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Secondary sinusitis in a 7-year-old Part-Barb mare

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Abstract

This case reveals a scenario where 2 equal length deep incisions, of about 7cm, made on either side of the face caudal to the eye, led to a complicated infection of the paranasal sinuses. Though radiographic, sinuscopic and endoscopic examinations were not performed to further define the sinus disorder, the age of the animal, the nature of the clinical signs, and response to therapy, laboratory result and history were used to arrive at a diagnosis. This method of incision is an ancient ethno-

veterinary practice among the equestrian communities of Northern Nigeria, introduced by the Chadian horse merchants. It is a procedure routinely used to extract the soft tissue commonly seen on the facial area in cases of osteodystrophia fibrosa, locally known as "Kumarmari" in Hausa language. Sinusitis ensued as a result of the incisions made with a distortion of the facial expression, dull percussion of the frontal sinusitis, rupture of the submandibular lymphnodes, pyrexia, unilateral mucopurulent nasal discharge and epiphora. After 7days of poor response to therapy a sensitivity test was carried out and the therapy was changed from procaine penicillin to trimethoprim and sulphadiazine combination (VetcotrimR SAM Pharmaceuticals).The incision was lavaged with normal saline twice daily and showed a marked improvement after 7 days. Initially, the body temperature which was 40.1o C subsided to 39.5o C by day 7, and finally dropped to 38.2o C on the tenth day.

Keywords: Horse, Sinuses, Sinusitis, Lymph node, Nasal discharge

Introduction

Sinusitis is an inflammation of the sinus lining, often occurring in upper respiratory infection. Sinusitis (primary and secondary) is characterized by an inflammation of the equine paranasal sinuses. It is a relatively uncommon condition and either primary due to bacterial or mycotic infections, or secondary to dental diseases. The symptoms are unilateral, odourless nasal discharge, but in cases with dental involvement the nasal discharge is malodorous. This can also be the case with primary sinusitis. Other symptoms include facial swelling, head-shaking, uneven nasal airflow, inspiratory noise etc. The diagnosis is confirmed most often with radiographs or sinucentesis. In most cases, surgical treatment is necessary. With involvement of a tooth root, extraction of the tooth may be necessary. The long-term prognosis for primary and secondary sinusitis is good (WEVA Proceedings, 2008). Sinusitis can affect horses of any age. Older horses are more likely to have sinusitis from tooth root infections, while young horses are more likely to have a sinus cyst or a primary infection. Though rare, but both young and old horses may also have a tumor in the sinus (Mazan, 2009). Understanding the pathogenesis of sinusitis in equines is especially important because horses are obligate nasal breathers and any problem with the nasal cavities as well as paranasal sinuses could cause nasal airflow impairment, thus loss of performance, which in the case of a workhorse or athletic horse can be very deleterious (Equestrian news, 2008). Problems in the nasal cavities can lead to chronic nasal discharge and possibly distortion of the facial contours. Since horses require large volumes of air daily at the proper temperature and humidity, treatment of equine sinusitis is important especially in athletic horses.

In the horse, the roots of the upper premolar and molar teeth project into the maxillary sinus and are close to the ventral nasal meatus. Any disorder involving the tooth roots may lead to narrowing of the nasal cavity, obstruction to airflow, local infections (including pulpitis), and secondary sinusitis. Conditions such as fractures, patent infundibula, chronic ossifying alveolar periostitis, tooth displacement, dental malposition, tumors of the tooth roots, or dental malposition can cause such problems (Rose and Hodgson, 1993). Dental disease is most common in mature horses. Secondary sinusitis of the maxillary sinus is usually associated with dental disorders such as fractured teeth, patent infundibula and alveolar periostitis. The first molar is the most commonly involved. However, secondary sinusitis may follow traumatic head injuries or the development of congenital paranasal cysts. The most common clinical signs of secondary sinusitis are unilateral, mucopurent nasal discharge; other signs that can be seen are stertorous breathing, facial distortion and epiphora. In secondary sinusitis the nasal discharge may be fetid and sinus tracts can extend onto the skin. (Freeman, 2003)

This report presents a unique case where two incisions made at the fronto-maxillary area of the face as an ethno-veterinary remedy for osteodystrophia fibrosa, predisposes the horse to a classical secondary sinusitis.

