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Paranasal Sinusitis – A Long-term Clinical Study of 200 Cases (1997-2009)

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Introduction:
Sinusitis, mainly due to bacterial infection, is the most common cause of unilateral nasal discharge in the horse and can have multiple initiating causes. Primary sinusitis is classified as such if there is no underlying reason found for the development of sinusitis – the aetiology of primary sinusitis is thought to be upper respiratory infection which initiates generalised inflammation of multiple sinuses, blockage of the sino-nasal ostium and bacterial infection of accumulated intra-sinus secretions with later possible inspissation of exudate within sinuses in chronic cases. Acute primary sinusitis normally clears spontaneously with remission of the respiratory infection, with just a minority of cases developing a chronic primary sinusitis (>2 months duration) in one or more sinuses, especially within the rostral maxillary and ventral conchal sinuses. Cases of sinusitis can also be secondary to other disorders including; apical infections of the caudal maxillary cheek teeth or dental related oro-maxillary fistulas; sinus cysts; sinus neoplasia; mycotic sinus infections; intra-sinus progressive ethmoidal haematomata and sinus trauma.

Sinusitis is an uncommon disorder in general equine practice, with a BEVA survey showing a prevalence of 0.4% in 17,000 horses (Anon 1965). However, with the improvements in our knowledge on this disorder and marked recent advances in diagnostic imaging techniques, this figure will likely be an underestimate. Just a limited number of surveys from referral practices have documented the aetiology of equine sinusitis including those of Mason (1975), van der Velden and Versijlennberg (1984), Boulton (1985), Lane et al. (1987) Tremaine and Dixon (2001a,b), Quinn et al (2005), Woodford and Lane (2006). To gain further information in this area, this retrospective study examined details on further cases of sinus disease examined at the Equine Hospital of Edinburgh University.
Materials and Methods:
A retrospective study was made of consecutive cases of sinusitis presented to the R(D)SVS Equine Teaching Hospital at the University of Edinburgh between 1997 to 2009. Diagnostic criteria for differentiating the different types of sinusitis were as previously described (Tremaine and Dixon 2001a). In this study, cases of primary sinusitis were subdivided into subacute primary sinusitis (<2 months duration) and chronic primary sinusitis (>2 months duration). Additionally, in this study, cases of dental-related sinusitis were divided into those caused by cheek teeth apical infection and those due to dental-related oro-maxillary fistula formation. Follow-through information was requested from owners and trainers by a structured questionnaire and if no reply was received from questionnaires, by subsequent telephone calls.

Results:
Two hundred cases of sinusitis were examined during this period including:
46 cases (23% of total group) of subacute primary sinusitis
37 cases (18.5%) of chronic primary sinusitis
42 cases (21%) of dental sinusitis
29 cases (14.5%) of sinus cysts
15 cases (7.5%) of sinus trauma
9 cases (4.5%) of sinus neoplasia
8 cases (4%) of mycotic sinusitis
8 cases (4%) of intra sinus progressive ethmoid haematoma
6 cases (3%) of oro-maxillary fistula

The sinusitis cases comprised 37% female and 63% male horses and the nine different sinusitis categories had similar median ages (8-12 years). The median duration of clinical signs prior to referral was shortest in the subacute primary sinusitis group (median 21 days duration) and the longest duration was in the sinus cyst group (median 180 days). Nasal discharge was present in almost all cases of sinusitis except in cases of sinus neoplasia where there was only a 44% prevalence of this clinical sign, and in horses with traumatic sinus disorders (80% prevalence of nasal discharge including epistaxis). Cutaneous draining tracts were rare (3.5% prevalence) and were usually associated with prior sinus surgery or sinus trephination, but occasionally developed spontaneously due to chronic localisation of infection in the sinus, including in horses with chronic primary sinusitis. Facial swellings were most commonly present in cases of sinus neoplasia (77% prevalence), sinus trauma (73%), and sinus cysts (48%) and were present in circa 20% of cases with other types of sinusitis.
To date, follow-through information has been received from 121 of the 200 cases. The findings indicated complete improvements in 87% of subacute primary sinusitis cases and partial improvement in a further 10%; complete improvement in 67% and partial improvement in 22% of chronic sinusitis cases; complete improvement in 74% and partial improvement in 26% of dental sinusitis cases and complete improvement in 82% and partial improvement 18% of sinus cysts cases. The conservative surgical approach to these cases, using relatively small bone flaps that were replaced also gave a good long term cosmetic effect as compared to other techniques (Quinn et al. 2005), with minor facial distortion reported to be present in 9.2% of cases and marked facial distortion present in only 1.5%.

It is not possible to estimate the incidence or prevalence of these sinonasal diseases in the general equine population from these data since all cases were referred. The age and gender distribution conforms to that of a typical mixed working equine population in northern Britain. The relatively long duration of clinical signs prior to referral of many cases (e.g. mean 180 days for sinus cysts) emphasises the chronic nature of many equine sinus disorders by the time they are referred for further investigation. Primary and dental sinusitis were the commonest sinus disorders diagnosed in this study as also recorded by Gibbs and Lane (1987) and Tremaine and Dixon (2001a), however the ratio of dental-related sinusitis in this study (24%, i.e. 21% apical infection and 3% oromaxillary fistula) is lower than the 31.4% prevalence of dental related sinusitis recorded by Tremaine and Dixon (2001a).

References