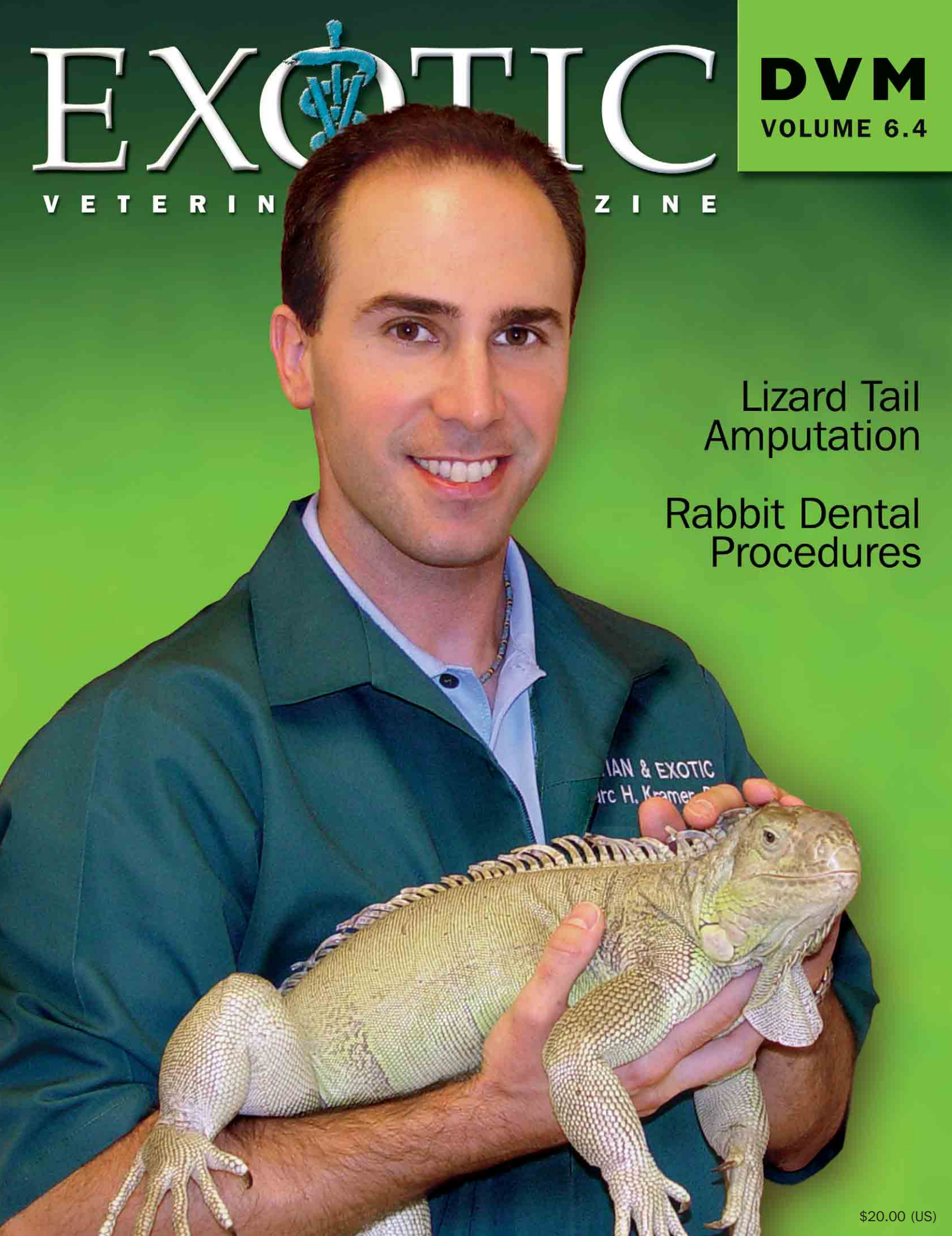
EXOTIC VETERINARIAN MAGAZINE

DVM
VOLUME 6.4

Lizard Tail Amputation

Rabbit Dental Procedures



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EXOTIC DVM
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Extraction of Incisor Teeth in Pet Rabbits

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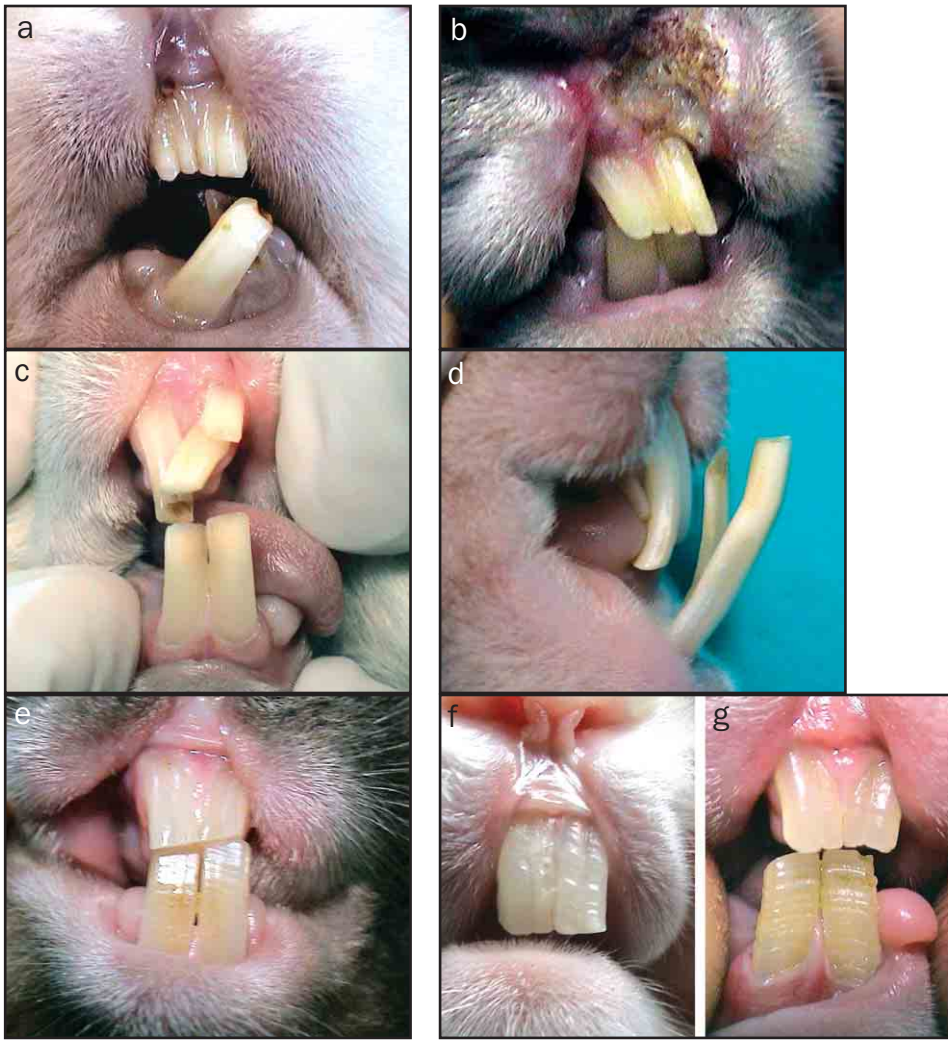
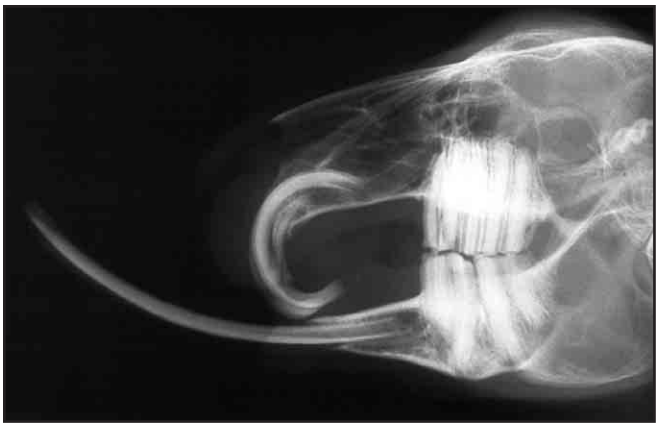
Malocclusion of Incisors



The primary indication for extraction of incisor teeth is malocclusion. This condition can be: **a)** congenital, such as in this 2-month-old rabbit; **b)** the result of a trauma-induced fracture (which may be suspected if injury to or healing of adjacent soft tissues is evident; **c)** due to the presence of an overgrown third main upper incisor, presumably formed due to disruption of the germinative tissue subsequent to trauma; **d)** due to severe prognathism of the mandible (or brachygnathism of the maxilla), frequent in dwarf breeds; or **e)** following malocclusion of the cheek teeth causing abnormal and asymmetrical chewing. **f,g)** Early signs of metabolic bone disease and demineralization of dentin include the appearance of transverse ridges on the surface of the incisors. This condition, though it may be improved with dietary changes, can result in severe malocclusion requiring extraction.



Radiograph showing severe malocclusion and overgrowth of incisors.

