PETERSON & SMITH Equine Hospital
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VET NOTES

Peterson & Smith Equine Hospital
4747 SW 60th Avenue, Ocala, FL 34474
(352) 237-6151
pseh@petersonsmith.com
www.petersonsmith.com

July 2019

Dr. Emma Seitz-Cherner is originally from New York City but also grew up living in Mexico, Puerto Rico, and France. In an attempt to continue to satisfy her travel bug, she attended veterinary school at the University of Sydney, Australia. After completing an internship at Rood and Riddle Equine Hospital in Lexington, Kentucky, she joined the Peterson and Smith team to pursue her goal of becoming an Equine Surgeon. She enjoys all aspects of equine surgery but is especially interested in orthopedic and colic surgeries. In her free time she continues to travel, and enjoys paddle boarding and exploring the many springs in the Ocala area.

Diagnosis of Upper Airway Disorders in the Equine Athlete
Dr. Emma Seitz-Cherner

In last month's edition of Vet Notes we discussed some common upper airway problems in the equine athlete. Diagnosis of these upper airway abnormalities involves endoscopy, which consists of passing a small flexible camera up the nose to visualize the larynx.

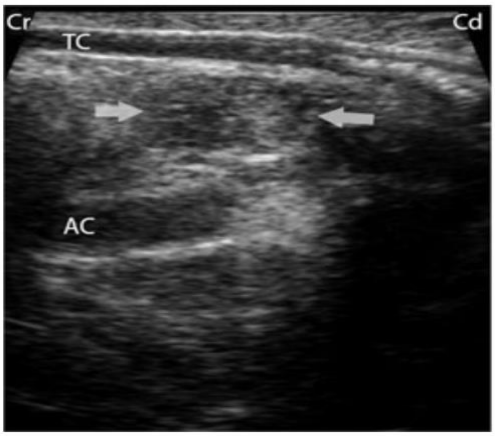
Some lesions can be diagnosed with static endoscopy, however others require a dynamic scope to be performed. This requires placement of a portable scope in the horse's airway at exercise to assess the larynx while the horse is performing his or her job. Airflow dynamics are altered during exercise due to the increase in respiratory rate and lung capacity and these can reveal abnormally functioning laryngeal structures that appear otherwise normal at rest.

Peterson and Smith Equine Hospital has had a top of the line dynamic endoscope for several years now. It consists of a lightweight and highly flexible scope that attaches to a cavesson placed under the horse's regular bridle. A special saddle pad contains a water flushing system to clean the end of the scope and ensure a clear view, a light source, battery, video recorder, and the antenna for transmission of the recording to a separate monitor. Horses surprisingly tolerate this equipment very well, and after a few minutes to adjust most horses can be ridden, driven, or lunged routinely. This gear is compatible with all types of saddles and harnesses.

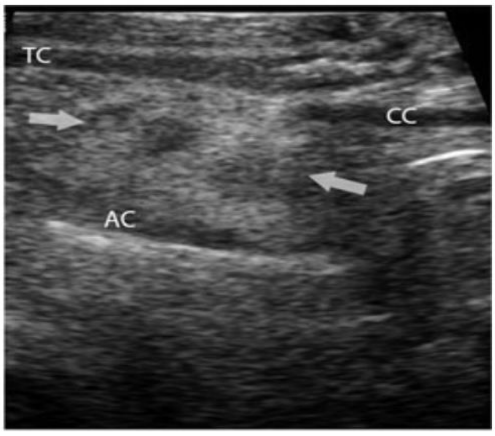
Lesions that can be diagnosed with a static scope include arytenoid chondritis and most cases of entrapped epiglottis. These lesions are not "dynamic"; they do not require exercising conditions to

be seen. This is also true for advanced cases of left laryngeal hemiplegia (LLH). However to diagnose early/mild cases of LLH it is advised to perform dynamic endoscopy. This type of endoscopy is also required to diagnose intermittent dorsal displacement of the soft palate. Other less common upper airway abnormalities that can be diagnosed with dynamic endoscopy include collapse of the aryepiglottic folds, pharyngeal collapse, intermittent epiglottic entrapment, and retroversion of the epiglottis.

Laryngeal ultrasound is often used in conjunction with upper airway endoscopy, as it enables the cross-sectional evaluation of the laryngeal structures. It is particularly useful to confirm the diagnosis in early cases of LLH. A denervated muscle, such that occurs with LLH, appears more hyperechoic or "white" on ultrasound than a normal muscle. If the muscle on the left side of the larynx appears more "white", or echogenic than the muscle on the right side, a diagnosis of Left Laryngeal Hemiplegia is confirmed. Ultrasound is also critical for the diagnosis of structural abnormalities of the larynx, such as Laryngeal Dysplasia, a developmental deformity that can be confused for a right or left-sided "roarer". Making this distinction and obtaining an accurate pre-operative diagnosis is critical in these cases, as a tieback surgery is the treatment for a "roarer" but it will not improve a horse with Laryngeal Dysplasia.



Normal larynx and muscle between arrows



Horse with LLH with hyperechoic muscle between arrows

For most cases where an upper airway issue is suspected, a static endoscopy is typically the first step. This can be followed by a dynamic endoscopy if no abnormalities are detected at rest or if there is suspicion of multiple problems going on at once. Ultrasound is a useful adjunctive therapy to confirm the diagnosis and ensure no other structural abnormalities are present.

If you are concerned that your horse may have an upper airway abnormality, do not hesitate to contact us for an examination.

References:

- Davison, J., Lumsden, J., Boston, R. and Ahern, B. (2017). Overground endoscopy in 311 Thoroughbred racehorses: findings and correlation to resting laryngeal function. *Australian Veterinary Journal*, 95(9), pp.338-342.
- Chalmers, H., Yeager, A., Cheetham, J. and Ducharme, N. (2012) Diagnostic Sensitivity of Subjective and Quantitative Laryngeal Ultrasonographys for Recurrent Laryngeal Neuropathy in horses. *Veterinary Radiology & Ultrasound*, 53(6), pp.660-666.

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