

## Aryepiglottic fold augmentation for late onset dysphagia after recurrent laryngeal neuropathy in horse

Coughing and dysphagia are known post surgical complications following prosthetic laryngoplasty for laryngeal hemiplegia, subsiding with time in most cases. The author observed a delayed onset of dysphagia following this surgery in a small number of patients. This was always associated with abnormalities of the ipsilateral aryepiglottic fold. In this report, a new condition following prosthetic laryngoplasty and ventriculectomy, namely a *late-onset dysphagia* as well as a successful, straightforward, minimally invasive and cost efficient treatment option for this condition is presented.

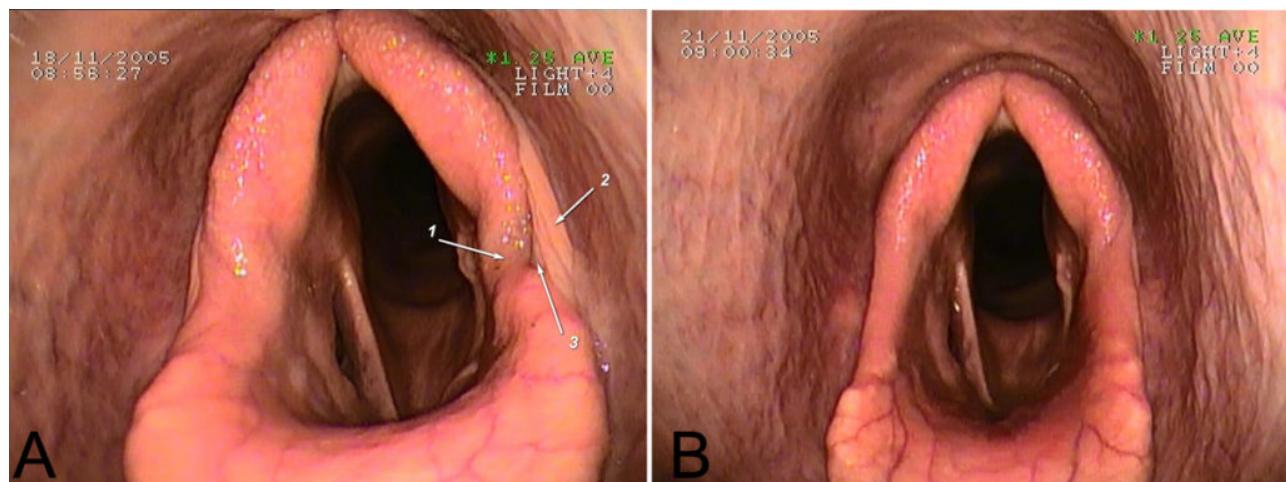


Fig. 1. A. Endoscopic image of the larynx (case 2) at initial presentation; Note 1: atrophy of the aryepiglottic fold (Plica aryepiglottica); 2: visible left lateral part of palatopharyngeal arch (Arcus palatopharyngeus); 3: Exposed access to the piriform recess (Recessus piriformis). B. Endoscopic images of the larynx (case 2) 3 days after augmentation; Note the normalized appearance of the aryepiglottic fold, especially in comparison to Fig. 1A.

The 6 horses were presented to the author between 2004 and 2013. All had undergone a routine prosthetic laryngoplasty and ventriculectomy for left sided laryngeal hemiplegia 9 months to 6 years previously. The degree of abduction was considered optimal immediately after surgery, i.e. there were neither signs of excessive nor of loss of abduction. Additionally, no signs of dysphagia or any other clinical symptoms were reported after surgery for an extended period of time. In all horses, an intermittent cough was the first symptom reported by the owner, which worsened over time and resulted in referral to the clinic of the author. All horses would show food material in their nostrils during feeding. On initial endoscopic examination, food material was present in the pharynx, larynx and trachea. Additionally, the left aryepiglottic fold appeared atrophied with varying degree, therefore exposing the palatopharyngeal arch and piriform recess (Fig. 1A). Surgery was

performed standing under sedation. Extended head-neck position was facilitated by placing the head forward on a table and the area ventral to the larynx was routinely aseptically prepared for surgery. The flexible endoscope was placed transnasally to visualize the larynx. An 18 G spinal needle (1.2 mm diameter, 15 cm length) was placed at the midline through the cricothyroid ligament. Entry of the needle into the lumen was observed endoscopically. 10 ml lidocain hydrochloride was sprayed onto the surface of the left aryepiglottic fold using the ventrally placed spinal needle followed by a single submucosal injection of 0.5 ml lidocain.

For augmentation, the needle was placed submucosally again just ventral to the arytenoid cartilage and material was injected as a single depot.

The injection resulted in an immediate, noticeable swelling at the puncture site. After 3 days a normalized appearance of the aryepiglottic fold was observed (Fig. 1B). Clinically, signs of dysphagia had improved in all cases immediately after surgery, i.e. noticeably less coughing was observed. Horses were discharged 3 days after surgery. No strenuous exercise for 2 weeks was advised.

Various products were used for augmentation over time. Initially 6 ml sodium hyaluronic acid (HA) was used, but symptoms of dysphagia reoccurred in all 6 horses after 4 to 6 weeks. This treatment failure was attributed to resorption of the HA. However, the immediate success proved the feasibility and efficiency of the injection technique itself. We therefore consider this initial injection to be an important diagnostic step.

Subsequently, for the second injection either 6 ml cross-linked HA, 6 ml platelet rich plasma or 6 ml polyacrylamid-hydrogel were used instead.

Cross-linked HA, a product used in human cosmetic industry, is a chemically modified HA which cannot be metabolised by hyaluronidase. Mainly the high cost prohibited its application in most cases. Polyacrylamid has been used since >10 years in human plastic and cosmetic surgery as a soft tissue filler and has been described in horses as a treatment for osteoarthritis. After a second injection 3 horses remained without problems. In the other 3 horses, a 3<sup>rd</sup> injection was performed 3 months later with good success.

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## Publication

[Aryepiglottic fold augmentation as treatment for late-onset dysphagia following surgical treatment](#)

[of recurrent laryngeal neuropathy.](#)

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