Geriatric Horse Dentistry

Oliver Liyou BVSc (Hons1) MACVSc

Introduction

Geriatric horses are becoming increasingly well cared for and appreciated by dedicated owners in our society. These horses, although of low economic value, are often priceless on an emotional level, or in their ability to be a safe teaching aid for young children in either riding or general horse husbandry.

It is a common myth that “the horse dentist told me not to worry about the old horse anymore because it probably doesn’t have any teeth!” This is completely wrong in 99.9 % of cases, and the comment usually has arisen due to the challenging nature of performing geriatric horse dentistry.

Old horses generally like doing 2 things – eating and staying in a safe, comfortable and stable social environment. So we as veterinarians can have a huge impact on the welfare of these wonderful animals, which have defied the odds and reach old age as a horse.

From 2 studies done, the average age of wild horses is between 7-12 years, so geriatrics seemingly don’t survive well in the wild. So could it be that old age is considered to be a “man made condition” in horses???

What is a geriatric mouth? It is by definition a mouth where some of the teeth are starting to appear “worn out”. That is, their occlusal surface is no longer of the normal height and distribution of enamel, dentine and/or cementum. The age of onset varies, and could be as early as 15 years of age (especially if the horse had poor diet in first 5 years of life, or been on high silicate pasture which is overlying abrasive to the teeth), or as old as 25 years old (especially if the horse had good nutrition, good dental care, and was on lush pasture which low level of silicates).

Donkeys have harder teeth than horses due to the presence of type 3 enamel, so the geriatric condition may not appear until 30 + in donkeys.

What are the common problems?

Weight loss is the most common reason an owner will call you to examine an old horse’s mouth. But really you are better to spend a little time to have them consider asking you to check the whole horse and not just its mouth – as the mouth will surely have significant disease, but is often just one piece of the puzzle of getting the horse looking good again.

The main reason dental disease causes weight loss in geriatrics is that the horse chews slower and less effectively, due to pain or reduced function of the teeth, and
so has reduced ability to ingest an adequate amount of calories. These horses often graze even more than normal because they are hungry, but their rate of ingestion is much reduced.

Other common causes of weight loss include:

- Gut Parasites – especially so in the past few years of high rainfall following a decade of drought!
- Inadequate nutrition
- Low pecking order in herd
- Horse is actually older than it was thought to be
- Heart disease
- Liver/kidney disease
- Cushings disease
- GIT malabsorptive/IBD disease (especially secondary to parasites).
- Neoplasia

**How to approach the geriatric patient?**

The old horse is a challenging dental patient not only in that it will usually have advanced dental disease, but also in that, despite its quiet and innocent nature according to its owners, they often resent dental exams and treatments. You need to explain this to the owners as a possibility. For the horse may have painful incisors, TMJ region, or cheek teeth when it comes to opening the gag, or filing the teeth.

Or it may have clear memories of prior stressful dental treatments that have been attempted over its lifetime! Horses rarely forget a stressful or painful experience – unless of course they are sedated with narcotics as part of the regime (a definite advantage of sedating horses for dentistry!)

So one part of both a good clinical exam and allowing the horse to develop some trust in you is to spend some time rubbing and patting it as you gently and quietly examine its whole body. The head, neck, chest, abdomen, back, skin, limbs and feet – in a brief and calm manner.

Remember to always auscultate the heart when doing dentistry, or any sedation for that matter! Failure to do so is not only negligent, but it gives horse people reason to believe that sedation is safe and any one can do it, so why not deregulate its use to non veterinarians???
I do like to sedate the geriatric prior to applying the gag, as once they get stressed and start to push or barge, or toss their heads, the required amount of sedation to stop that behaviour is far greater if they had not been sedated a little bit already.

For top ups, butorphanol and xylazine are good, in that neither is particularly long acting. It is not uncommon for old horses that were giving the operator a hard time when working on the mouth, to be almost unable to stand once they are left alone.

If horse does get too sedated when working on it, passing of a stomach tube up the nostril, or using your finger in a similar manner, is one of the most effective ways to “wake the horse up”. In the USA, reversal agents such as Yohimbine 10-20 mg, or tolazoline 100-200 mg are popular and can stabilize the horse so it can walk. However, “heavy handed use” of detomidine (longer acting) is also common in the USA, and reports of the odd horse dropping off the end of the needle with reversal agents, has kept their popularity down in Australia.

What other disease are going on?

