Controversial Topics in Equine Dentistry

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Key Points

1) Removal of wolf teeth in the horse dates back many hundred years. Some veterinarians profess that owner/trainer pressure is the most common indication for removal.

2) "Bit seats" is a term commonly used to describe the rounding of the first upper and lower cheek tooth of the horse to aid in bitting. Pros and cons of creating bit seats will be discussed.

3) Transverse ridges of enamel extending the bucco-lingual direction across the occlusal surface of the tooth also referred to as excessive transverse ridges, accentuated transverse ridges, exaggerated transverse ridges, have received attention recently. Normal and abnormal dental transverse ridges play a positive or negative role in the horse's mastication and performance.

4) Incisor reductions have become a popular dental procedure since their first introduction approximately 15 years ago.

5) Infundibular caries are common in the upper cheek teeth. There are challenges in properly diagnosing and treating this problem.

Overview

"Wolf tooth" is the common term used to describe the rudimentary brachydont first upper premolars in the horse. These teeth are present in 80% or better of Thoroughbred and Saddlebred yearlings seen in this practice. Many (20-40%) of these teeth are exfoliated when the deciduous second premolar caps are shed (506, 606). This occurs at about 2.5 years of age.

The role of wolf teeth in causing dental discomfort has been widely debated. Tradition and client/trainer pressure have been proposed as the most common indication for extraction. There are times when extraction of wolf teeth is therapeutic. Debate is ongoing (and will be continued at this conference) as to the pros and cons of extraction as a prophylactic procedure in the performance horse. In my view there is little or no harm in removing wolf teeth and the potential benefit is considerable. If wolf teeth interfere with bitting then the horse can become very irritated and difficult to ride. Since the horse is a prey animal it often does not take much irritation from the bridle to "set the horse off" and not cooperate with the rider.

"Bit seats" is a term recently coined to describe the rounding of the first cheek teeth to reduce enamel points and contour the teeth to decrease cheek pressure. The technique was described over 100 years ago by Merillat.

A recent clinical study on 20 horses pointed to an improved perception of athletic performance and responsiveness to the bit after dental floating. This response was then enhanced by forming bit seats.

Controversy still exists as to the degree to which the crown of the molar should be reduced. Complications have been seen in horses that have had excessive bit seats created and the frontl pulp horn of the first upper cheek tooth (front premolar tooth) exposed. Any type of dental tool if overused has the potential to damage dentin tubules and odontoblast processes. Coarse tungsten carbide float blades have been shown via electron microscopy to severely damage dental crown structures. Diamond burrs are less abrasive and tend to have a more gentle effect on the tooth structures during reduction of excessive humps and bumps on the teeth. Floating with power equipment is the much preferred technique because small amounts of tooth material can be removed at a time without rough abrasive activity that can occur with hand floats. Smooth diamond coated discs running at high rpms are far less invasive than hand float blades that are made of a more coarse tungsten carbide cutting surface.

Transverse ridges running in a tongue to cheek direction across the chewing surface of the cheek teeth should be grouped in several categories: 1) regular accentuated transverse ridges of young and middle-aged horses (2-8 years), 2) regular or irregular exaggerated transverse ridges of young and middle-aged horses (2-8 years), 3) irregular accentuated transverse ridges, and 4) isolated transverse ridges.

Regular accentuated transverse ridges (RATR) are a normal dental feature in 75-80% of horses between 2-8 years of age. These ridges form in the lopes of enamel that traverse the occlusal surface of the tooth. They are always adjacent to and never communicate with the buccal or lingual cingula from which the enamel points form. They serve a purpose in increasing the surface area for mastication in the young growing and athletic horse.

Exaggerated transverse ridges (ETR) are always abnormal and may or may not form in the area of the arcade associated with a buccal or lingual cingula.

Irregular accentuated transverse ridges (IATR) form in young or older horses that have rostro-caudal molar table malocclusions. These ridges can also form secondary to abnormal mastication.

Isolated exaggerated transverse ridges (IETR) can be isolated ridges running bucco-lingual across the occlusal surface of the cheek teeth. These ridges are usually associated with a diastema, fractured crown or displacement in the dental opposing arcade. The ridges may actually progress to become step mouth.

Incisor (Front teeth) reduction or realignment has received a great deal of attention in recent years. Because of their position at the front of the mouth the equine incisors are amenable to full visual examination. Rucker (1996) suggested that 10-20% of horses that require rasping of cheek teeth overgrowths also require their incisors rasped. Recent studies by Dixon et al (1999) recognized such a need in only 5% of the referred cases with advanced cheek teeth overgrowths. In 88% of these complete clinical improvement was made.

In reviewing recent videotapes of the chewing cycle, there is a front to back component to the otherwise elliptical chewing cycle. This type of motion cannot be duplicated by manually moving the

mandible. The combined chewing surface area of all 24 cheek teeth in mature horses and ponies was found to be 10-15 times greater than that of the combined incisor occlusal (chewing surface) surface area. The incisors have been shown to be largely composed of Type 2 enamel which is less resistant to wear in comparison to Type 1 enamel, the main enamel component of cheek teeth. With these factors in mind, we will look at the indications for incisor reduction or rehabilitation.

