

Peripheral Caries

Client Information Sheet

What are peripheral caries?

Peripheral caries refers to caries (decay) of the outsides of the teeth. It is caused by acidic pH in the mouth leading to a chemical reaction that results in demineralisation, or 'decay' of the teeth. It starts on the peripheral cementum (outermost layer of the teeth), and may progress to inner structures such as enamel and dentin. In the more severe cases, it may lead to dental fractures, exposure of the vital cavities of the teeth (which can kill the teeth), soft tissue lacerations and periodontal disease among other complications.

Why does it happen?

The disease appears to be multifactorial. Research has shown that horses fed certain hays containing a high percentage of water-soluble carbohydrates (WSC) such as oaten hay, are more likely to be affected by the condition. Certain carbohydrates are easily fermented by oral bacteria, which release organic acids as a by-product of this fermentation and these acids dissolve the minerals in the teeth. Water with an acidic pH (e.g. Perth rainwater) is also likely to contribute, whereas slightly alkaline water may be protective.¹ Access to good quality pasture throughout the year may also be protective. Certain breeds are also more susceptible to caries than others.

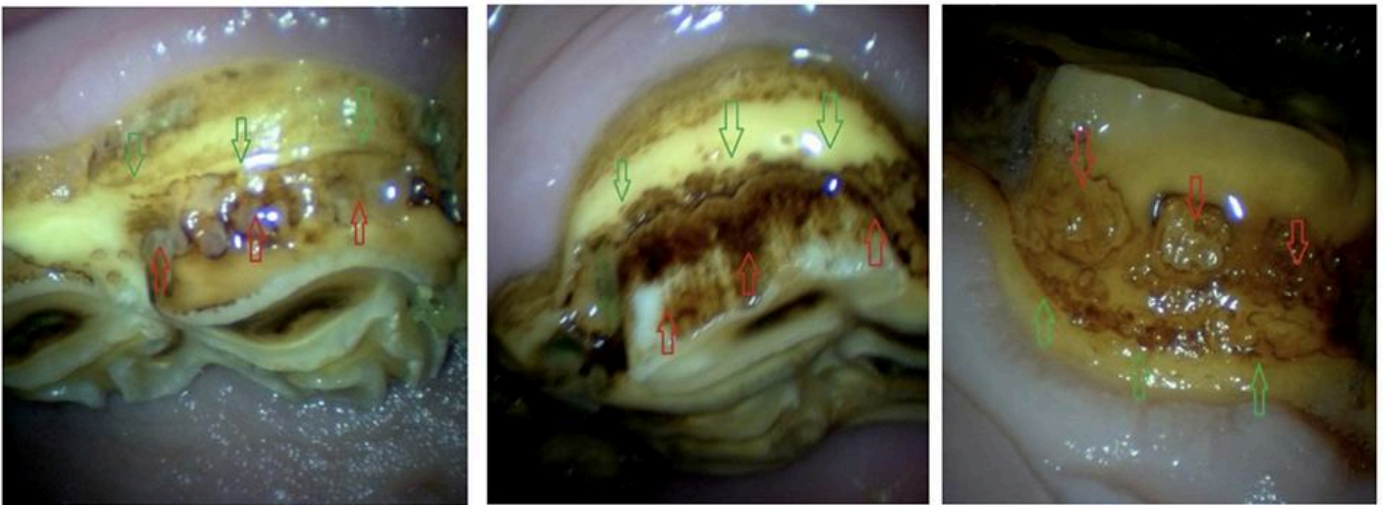
How do we diagnose peripheral caries?

Peripheral caries is diagnosed by visual examination of the decay by your veterinarian. The severity is graded depending on the degree and distribution of decay, and ranges from 1.1 (minor decay of the outer cemental layer) to 4 (decay resulting in fracture of the teeth/loss of normal tooth architecture).



What are the treatment options?

The good news is the condition only affects the part of the tooth in the mouth at the time. As horse's teeth continue to erupt throughout their lifetime, the condition can be 'cured' if the causal agent is removed and the damaged tooth in the mouth is replaced by the unaffected tooth which was below the gumline. In very severe cases, where the caries have started eating into the protective layer over the pulp cavities and risks killing the tooth, restorations ('fillings') may also be recommended. These help prevent the caries from progressing further and protect the underlying pulp cavities. It is recommended that horses on cereal hays (oaten/ wheaten) be changed to an alternative hay source with a lower WSC (e.g. Meadow, rhodes, barley straw or Lucerne hay) and in cases where the water source may be contributing (acidic pH e.g. rainwater), the pH may also be tested and buffering agents may be recommended to increase the pH. In some cases a caries diet supplement may also be recommended. Fluoride varnish may be applied to the decayed teeth to form a protective substance called fluoroapatite, which may help prevent further decay of the teeth for up to 6 months. Periodontal disease, which occurs commonly with peripheral caries, should also be treated concurrently.²



Peripheral caries of various grades depicted by red arrows, with new shelf of healthy cementum shown by the green arrows.

References:

1. Jackson, K., Kelty, E. and Tennant, M. (2017). *Equine peripheral dental caries: An epidemiological survey assessing prevalence and possible risk factors in Western Australian horses.* *Equine Veterinary Journal*, 50(1), pp.79-84.
2. Jackson, K., Kelty, E., Staszuk, C. and Tennant, M. (2019). *Peripheral caries and disease of the periodontium in Western Australian horses: An epidemiological, anatomical and histopathological assessment.* *Equine Veterinary Journal*, 51(5), pp.617-624