

Upper Airway Conditions Affecting the Equine Athlete

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KEYWORDS

• Upper airway • Performance • Larynx

KEY POINTS

- There are multiple different causes of upper airway dysfunction that can negatively impact performance.
- With history and physical examination findings, a critical resting endoscopic evaluation can reveal most abnormalities, but on occasion further diagnostic evaluations are important.
- Exercising endoscopy and ultrasound of the larynx can help determine abnormalities that are not easily determined otherwise.

INTRODUCTION

A primary purpose of the upper airway is to provide a large stable conduit for respiration. However, the simplicity stops there. Although either static or dynamic obstructions can compromise the flow of respiratory gases, determining the clinical significance of an abnormality relative to performance is challenging because there are so many factors that impact performance and so many different types of performance. Thus, any abnormality found on a resting endoscopic examination should always be considered in the context of the type of performance before reaching conclusions about performance limitations (eg, a moderate recurrent laryngeal neuropathy [RLN] may be totally irrelevant in a show jumper but significant for a flat racehorse). Furthermore, many of the abnormalities affecting performance horses are just appreciated under dynamic conditions and cannot be appreciated unless the horse is evaluated while performing. Therefore, any speculation after a resting endoscopic examination about a performance limiting respiratory problem should only be made if there is other corroborating evidence with history, clinical examination, and/or other diagnostics.

To add further complexity to the problem, because the respiratory tract intersects the digestive tract at the pharynx, almost any action taken on the respiratory tract can have an adverse effect on the functional separation of the two tracts. Thus, although the respiratory tract is the focus of the performance limitation, any intervention to improve the respiratory tract that inadvertently compromises the functional

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flexibility to manage feed material passed the respiratory tract results in contamination of the respiratory tract and likely a negative impact on performance.

This article elucidates the appropriate diagnostic techniques to arrive at a valid conclusion about performance-limiting respiratory problems and discusses potential treatments. Although the greatest area of resistance to airflow is nasal, it is uncommonly a site of obstruction in the performance horse and is not addressed in more detail.

THE EVALUATION

Any horse that makes an abnormal respiratory noise during exercise is likely experiencing some type of airflow obstruction and should be evaluated. The intensity of the abnormal noise is usually coincident with the intensity of exercise, so any variations in noise appreciated by the owner may just be a reflection of the noise associated with a different level of exercise and not a reflection of a change in the problem within the upper airway. Regardless, every initial evaluation should begin with history and physical examination. Palpation of the larynx for asymmetry or surgical scars may provide the clinician with valuable information. After this a resting endoscopic evaluation should be performed. It is always best to develop a standard routine for an examination to ensure that it is comprehensive and performed efficiently. A twitch for restraint is always recommended to give greater control over the horse's head position, and no sedatives should be given that would falsely alter the functional assessment of the upper airway. Although many practitioners perform the examination by passing and directing the scope themselves with just one person holding the horse, it is beneficial to have a different person pass the endoscope so there is greater control maintaining the position of the endoscope in the nasal passage.

The endoscope should be passed quickly through the rostral nasal passage and the endoscope should be directed ventral and medial to make certain it slides down the ventral meatus. Horses object the greatest when the endoscope is first passed. It is also important to not initially pass the endoscope more than 30 to 35 cm in the average adult. Passing it further may result in stimulating the pharyngeal wall and causing the horse to swallow or displace only because of the scope stimulation. This is often misinterpreted as a problem, when in many cases it is just because of the stimulation from the endoscope.

An initial overall assessment should be made of the pharyngeal vault. The epiglottis should be positioned dorsal to the palate and have a distinctly "serrated" edge with a clear vascular pattern. This pattern may not be seen in cases of epiglottitis or epiglottic entrapment. In either case the epiglottis remains dorsal to the palate and these conditions should not be confused with dorsal displacement of the soft palate. The arytenoids should be evaluated for their overall appearance and symmetry. Disruption of the arytenoid mucosa, or areas of granulation tissue on the axial surface with any enlargement of the arytenoid, may indicate an early chondrosis. A smaller misshapen corniculate, especially associated with decreased abduction, may indicate dysplasia. The movement/abduction of the arytenoids should initially be assessed with the horse at rest and immediately after stimulation of a swallow to determine maximum abduction on either side. Some clinicians prefer assessment of abduction during nasal occlusion but attaining full abduction this way is extremely variable depending on the tractability of the horse and the experience of the clinician. During swallowing there should be full symmetric midline adduction (that often cannot be seen because of pharyngeal contraction) followed by a fleeting full symmetric abduction of both arytenoids. Any asymmetry, particularly a lack of full abduction of the left relative to the right, is likely an indication of some degree of RLN. There are multiple grading systems

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