How to Identify and Extract Blind Wolf Teeth

Ashton Broman, DVM

Author’s address: Rood and Riddle Equine Hospital, 2150 Georgetown Road, Lexington, KY 40511; e-mail: abroman@roodandriddle.com. © 2021 AAEP.

1. Introduction

The first premolar (Triadan -05), otherwise referred to as a wolf tooth, is a vestigial tooth not typically associated with mastication.2 Traditionally, wolf teeth have been extracted, although the necessity of extraction has been debated. While wolf teeth are often positioned directly rostral to the second premolar (Triadan -06), they can be found anywhere along the bar (Fig. 1).2 Occasionally, a wolf tooth will develop in a more mesially (rostrally) tipped or horizontal plane, as opposed to the normal vertical orientation, within the alveolus, resulting in a blind or nonerupted wolf tooth.3 These can also be palpated anywhere along the bars; care should be taken in mares not to mistake nonerupted canines for blind wolf teeth. Depending on a horse’s use, blind wolf teeth can be associated with biting problems and can lead to head tossing, resistance to pressure with the bit, and general discomfort when being ridden.4 In these instances, the nonerupted wolf teeth require extraction, which can be difficult due to lack of visualization, abnormal positioning in the alveolus, and amount of tissue overlaying the tooth. At Rood and Riddle Equine Hospital over a 5-year period (2015–2020), wolf tooth extractions were performed on 1185 horses, and of those, 28 (2.4%) had blind wolf teeth. These horses were identified from a complete oral exam on a horse with only one visible wolf tooth or a history of biting problems. For those horses with reported biting problems who were later found to have a blind wolf tooth at the point of bit contact, extraction of the nonerupted tooth resolved the clinical signs.

2. Materials and Methods

It is important to obtain a detailed history from the client. The patient should be well sedated—the author uses detomidine hydrochloride (0.01–0.02 mg/kg IV)—and well restrained in stocks or in a stall. Once the patient is sedated, a dental speculum should be placed to maintain the safety of the practitioner and allow for proper visualization of the entire oral cavity. Using an appropriate light source, perform a complete oral exam including a visual inspection of the oral cavity and also manual palpation of the bars. This is especially important in horses with a history of biting problems to differentiate causes of biting pain such as a blind wolf tooth versus osteitis or bruising along the bar. If performing a routine wolf tooth extraction and only visualizing one erupted wolf tooth, always palpate along the opposing bar to determine the presence of a blind wolf tooth. Once a blind wolf tooth has been identified on palpation, it is important to obtain radiographs to show the positioning of the tooth within the alveolus. As stated above, these wolf teeth often are nonerupted due to a more...
horizontal position within the alveolus. Analyzing the position of the tooth along the bar and within the alveolus via radiographs is important for planning the placement of the wolf tooth elevators (Fig. 2).

Extraction Supplies (Fig. 3)

- 2% lidocaine
- 10cc syringe (regular or luer lock tip)
- 21ga butterfly catheter
- #10 scalpel blade
- Wolf tooth elevators (the author uses long handled half circle offset wolf tooth elevators. The offset angle of the elevators corresponds to the width of the maxilla, allowing for a more direct approach to the wolf tooth.)

Extraction Procedure

1. Palpate the location of the blind wolf tooth.
2. Using a 10cc syringe with 2% lidocaine and an attached 21ga butterfly catheter, perform a local block of the mucosa directly adjacent to the blind wolf tooth, forming a small bleb with 2 to 3 mL of 2% lidocaine (Fig. 4). Infuse an additional 2 to 3 mL local anesthetic along the periosteum on the buccal aspect (Fig. 5).
3. Holding the scalpel in a bumper press method to control the depth of the incision, make a stab incision through the mucosa directly over the rostral aspect of the blind wolf tooth, inserting until contacting the tooth (Fig. 6).
4. Place the wolf tooth elevator at the rostral and dorsal aspect between the tooth and alveolar bone at the appropriate angle as seen on the radiographs (Fig. 7). Applying steady gentle pressure distally, move the elevators in a dorsal to buccal arcing motion until the tooth is mobile. Once the tooth is sufficiently mobile, move the elevator in a larger arc from the buccal to the mesial aspect of the tooth to luxate the tooth out of the alveolus and through the stab incision. If the tooth is too large, the incision can be extended slightly to allow the tooth to be removed.

3. Discussion

Blind wolf teeth can cause extreme discomfort in the bitted performance horse and frustration for owners and trainers. Knowledge about the proper approach to identifying and extracting these teeth can give the general equine practitioner the tools necessary to address these problem horses. While radiographs are not required to manage these cases, they are highly recommended, especially when performing these extractions for the first time. Utilizing dental radiographs for extraction planning can reduce the risk of complications and allow the practitioner to be more efficient when performing this procedure. The above extraction procedure details the process for extracting blind maxillary wolf teeth as these are more common. The procedure is the same to extract a blind mandibular wolf tooth, manipulating the wolf tooth extractors from the ventral aspect of the tooth in a buccal to lingual motion. As with all extractions, there are risks of complications including fractured roots, laceration of the greater palatine artery, laceration of the mucosa, and fracture of alveolar bone. The lack of visualization and abnormal position of the tooth inherently make these extractions more complicated. Fracture of the tooth can occur if excessive force is applied to the tooth prior to appropriate loosening of the periodontal ligament or in mature horses in which ankylosis of the root is more common. If the root fragment is below the gingival margin and cannot be palpated, the fragment can often remain without complication. If the fragment extends beyond the alveolar bone, it can irritate soft tissues and cause even more discomfort when bitted, so all care should be taken to extract the remaining fragment. Laceration of the greater palatine artery can occur when extracting wolf teeth, especially when displaced palatally. It is important to maintain control of the tip of the elevator to prevent slippage off the palatal aspect of the bone or inadvertently if the patient moves during the extraction. This can be avoided by placing the elevator along the distal or buccal margins of the tooth and only moving the elevator in an arc from the buccal to the mesial aspects of the tooth until the tooth is appropriately loosened. The incision made through the mucosa should only be large

Fig. 5. Block the periosteum along the buccal aspect of the bone.

Fig. 6. Using the bumper press method, make a stab incision at the rostral aspect of the blind wolf tooth, inserting the scalpel until contacting the tooth.

Fig. 7. The elevator should be placed at the rostral and dorsal aspect between the tooth and alveolar bone.
enough to allow the tooth to luxate out of the alveolus. If the incision is larger than desired or the elevator has slipped during the procedure and lacerated through the mucosa, sutures can be placed across the incision to prevent excessive feed contamination of the extraction site. Lastly, after extraction, palpate the margin of the alveolar bone to ensure there are no loose pieces of bone that could result in a sequestrum and be sure to smooth any rough bony edges to prevent soft tissue irritation or pain post-operatively. Post-operative care is minimal; a nonsteroidal anti-inflammatory can be given for 2 to 3 days, and refrain from placing a bit in the mouth for 3 to 5 days to allow for healing. Antibiotics are not warranted unless a secondary complication arises.

4. Summary

Extraction of blind wolf teeth can be performed successfully in a farm setting on a standing patient with proper chemical and physical restraint, local analgesia, and appropriate extraction equipment.

Acknowledgments

Declaration of Ethics

The Author has adhered to the Principle of Veterinary Medical Ethics of the AVMA.

Conflict of Interest

The Author has no conflicts of interest.

References and Footnote


"Veterinary Dental Products, LLC., Elmwood, WI 54740."