According to some researchers, all horses will develop Cushings disease if they live long enough. So many of the geriatrics you see could well be in the early stages of cushings even if they do not have the classic long hair coat. Other diseases – both clinical and subclinical - could also be going on, and offering a blood test, faecal egg count, dietary analysis etc either prior to or in conjunction with the dental may appeal to some clients and help the successful outcome immensely.

What else can you do on top of dental work?

Dietary advice – The most important! If owner prepared to “chew up the feeds” for the horse, it can do well with no teeth at all! Thus the use of dampened, soft foods, with plentiful short stemmed fibre is essential in old horses with irreversible dental disease and the associated reduce ability to grind up feedstuffs when masticating.

Water intake – monitor especially in winter, as painful teeth and gums can cause horse to avoid drinking on cold mornings.

Hoof care – more regular trims (q 4 wks) to prevent seedy toe. Ensure good breakover.

Parasite control and FEC to see how the previous parasite program has been working. > 6 wks post worming.

Sheath clean and remove smegma beans.

Skin care – rain scald.

Cushings therapeutic trial with Pergolide.

Bloods – collect prior to stressing or sedating the horse.
Initiate talks about “When the need arises” – how to identify and what to do etc.

Reassure them that the oldest recorded horse was a pit pony called “Old Billy” 62 years of age in UK. In humans, good dental care is rated up there with regular exercise when it comes to longevity. Likely to be similar in horses.

**What dental pathology is common in geriatrics**

**Sharp enamel points, ulcerated buccal, palatal and lingual mucosa.** Common things occur commonly!

**Worn out incisors.** Usually see the upper incisors worn excessively, prior to the lowers. But if horse’s grass ripping action is unusual, then may see lowers wear first.

It is important to not use gags with a prominent lip (should be less than 5 mm high and smoothly rounded) on caudal edge of incisor plates, as these can cause pain and resentment of the gag being opened.

Also can see excessive incisor wear from horses with pruritic skin disease chewing themselves.

**Periodontal disease** – 100% in horses over 20 years old – need to check incisors, canines and cheek teeth! Past grade 3 is often irreversible in geriatrics and will lead to grade 4, where the tooth is loose and absolutely needs to be extracted.

Rinsing the horse’s mouth with a hose twice or three times weekly, followed by flushing with dilute, sweet flavoured chlorhexidine can potentially control periodontal disease for extended periods of time. A commercial source of sweetened, stabilised chlorhexidine is available now in the form of Hexarinse, made by Virbac. It is well accepted by horses as part of ongoing home care, along with the ability to be used at the end of a dental treatment – especially if the gingiva was abraded, or a tooth extracted. Clients appreciate it too, as it is much more palatable than the human form of chlorhexidine mouth wash!

Even daily hosing with water alone can reduce the packing and fermenting of feedstuffs in the mouth, and so make the oral environment healthier. However most clients who are prepared to do this, will usually be prepared to go to a more effective treatment using the hexarinse 2-3 times per week as well.
EOTRH – watch out for it, as is not rare! Equine Odontoclastic Tooth Resorption and Hypercementosis. Is painful and leads to very slow chewing and distinct resentment of the gag. At present, extraction is the only treatment. Periodontal disease is a possible cause of it, and so early treatment of incisor periodontal disease is even more important now.

**Cupping out or worn out teeth.**

– *extract from Dr BA Rucker’s notes*

*The reserve crown is finite, eruption is relentless.*

The first pair of teeth to wear out are usually the upper nines (forth upper cheek teeth). These teeth are the first permanent in wear (around 1 year). The rostral enamel infundibulum usually wears out before the caudal infundibulum. This is called cupping. The peripheral enamel ribbon is usually the last enamel to wear out. The second pair to usually wear out are the lower sixes. Regardless of what teeth lose their enamel the correction is the same; maintain the opposing teeth at their normal height.

Sometimes several teeth or entire upper arcade will “cup out”. Some enamel will be present on the buccal sides of the upper teeth, but the palatal 2/3 to ¾ of the teeth will be smooth from lack of enamel, yet the palatal edge of these teeth will be prominent. Figure 1.
Figure 1. Arrow is the direction of grinding. Oval indicates area of contact. Palatal lip is present because no occlusion occurs here. Cheek teeth separate before occlusion is made on the palatal 1/3 of the tooth.

- Remove sharp points only from the upper buccal side.
- Do not shape or round off the upper buccal edge, you will remove any occlusion present in this horse.
- Remove the lip on the palatal upper teeth. (circle)
- Access EMC distances.
- Incisor reduction may over load teeth and teeth may fracture. Be cautious.
- Worn out teeth that are loose and painful should be extracted. Stage 3 and 4 periodontitis.

