

# Evolutions in equine dentistry

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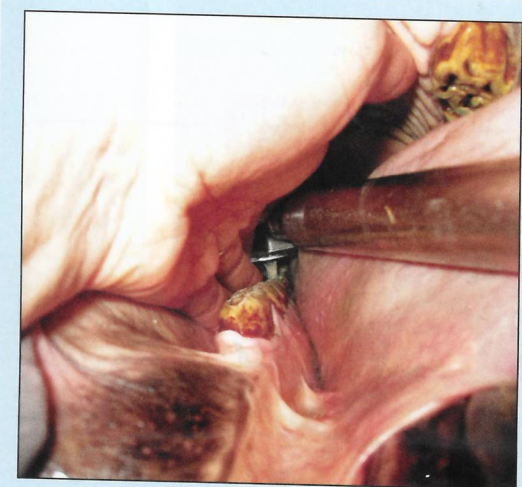
Unfortunately, despite recent advances, evidence-based medicine regarding the most appropriate prophylactic and therapeutic approaches are still limited, although the field is developing rapidly. William Youatt's quote from 1831 probably still holds true in a lot of circumstances: "Of the diseases of the teeth in the horse we know little" (Easley, 2011). This was certainly true of my personal knowledge when I graduated.

It is likely horses were first ridden around 1000BC in Asia, which probably inspired horsemen of the era to try to maintain their health. Even today, as the role of horses has changed during the 20th century, increasing amounts of research have been invested in equine medicine.

## Mouth gags

Records from 400BC and 300BC contain some information regarding ageing of horses using teeth and then in the Roman era, between approximately 400AD and 500AD, further texts describe teeth and jaw pathologies, ageing and periodontal disease (Easley, 2011). Identification of periodontal lesions suggests the authors were able to examine inside the horse's mouth.

By the 12th century, equine education was led by the Arabs. In approximately 1200, Abou Bekr's text had evidence of mouth gags to aid teeth extractions and breaking of long molars (Fahrenkrug, 2005). In 1250 the text *Equine Medicine*, created by Johannes Ruffus in Sicily (Easley, 2011), was the first to document



Diastema widening is a category 3 procedure.

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## Practice Notes



the practice of "bishoping", where horses were made to appear younger by altering the appearance of their incisor arcades. This practice continued to be known even into the 20th century.

During the 16th century, descriptions of treating diseases such as "lampas" (where swelling occurs in a young horse's palate) were established in medical texts (Easley, 2011). "Lampas" is still occasionally spoken of by some older generation equestrians, which shows how established these texts and the power of tradition is, yet it is a physiological condition and part of the normal growth process.

During the 18th century, horsemen would have the tissue cauterised or incised. Even though some clinicians recognised this as a physiological condition, they would be pressurised into treating it – perhaps this tendency to provide treatment to appease owners is still resorted to occasionally in today's era.

Wolf teeth were also removed using a variety of chisels, mallets and gouges as they were recognised to be problematic to the horse; unfortunately, these problems included blindness or "madness" rather than the biting problems we now associate with wolf teeth. Even in recent years, instrumentation for removal of wolf teeth has been improved with the routine use of elevators and increasing numbers of clinicians using local anaesthetic techniques in combination with sedation (Griffin, 2009).

Traditionally, farriers would

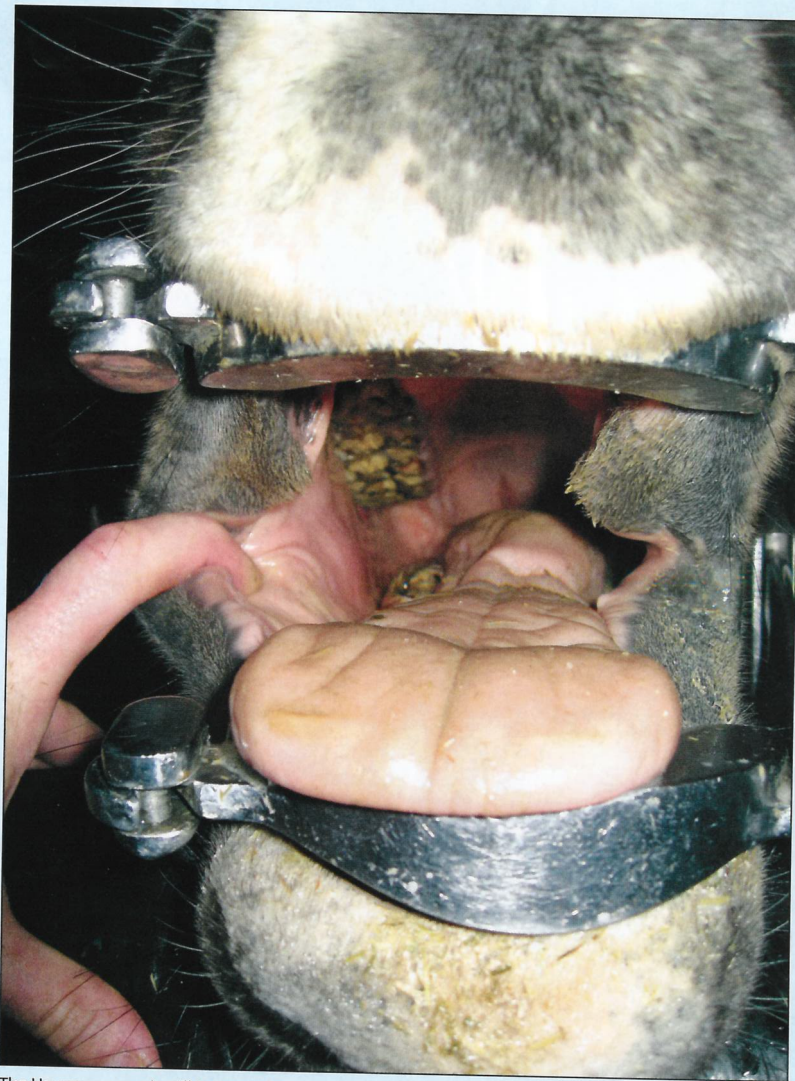
have been responsible for treating dental problems and some of the tools they used, including sliding chisels and molar cutters, were still in use during the 20th century. Carefully hunting through the oldest of the practice cupboards will probably still reveal some of these oddities, although hopefully, they have not been in use for a few years.

## Farrier's role

During the 18th century, science, rather than folklore and superstition, came to the forefront of medicine and the first veterinary school opened in Lyon, France in 1762. This improved the veterinary knowledge available at the time, although farriers were still largely responsible for practising of veterinary medicine. Even at this time, equine dentistry was not considered of great import and didn't feature prominently in the taught material.

In 1805, the first report of tooth repulsion is provided by a professor called Hayemann of Hanover's veterinary school (Fahrenkrug, 2005). The description includes cutting the skin, chiselling away the bone and then repulsing the tooth using an iron punch and hammer – not dissimilar to repulsion techniques that are still occasionally used today, nearly 200 years later. Thankfully, newly described techniques including oral extraction, buccotomy techniques and minimally invasive transbuccal extraction techniques have reduced the complication rates of tooth extraction. During the 1800s, the development of floats, gags and extraction instruments were commissioned (Fahrenkrug, 2005). The principle of many of these instruments has probably changed little in the intervening years and many of our tools are modernised versions.

Veterinary education was established later in the US with the first veterinary school opening in 1875, which further advanced knowledge and available instrumentation. In 1889, we see the first reports of filling teeth (Easley, 2011), which would suggest "endodontics" is much less of a novel treatment than we would have owners believe. The



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Hausmann gag was first invented in 1895 in Chicago (Fahrenkrug 2005), and an improved version is still found in most equine veterinary surgeons' cars today. Extraction forceps from the 1900s would also still be easily recognisable as such.

## Ageing by teeth

The 1800s also saw renewed importance given to ageing horses by the appearance of their incisors. Although ageing by dentition is now known to lack accuracy, it is surprising how precise these authors could be. Oscar R Gleason wrote a wonderful poem in 1892 that described the timing of the first incisors, the appearance of the permanent incisors and the infundibula and pulp cavities of the permanent dentition (Easley, 2011). Excerpts of this poem certainly serve as a good reminder for me.

### Remember this to tell the age of horses

*Two middle "nippers" you behold  
Before the colt is two weeks old.  
Before eight weeks, two more will come;  
Eight months, the "corners" cut the gums.*

*At two, the middle "nippers" drop;  
At three, the second pair can't stop.  
When four years old, the third pair goes;  
At five a full new set he shows.*

*The deep black spots will pass from view  
At six years, from the middle two.  
The second pair at seven years;  
At eight the spot each "corner" clears.*

Gleason, 1892

In 1906, *Animal Dentistry and Diseases of the Mouth* by L A Merillat was published. This pioneering text recognised the treatment of enamel points, extractions, biting problems and nasal discharge due to dental disease (Easley, 2011). Despite this text, equine dentistry was viewed as a job that was inappropriate for highly trained veterinarians and, unfortunately, this view has persisted for many years. Even in today's society, conflict remains between vets and lay practitioners, whether that is manipulators, dental technicians or other forms of healers.

An early indication of den-

tistry for the improvement of performance probably dated to the late 1800s when a professor called J A Ryder in New York reduced the first lower molars so they were not in apposition with the upper molars for horses that pulled on the bit (Easley, 2011). Perhaps this was the first documented case of "bit seating" that was so fashionable in the late 1990s and early 2000s. We still use this today, although the floating of these teeth is much less aggressive as we aim for rostral profiling of the lower 06s.

