EQUINE SINUS DISEASE

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The equine paranasal sinus anatomy consists of six paired sinuses: the frontal, rostral maxillary, caudal maxillary, sphenopalatine, dorsal conchal and ventral conchal. All of the sinuses communicate directly (the caudal maxillary sinus) or indirectly (frontal, rostral maxillary, sphenopalatine, dorsal and ventral conchal) with the nasal passages via the nasomaxillary opening (Nickels, 2012). In horses less than five years of age, the maxillary sinuses are full of teeth and the space in the sinus increases as the horse ages and the reserve crown length of the tooth decreases (Freeman, 2003). The caudal maxillary sinus communicates medially with the sphenopalatine sinus that is in close proximity to the brain, pituitary, optic chiasma and other important nerves that may cause clinical signs unique to those structures.

Common clinical signs associated with sinus disease includes a unilateral nasal discharge, facial swelling, respiratory noise, exophthalmos and epiphora. When these signs are noted, additional features of the routine physical examination may include percussion of the sinuses and oral examination to evaluate dental involvement.

There are many different conditions affecting the equine sinuses that may cause identical clinical signs making treatment a challenge without an accurate diagnosis. Common differentials include primary sinusitis, sinus cysts, dental disease, ethmoid hematomas and other soft tissue masses or neoplasms.

Diagnostic imaging is indicated in horses with clinical signs of sinus disease. Endoscopy with particular focus on the ethmoid turbinates and the middle meatus for evidence of drainage from the nasomaxillary opening is a good initial diagnostic choice. Radiography is useful to detect presence of fluid lines or soft tissue opacities within the air-filled sinuses as well as a potential distortion of normal anatomy such as deviation of the nasal septum. However, due to the complexity of anatomy of the equine skull, interpretation is often difficult and findings can be non-specific and inconclusive.

Advanced imaging such as computed tomography or magnetic resonance imaging may be indicated when initial diagnostics are inconclusive or there is question regarding the laterality of the disease, involvement of particular sinuses and structures, and for surgical planning purposes. A recent study of horses with progressive ethmoid hematomas revealed CT increased the detection of bilateral disease, the detection of sinus involvement and particularly of sphenopalatine involvement (Textor, 2012). This is a benefit for surgical planning and providing prognosis to the owner.

Treatment of sinus disease is dependent on the specific underlying cause. Primary sinusitis can often be resolved with oral antibiotics and flushing the sinuses via small trephination. Treatment of secondary sinusitis however must aim to treat the underlying problem. An experienced equine veterinary dentist can address dental problems or repulsion through a sinus flap may be indicated. Other masses within the sinus cavity are commonly removed in a standing sinus flap surgical procedure. If etiology of the mass is desired prior to surgical removal, sinoscopy combined with a biopsy may provide a more minimally invasive diagnosis, however this option would be typically diagnostic and not therapeutic. Depending on the sinus affected, a frontal or maxillary flap surgical approach may be chosen to provide the best access to remove the mass entirely and the mass can then be submitted for histopathology.

Ultimately the prognosis of the horse depends on the etiology of the disease. Good outcomes following surgical treatment have been reported in 82% of sinus cysts, while only 33% of horses with progressive ethmoid hematomas and 12% of horses with sinonasal neoplasia were reported to have long-term remission of clinical signs (Tremaine and Dixon, 2001).

References: