

Two lower airway respiratory problems that can decrease athletic performance



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The last article in our short series on performance limiting respiratory problems will focus on two diseases that effect of the lower airways of the horse. These diseases are known by the scientific names of 'Inflammatory Airway Disease' (IAD) and 'Recurrent Airway Obstruction' (RAO), also known as 'heaves'. As both diseases tend to produce very similar clinical signs in their earlier stages, without the assistance of differentiating diagnostics, they are often both presumed to be the horse version of 'allergies' when in seen in their mildest forms. Diagnostic sampling of fluid from the mid to lower airways is necessary to differentiate between the two, help direct treatment and prognosticate likelihood of response to treatment.

Let's start by comparing the major clinical differences between IAD and RAO. Recurrent airway obstruction tends to occur in older horses (average age of onset is 9-12 years old) while IAD can occur in any age horse (although most commonly horses are <5 years old). Both diseases are characterized by poor performance, exercise intolerance and coughing. IAD horses may or may not have excess tracheal mucous and affected horses typically have little or no clinical signs at rest. In contrast, horses with RAO tend to have increased respiratory effort at rest (hence the development of a 'heave' line), produce excess mucous when coughing and have nasal discharge. Horses with severe RAO may also have difficulty maintaining their weight and may show some degree of decreased appetite.

Recurrent airway obstruction results when allergens such as dust or pollen incite inflammation within the walls of the airway (bronchioles, bronchi). This inflammation causes thickening of the airway walls so that the space available for airflow becomes narrower. There are two forms of RAO; summer pasture induced and barn induced. The most important factor in treating RAO is removing the inflammatory allergen from the horse's environment. For barn induced RAO, this is relatively straight forward as the most common allergens are dust and mold from hay. The two most effective ways to treat horses with barn induced RAO are to wet down their hay and either minimize dust in the barn (ie: wet down aisles prior to sweeping, sweep rather than use dust blower to clean aisles, feed hay from low feeders, etc.) or completely remove affected horses from the barn. Horses that have pasture induced RAO are more difficult to treat. Moving them into a barn can sometimes improve them, but often does not. Sometimes these horses must be moved to a different geographic region before they improve.

Inflammatory airway disease, although it can occur in horses of any age, is more typically seen in young, athletic animals. Specifically, this is a disease of young racing Thoroughbreds. If you were to look at the walls of the airways on endoscopy in horses with IAD and RAO, you

would be hard pressed to tell the two diseases apart as both cause airway inflammation. Differentiation between the two diseases is made on cytology of the airway fluid. This is where a sample of the fluid from the lungs is taken (the most common collection procedure is called a BAL or BronchoAlveolar Lavage) and the cells within that fluid are analyzed. Horses with RAO will have high counts of the inflammatory cells known as neutrophils while horses with IAD will have moderate amounts of neutrophils and increased numbers of mast cells and eosinophils (two other types of inflammatory cells). The importance of differentiating between the two diseases may seem academic on the surface, but in truth there can be quite significant differences in prognosis with each disease. Treatment for both diseases tends to be similar as a first line of defense: decrease exposure to environmental allergens and start on systemic corticosteroids. Horses with RAO can often be managed very well by controlling their environment after their airway inflammation has been toned down with an initial course of steroids. That is less likely to be the case in horses with IAD. Due to the presence of mast cells, IAD has more of a tendency to be refractory to treatment. Horses often need to undergo a period of rest in addition to treatment with corticosteroids to get control of airway inflammation. Gaining control of inflammation can be more difficult (longer courses of steroids, sometimes inhalant steroids are needed) and once the horse goes back into hard work, inflammation returns and the cycle starts again. Ultimately, severe cases of IAD can be just as performance limiting as grade 4 or 5 'roarers'.

In summary, if you are looking at an off the track Thoroughbred that is coughing (during exercise or at rest), has exercise intolerance and/or has nasal discharge, it may be prudent to look a little further into the matter. It could be that the horse just has a cold, or it could have some degree of RAO or (more commonly) IAD. Knowing whether one of these diseases is present, and to what degree, will help you determine if your horse will benefit from specific management and it will also help you determine if the horse has fit lung capacity for his or her new job.