With the discovery of bacteria, barbiturates and anaesthesia in the early 20th century, veterinary surgeons were able to further advance their knowledge and treatment of diseases. In 1915, the US army equine dental kit contained a Hausmann gag with interchangeable plates, floats, elevators and forceps, and was broadly recognisable as a manual dental kit of today.

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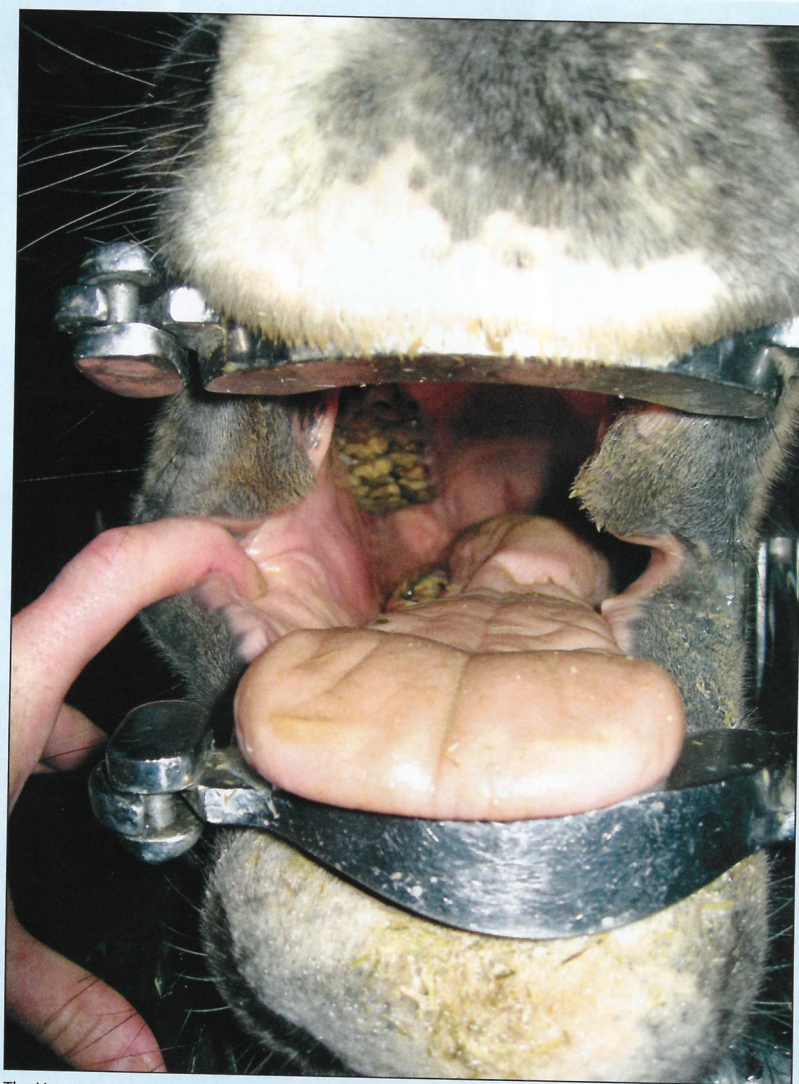
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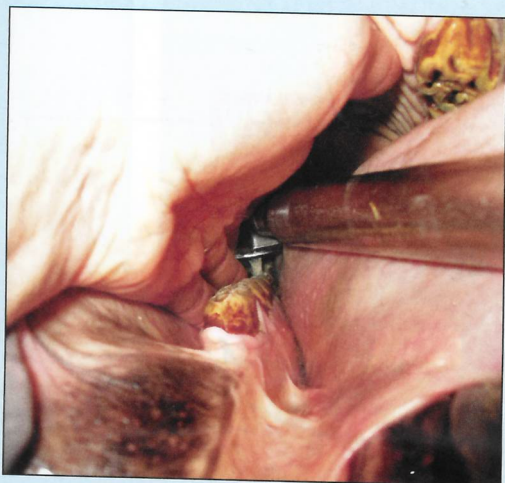
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age. Perhaps this exceeds the ingenuity of some motorised dental equipment today as we still have to be so careful of overheating tooth enamel and very few systems use water cooling. At present, most of us achieve cooling with a bucket of water and a dental syringe.

During the second half of the 20th century, horses have been increasingly used as sport and leisure animals rather than working machines and the veterinary profession has changed to meet these new demands.

During the 1970s and 1980s, standing sedation became increasingly common, as did new instrumentation. Ultimately, power tools were commercially available in the 1980s and 1990s. Unfortunately, the improved hardware was not matched by

widespread understanding of the subject at this time and much of the knowledge was based on historical texts and observations. The mid-1990s saw an upsurge in research and knowledge of equine dentistry, primarily led by Paddy Dixon at the University of Edinburgh (Easley, 2011).

