Most aged horses and ponies have some dental disease and the degree of dysfunction and abnormalities present can be dramatic. Regular dental care is essential for aged horses and failure to attend to dentition leads to a failure to maintain weight especially during the winter months. Prior to evaluating the oral cavity, an accurate medical history should be obtained because many of the aged horses presented for correction of dental abnormalities may have co-existing medical complaints. In addition, it is essential to obtain information on previous dental care, diet, appetite and the presence of halitosis or quidding. Examination of the oral cavity should be performed using a powerful light source, a full mouth speculum, dental mirror and with sedation at an early stage if the horse displays any sign of resentment.

**Dental pathology: diastema and periodontitis**

The dention of the horse has evolved such that in normally erupted cheek teeth (comprising the premolars and molars) no space exists between adjacent teeth. This enables all 6 teeth in the row (or arcade) to function as a single masticatory unit. Any diastemata between these teeth are considered to be pathological changes and can predispose to subsequent food entrapment between the teeth with subsequent gingivitis and periodontitis. A transient self-resolving periodontitis may occur during permanent cheek teeth eruption. Periodontal disease is most common in the older horse and is usually secondary to food-packeting around the gingival sulcus. This may be as a consequence of diastemata, dental displacements, supernumerary cheek teeth or shearmouth/wavemouth. Chronic periodontal disease will result in progressively deeper periodontal membrane destruction and eventual tooth loss, especially in older horses. Presenting signs include halitosis, quidding, abnormal ‘slurping’ sounds during mastication, food pocketing between teeth and eventually loosening and loss of the teeth. Facial and mandibular swellings or discharging tracts are not a feature of this condition, even with deep-seated alveolar infections because the infection drains along the periodontal space into the oral cavity. Periodontal disease is very common, poorly recognised and results in significant discomfort.

Periodontal disease

Pathological diastemata are a frequently observed condition, especially in ponies and aged horses. In normal dental eruption the angulation of the 1st and especially 6th cheek teeth maintains compression of the interdental space along the arcade, preventing the existence of diastemata. In younger animals with erupting and recently erupted cheek teeth with large reserve crowns, the diastema usually result from maleruption of teeth resulting in dental displacement and misalignment. Such maleruption allows incomplete apposition of the rostral and caudal clinical crowns on the teeth, and subsequent entrapment of long-fibred food material between the teeth. Such maleruptions appear to be the result of overcrowding in pony breeds and miniature horses, due to the jaw length being relatively insufficient for normal eruption of the whole row. In such cases the maleruption and misalignment are often bilateral symmetrical and often lead to bilateral lingual displacement of the 4th mandibular cheek teeth (Triadan 109, 209) and buccal displacement of the 5th cheek teeth (310, 410). However, the direction of displacement does not always follow this pattern and there is wide breed and individual variation. Maleruption and displacement appears to be less common in the maxillary arcades, although the reasons for this are unclear. With advancing age the occlusal surfaces are worn by abrasion during mastication and the reserve crowns are shallower as the teeth erupt resulting in a reduced area of periodontal attachment of the reserve crowns and less compression of the interdental spaces from rostral to caudal along the arcade.

**Periodontal disease**

Most geriatric horses will have a degree of periodontal disease. Periodontal lesions start in the interproximal (interdental) areas of the teeth and the caudal mandibular spaces are most affected. The incidence of periodontal disease changes with age. A 40% prevalence has been reported in horses 3–5 years of age, this fell in horses 5–10 years of age and then increased to 60% in horses over the age of 15 years. Gingival hyperaemia, oedema, ulceration, deepening periodontal pockets and packing of feed material into these spaces are the classic pictures of periodontal disease. The presence of diastema enables food entrapment and its subsequent degradation which results in gingivitis. In contrast to the situation in humans the bacterial periodontitis/gingivitis syndrome appears to be extremely painful in horses where it has reached an advanced stage. There may be both supra- and subgingival plaque and calculus deposits associated with these lesions.

Periodontal disease in the horse has been divided into 4 categories based on evaluation of the severity of the lesion:

1. Local gingivitis with hyperaemia and oedema
2. Erosion of gingival margin 5 mm and periodontal pocket
3. Periodontitis with loss of gum
4. Gross periodontal pocketing, lysis of alveolar bone, loosening of bone support

Horses with low-grade periodontal disease may not show signs of oral pain. The observant owner may notice some excess salivation and sensitivity to cold water, or slow eating. Halitosis is a pathognomonic sign for severe periodontal disease in the horse and for this reason the use of disposable gloves is recommended when examining the oral cavity of the horse.

Routine dental care aims to preserve the health of periodontal structures. It is therefore not surprising that abnormalities of wear associated with tooth eruptions in young horses and arcade irregularities in older horses are the most common initiating factors in the pathogenesis of periodontal disease in the horse. Detection of periodontal changes and dental procedures to prevent deterioration may be particularly important in preventing or delaying chronic, irreversible changes. Other factors influence the development and progression of periodontal disease and it is commonly described as being a multifactorial infection. Some of these factors include plaque, oral microflora and calculus, as well as age, general health, chewing patterns, breed, immune status and local irritants (e.g. grass awns). Periodontitis can result in the production of excess cementum over the surface of the reserve crown - in some cases, progressing to a form of hypercementosis and the production of nodules of...
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Cementum. Horses with concurrent systemic disease such as hyperadrenocorticism can frequently have advanced refractory periodontitis.

Prevention of periodontal disease is preferable to attempted treatment. Once advanced gum recession and loss of periodontal contact has occurred, reversal is not possible. Consequently, the equine clinician’s role is to eliminate irregularities of wear, oral ulcers and other conditions that may initiate the progressive process of periodontal pathology. However, there are currently few studies validating the efficacy of treatments for periodontal disease.

In horses with major irregularities of wear and advanced periodontal pocketing, treatment is aimed at restoring approximately normal occlusion. Digitally loose teeth should be extracted, since they have no functional purpose. In the management of cases with large diastema and periodontal disease the use of systemic antibiotics and local packing with antimicrobial eluting materials (Doxyrobe Gel, Pharmacia and Upjohn, Kalamazoo, Michigan) has also been advocated. More recently, widening of the diastema using a right-angled burr has been successful in selected cases although excessive removal of dental disuse will expose pulp and lead to caries. This treatment is most applicable to valve type diastema where there is tight occlusal contact obscuring deep periodontal cavitation.

Debridement of periodontal pockets in combination with topical and systemic antibiotics may enable the periodontium to partially heal in some cases resulting in a shallower periodontal pocket with a significant reduction in pain. Once debrided such pockets can be protected with temporary synthetic stenting material to prevent ongoing food impaction. This treatment is anecdotally effective but to date controlled studies are lacking.

Although periodontal disease affects the cheek teeth most commonly, the incisors can also be affected, although these teeth rarely become so diseased as to need extracting. Incisor diastemata are usually not associated with severe clinical signs but they can be enlarged using a diastema burr and this prevents build up of food material. However, daily brushing (with a soft nail brush, for example) of the incisors is easy to perform and can become a part of the animal’s daily grooming routine.

Further reading

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