Materials and Methods

Case History and Clinical Examination

Two weeks after a crude incision was made on the facial crest region of a 7-year old Part-Barb horse, abcessation developed on both sides of the face (Plate 1). On clinical examination, the following presenting signs were observed; distortion of the facial contour, dull percussion of the sinuses indicating the presence of fluid in the maxillary and frontal sinuses, stertorous breathing during exercise; rupture of the submandibular lymph nodes (Plate 3); pyrexia; yellowish bilateral mucopurulent nasal discharge and bilateral epiphora.

Laboratory Examination

Hematological examination was carried out on blood sample in the clinical pathology laboratory. Also culture of the nasal discharge and sensitivity test were carried out in the microbiology laboratory.

Case Management

Therapy was reviewed after 5 days of poor response to procaine penicillin (20,000 IU/kg) administration, by replacing it with trimethoprim and sulfadiazine combination (VetcotrimR) at 2.5mg/kg (trimethoprim) plus 12.5mg/kg (sulphadiazine) twice daily per os (Bertone *et al.*, 1988; Gustafsson *et al.*, 1999, Prescot, 2000) for 5 days. The potentiated sulphonamide was administered 24 hours after withdrawing the procaine penicillin. The abscess was incised further and lavaged with normal saline twice daily for 7 days using a 60ml syringe.

Results

There was marked improvement 7 days after lavaging the abcessation twice daily with a decrease in discharges from the eye and nostril (Plate 2). A swab of the discharge from the pus was taken to the microbiology laboratory for bacterial culture and identification. The microbiology laboratory result was ß – hemolytic streptococcus and staphylococcus aureus organisms. The swelling especially on the left side showed no marked reduction unlike the one on the right facial area which was reduced drastically. Initial body temperature of 40.1°C subsided to 39.5°C by day 7, fluctuating between 39.5°C and 40°C for two days. Then finally the temperature subsided to 38.20C at the tenth day.

Hematological examination revealed a PCV of 29%, eosinophil 0%, basophil 0%, band neutrophils 0%,

segmented neutrophils 48%, Lymphocytes 51% and Monocytes 1%.

Plate 1: Part-barb mare showing swelling of the facial area

Plate 2: Part-barb mare with discharge from the eye and nostril

Plate 3: Part-barb mare with rupture of the submandibular lymph node

Discussion

Secondary sinusitis may follow a traumatic head injury (Reed *et al.*, 2004). In this case the condition was as a result of a crude surgical trauma on both sides of the facial area which led to an inflammatory reaction of the skin, subcutaneous and the facial bones, consequently affecting facial symmetry (Plate 1). The dull sound picked on percussion of the frontal sinuses and the distorted facial contour could be a clear sign of frontal sinus infection.

Diagnosis of sinusitis is usually based on the history, age of the animal, and the nature of clinical signs (Ainsworth and Hackett, 2004). Considering this, the clinical signs were used to rule out other forms of sinusitis, for example, the sinusitis following dental disease or invasive neoplastic masses is characterized by a purulent foul-smelling and persistent nasal discharge, whereas a sero-sanguineous exudate is more typical of sinus cyst, slow growing neoplasia and certain stages of mycotic granuloma and hematoma (Reed *et al.*, 2004). In this case the nasal discharge was mucopurulent, non-persistent and there was a clear response to the antimicrobial therapy. Furthermore sinuscopic and endoscopic examinations were not performed to define the sinus disorder. The absence of abnormal respiratory noise during exercise clearly signifies clinically that there was no impingement of the medial walls of the conchae into the nasal passage, displacement of the nasal septum or an extension of the sinus masses into the nasal passage and pharynx. Also the absence of blood-stained nasal discharge (Plate 2) was substantial clinical evidence that helped in ruling out ethmoid hematoma; tumor and fungal infection (Robinson, 2003). The epiphora seen could be an indication of compression of the osseous nasolacrimal duct.

A day was skipped between the administration of procaine penicillin and the potentiated sulphonamide in order to avoid interference since penicillin G is a para-aminobenzoic acid (PABA) analog and may reduce efficacy if used concurrently with potentiated sulphonamides (Sigel *et al.*, 1981).

The microbiology laboratory result shows Streptococcus and Staphylococcus organisms, though Staphylococcus is reported to be rarely seen in cases of sinusitis (Ainsworth and Hackett,2004), while the hematological result reveals a slight decrease in packed cell volume which is seen mostly in chronic infections (Robinson,2003).

This case presents a challenge to equine practitioners, first it is presented clinically different from the conventional secondary sinusitis especially the etiology and secondly, this is the first report of such ethno-veterinary practice predisposing to secondary sinusitis among the equestrian community in Kano.

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