**Overgrown teeth** – these occur when a tooth has been missing or excessively worn down for some time, and the overgrown tooth has erupted its reserve crown excessively. If the tooth overgrowth is extreme, the tooth could be actually grinding against the mucosa of the opposing reduced or missing tooth region, causing painful abrasions each time the horse chews.

**Waves** – waves in geriatrics are usually with the high part of the wave being the lower 3\(^{rd}\) and 4\(^{th}\) cheek teeth, due to the upper 3\(^{rd}\) and 4\(^{th}\) cheek teeth being worn out. Because the upper worn out teeth have no ability to erupt down anymore, it is important not to try to correct the wave by reducing the tall teeth, as it will leave
those teeth with no occlusion ever again! However, if the tall teeth in the wave are rubbing on the gingiva, then they will need some slight reduction.

Ensure that you communicate that these mouths cannot be fixed, and that your aim is to make the horse comfortable. Twice yearly check ups may be needed to minimise the chance of painful conditions emerging and going on untreated e.g. loose teeth pushing into inflamed gingival as horse chews

**Loose teeth = grade 4 perio.** In geriatrics, loose teeth are usually that way due to a combination of lack of reserve crown and severe, irreversible periodontal disease. Thus in the large majority of cases, a loose tooth, with more than 1-2 mm of mobility, will need extraction to help the horse be more comfortable when chewing.

Despite these teeth being loose, you do need to still use gentle controlled force to extract the, whilst following the correct principles of cheek tooth extraction in the horse. Tooth root fracture may occur, especially if the roots were long and lytic, or the technique was rushed, or the horse flicked its head in pain. Sometimes the roots have been undergoing odontoclastic resorption for so long that they are short, blunted and even rounded in shape. However, if a root should fracture off, the decision needs to be made whether to try to extract it there and then (if it is palpably loose and you have some good dental picks to remove it), or whether to leave it in situ and check it in 3-6 months. It is unlikely to cause the horse any problems in the meantime, as it will not be in wear, and so long as it is not causing periapical abscessation with drainage into the sinus etc. If periapical infection were to develop, it would likely drain into the oral cavity, as this would be the path of least resistance.

**Flattened arcades** – this condition is seen mostly in horses with bighead, but can also be encountered in non big head horses. It is defined where the occlusal table of the molars is well under 10 -15 degrees, and the excursion to molar contact (EMC) is excessive and the amount of separation of the incisors upon molar contact (AMO) is less than 2 mm during the 1 cm of lateral excursion. If you reduce the incisors by 1-2 mm, in order to bring the EMC back to normal, and the horse has enough reserve crown, the horse will generally continue to improve back closer to normal.
Poor molar contact from smiles and frowns.

Smiles and frowns are most common in horses 15 years or over in our practice. Sometimes the frown or smile is so severe, that it is resulting in a reduced ability for the upper and lower molars to contact each other during mastication. These horses usually have quite flat arcades as well, and excessive EMC test results. Treatment involves partial reduction of the smile or frown, to an extend that the EMC is back to near normal, and reducing the sharp enamel points, which were likely the initial cause of the problem?

Osteoporosis!

Some authors believe Cushinoid horses may have osteoporotic bones, as occurs in cushings disease in humans. So be careful not to open the gag with excessive force on geriatrics, as fractures of the maxilla have been known to occur.

Conclusion

Geriatric horses provide us with possibly the closest similarity of equine practice to small animal practice.

It is essential that we communicate very well with clients when working on these cases, to ensure they know what we can and cannot do for their horse, and how dental corrections are often only a small part of maintaining a healthy geriatric horse. You need to show them how grinding ability may be reduced or even absent. Explain how the diet may need to be a specific old horse diet, such as Gumnuts, Old Timer or Senior, and how this diet’s formulation may even help reduce signs of cushings etc. The horse still needs plentiful amount of fibre, but the fibre needs to be fed in a chopped up or chaffed form, and preferably dampened or even wet, so the horse can swallow it easier.

In cold climates, winter time may make the old horse less willing to drink, as disease dentine and gingival are more sensitive to cold water. Thus offering of tepid warm water to the old horse on cold winters mornings can be a worthwhile exercise.

Finally, if appropriate, gently alert the owner that most of the dental problems in old horses can be prevented at best, or substantially delayed in their onset, had the old
horse received proper dental care throughout its life! This awareness is necessary to help reduce the incidence of dental disease, as has occurred in humans through education and awareness.