From the beginning of the 21st century, we have been lucky enough to have dramatically improved power tools and diagnostic imaging techniques, including the recently described technique of CT on a standing sedated equine. This has been matched by increasing amounts of research that has allowed us to base our techniques more on evidence-based medicine rather than folklore and anecdotal information.

Evolving routine treatments

and surgical techniques, together with improved sedatives and use of local anaesthetics, are allowing us to maintain healthier dentition in horses and treat previously untreatable conditions. The biggest emerging dental field is probably endodontic treatment of carious lesions. Although these techniques are still in their relative infancy, they seem to have very good success rates for tooth restoration.

Advances have also been seen in the regulation of equine dental treatment and thanks to the combined efforts of BEVA, the British Veterinary Dental Association and the British Association of Equine Dental Technicians, the untrained layperson who touts himself or herself as an equine dentist is becoming a

rarity rather than the norm. These governing bodies have come to a consensus regarding equine dentistry, although this is continually reviewed.

The most recent statement on the BEVA website categorises different dental procedures (BEVA, 2009). Category 1 procedures include manual reduction of points and small overgrowths, and removal of loose "caps" and any calculus. These can be completed by trained individuals without any specific qualifications.

Category 2 procedures include use of motorised dental equipment for points and overgrowths, removal of loose teeth or fragments and associated palliative rasping and removal of erupted and non-displaced wolf teeth under direct and continuous veterinary supervi-

sion. These can be completed by an equine dental technician who holds an approved qualification without concern of prosecution, although this list includes acts of veterinary surgery.

Category 3 procedures are the exclusive domain of veterinary surgeons and include removal of unerupted wolf teeth, diastemata widening, endodontics and any other dental procedures, including novel treatments.

As knowledge and research continues to grow within this field, equine dentistry is likely to become an increasingly specialised area, which can only benefit the horse's future welfare.

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graduated from Edinburgh in 2003. After starting work in a mixed practice in Fife, she then specialised in equine work and now works at Ashbrook Equine Hospital. She gained her Certificate in Equine Practice in 2009 and has special interests in orthopaedics and performance-related problems.



## Campaign wants more allergy tests

**VETS who signed up to be part of the first Pet Allergy Week (PAW) are being encouraged to keep sending in their PAW allergy tests.**

Avacta Animal Health launched the initiative in a bid to drive consumer awareness and encourage more people to talk to vets about allergens that could be affecting the nation's pets.

Hundreds of practices across the UK signed up, receiving PAW practice packs, including waiting room materials and literature.

Practices could also apply for subsidised allergy tests. Avacta was so overwhelmed by the number of practices wanting to join in, it has extended the deadline until July 3.

Commercial manager Hayley Booth said: "We are thrilled by the veterinary profession's interest and support for the first Pet Allergy Week; we're already looking forward to next year's campaign."

She added: "We're encouraging veterinary practices who signed up to keep sending in their PAW allergy tests. We don't want anyone to miss out. Please keep sending them in - the message is still strong and our work continues regardless. Make sure the JUNEPAW1 stickers are attached to their submission forms. Any received before July 3 with the sticker attached will benefit from the discounted rate."

## Weighty challenge

**SOME of the UK's most obese animals have weighed in for PDSA's annual pet slimming competition, Pet Fit Club.**

The 17 contestants, which are carrying 32 stone in excess weight between them, include a Rottweiler that weighs nearly 13 stone, a cat that is double the size it should be and a cocker spaniel that is carrying so much flab it's been mistaken for a panda by foreign tourists.

The PDSA Animal Wellbeing (PAW) Report revealed 80 per cent of veterinary pro-

fessionals saw an increase in pet obesity cases during the past two years, with obesity named as the number one concern among vets when it came to dogs.

Nearly half of pet owners surveyed were not aware obesity was a major issue. This, PDSA says, is a big concern, given 80 per cent of vets and vet nurses believe there will be more overweight pets than healthy weight pets in five years' time.

For details about the pet finalists, visit [www.petfitclub.org.uk](http://www.petfitclub.org.uk)

## Two for one congresses

**PRACTITIONERS can buy one ticket and access a range of CPD events at BEVA Congress 2015 and BSAVA Congress 2016.**

Vets can save by purchasing a single ticket that allows access to BEVA Congress, which runs from September 9 to 12, and next year's BSAVA Congress, from April 7 and 10.

Vets who book before August 5 will benefit from a discounted ticket to BEVA Congress at Liverpool's Arena Convention Centre. The programme, which will include leading international specialists, is spread over three days and comprises more than 90 hours of CPD lectures on 20 different aspects of world-class science, innovation and day-to-day practical veterinary medicine and surgery.


For more information, visit [www.beva.org.uk](http://www.beva.org.uk)

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