



Paranasal Sinus Disease

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Horses have very large sinus cavities next to their nasal airway passages. These are referred to as peri-nasal sinuses. Horses have 7 bilaterally paired (one on each side). These sinuses vary greatly in size from more than 100cc for the frontal or caudal maxillary sinuses to less than 1cc for the ethmoid sinus. The anatomy of these sinuses is very complex and they approximate a number of vital or sensitive structures including the brain, the airway, the eye, the ethmoids, and large nerves. These sinuses all communicate and drain into the nasal cavity through a slit like opening into the middle of the nasal passage. Normal grazing motion rising and lowering the head repetitively helps these sinuses drain appropriately. Just as in humans these spaces can become infected (sinusitis) or diseased, however the cause, clinical signs, and treatments can be very different in horses. Clinical signs of peri-nasal sinus disease in horses include unilateral (one sided) or bilateral (both sides) nasal discharge, facial swelling or asymmetry, and difficulty in or abnormal breathing.

There are several etiologies (root causes) of sinus disease in horses. Depending on which epidemiologic study you reference, either primary infection or infection of the sinuses associated with dental disease represents the most common cause of sinus disease. When no external cause of the infection in the sinus can be identified it is said to be primary. These infections likely start after an insult to the upper airway such as a viral infection that damages the mucosal barrier and allows commensal (normal) or pathogenic (disease causing) bacteria to over grow and develop an infection. The roots or apices of the last 3-4 upper cheek teeth commonly referred to as molars (teeth 108-111 or 208-211) extend up toward the sinus, and lie juxtaposed to the floor of the sinus separated only by a relatively thin layer of bone and mucosa. If these teeth develop an apical tooth root infection, which they can do for a number of reasons, this infection can erode through this thin bone and enter the sinus cavity. Less commonly horses develop other dental anomalies such as supernumerary teeth or oral sinus fistulas that lead to feed material directly entering the sinus cavity causing infection. Other causes of sinus disease include sinus cyst, sinus tumor, ethmoid hematoma, and trauma. Space occupying lesions like masses (either tumors or cysts) and some trauma can block drainage of the sinus and can cause secondary infection of the sinuses. Therefore commonly there can be more than one disease process occurring in the sinus at one time.

Diagnostics commonly used to evaluate horses suspected of having sinus disease include radiographs, upper airway endoscopy, and sinuscopy (inserting the camera into the actual sinus). Other ancillary diagnostics can be performed as warranted such as ultrasound (trauma), bacterial or fungal culture and antibiotic susceptibility testing, cytology evaluation of aspirated fluid samples, or biopsy and histopathological evaluation of masses or cyst lining.

Just as with many diseases usually the earlier it is properly diagnosed and treated the shorter the treatment and the more positive the outcome is likely to be. When primary sinus infection is very mild and or very acute it may respond to a course of antibiotics and anti-inflammatory drugs. Due to the decreased drainage the course of antibiotics required may be 2-4 times longer than a typical course of antibiotics. The clinical signs may disappear well before the infection is completely resolved. Discontinuation of antibiotics at this time frequently leads to relapse and can contribute to antibiotic resistance. Many times these infections don't respond to simple antibiotic therapy. In these cases secondary problems such as a dental problem or mass whether it be a cyst or a tumor should be ruled out. Refractory primary sinusitis commonly require surgical removal of dehydrated purulent material (inspissated pus), repeated sinus lavage, and continued or new antibiotics. In cases where sinusitis is in combination with or secondary to another disease process this disease process must be treated as well or first. If it is dental associated sinusitis the dental abnormality must be addressed then the sinusitis must be addressed as outlined for primary sinusitis. Sinus tumors, cysts, and ethmoid hematomas must be removed surgically. Cysts can be treated with surgery alone sinus tumors and ethmoid hematomas are commonly debulked surgically and then treated with chemotherapy. In any of these three cases if secondary sinus infection is present it must then also be treated as outlined for primary sinusitis. When required sinus surgery is best performed in the standing sedated horse with local anesthesia. This is well tolerated by most horses. When lavage systems need to be placed for long term lavage of the sinuses this can easily performed at home limiting hospital stays.

Although the treatment can be protracted the prognosis for most sinus diseases is good to excellent.

The best way to catch these problems early is to have your horse evaluated by your regular veterinarian on a regular basis (at least every 6 months), have a routine dental exam performed by a veterinarian every 6-12 months, monitor your horse closely and have your veterinarian evaluate your horse if they show any of the clinical signs discussed above.

Contact Brandon Equine Medical Center at 813-643-7177 or email info@brandonequine.com with any questions regarding this topic.

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