Infundibular anatomy (Cups in the cheek teeth filled with cement) and development of the upper cheek teeth are complex processes. The invaginations of enamel develop as the crown forms with the root area closing at about the time of tooth eruption. The cement lake in the cups receives its blood supply from the chewing surface part of the tooth while it develops as a baby tooth prior to eruption. Teeth that develop the condition described as infundibular caries or open infundibulums are malformed teeth to start with. This accounts for the fact that many of these problems are on both sides of the mouth and often affect multiple teeth in the same animal.

Oral examination only, allows visualization of the chewing surface of the infundibulum. Digital x-rays can help with imaging the internal architecture of the teeth. Thorough examinations and are needed before we can advise clients regarding treatment options.

Summary

With increased emphasis on equine dental disease and care, controversial topics are continually being created. Wolf tooth extraction, creation of bit seats, the presence and treatment of transverse ridges and incisor reduction and filling infundibular caries are only a few contentious equine dental categories. New treatments continue to stimulate further discussion for future studies and improved care.

References and Suggested Reading Materials

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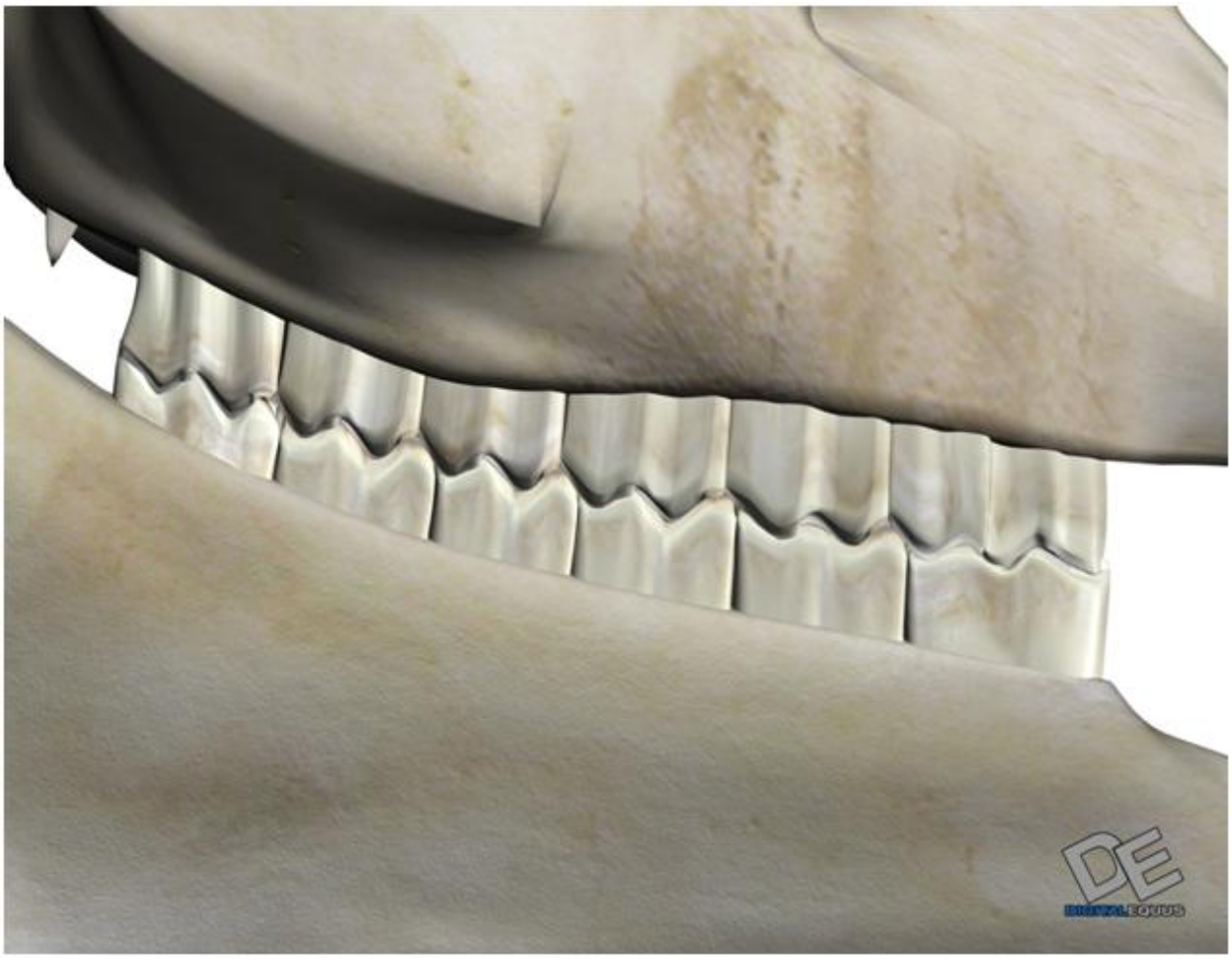

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