acceptable. There is a regular requirement for nursing to remove exudation from the skin adjacent to the stoma and to maintain local hygiene.