Resources at a Glance

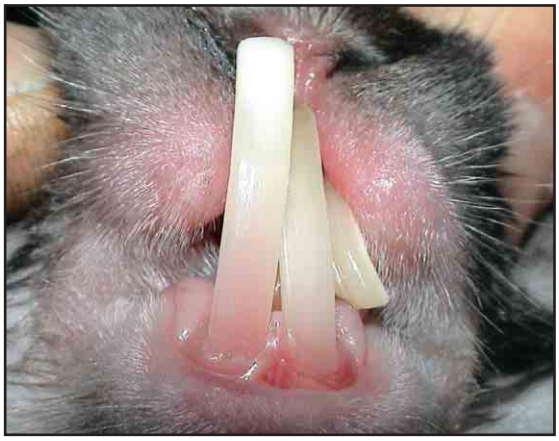
* Dental instrumentation - Sontec Instruments, Inc, Englewood, CO, www.sontecinstruments.com and Veterinary Instrumentation, Sheffield, UK, www.vetinst.com

Crossley's luxator for rabbit incisor teeth was designed to break down incisor periodontal ligaments. The two ends are flat, sharp and curved in two different directions for working with the upper and lower incisors.

In certain steps during the extraction, a properly contoured 18-gauge needle may be used instead of Crossley's luxator.

Cutting Incisors

A trimmer should not be used to cut incisors, and the owner should be discouraged from attempting this.

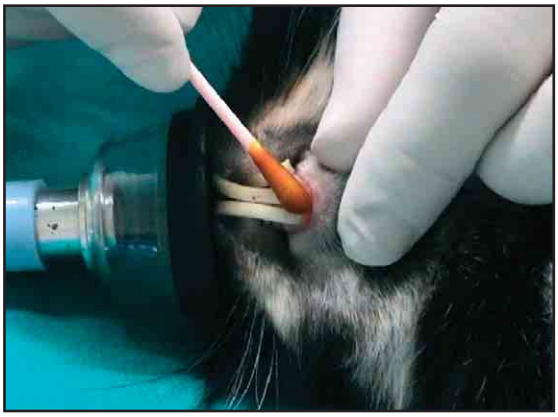


This procedure is painful, needs to be repeated very frequently (every 2-3 weeks) and does not address the disease process. Instead, frequent incisor trimming results in more rapid growth and vascularization.

Cutting incisors too short exposes the pulp and increases the risk of infection.

Severe incisor abnormalities, usually complicated by infection, are often inevitable sequelae to incisor trimming. In these cases, incisor extraction is much more difficult to perform.

Lower Incisor Extraction



1 The rabbit is anesthetized and placed in dorsal or dorsolateral recumbency. The gingiva is gently scrubbed with dilute povidone iodine or chlorhexidine.

2 The author prefers to begin by extracting the lower incisors first, but this sequence is not mandatory. The tip of an #11 scalpel blade is used to incise the rostral edge of the periodontal ligaments.

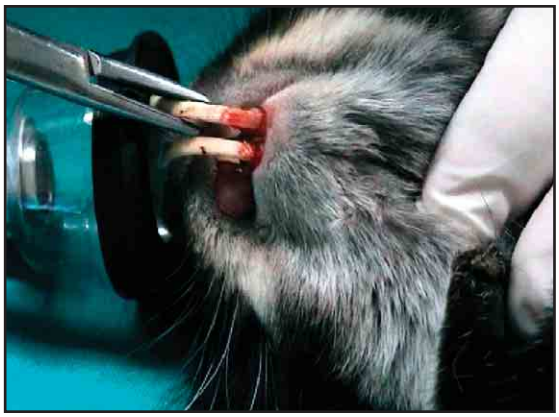
3 Crossley's luxator is inserted laterally and medially (as shown) between the gingiva and the incisor to transect the periodontal ligaments and free the tooth from the alveolus.

4 Alternatively, a contoured 18-gauge needle can be used to break down the periodontal ligaments. In the author's experience, the needle method is particularly useful in transecting the rostral and caudal aspects of the ligaments.

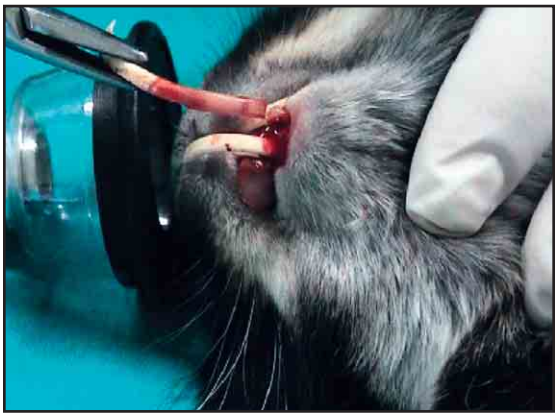
5 Before attempting to extract the tooth, the surgeon should confirm that the incisor is free of the periodontal ligament along its entire perimeter. During manipulation, the tooth should loosen.

6 The medial periodontal ligament is particularly well developed, so the surgeon must pay special attention to this area, which is also often the most difficult to access.

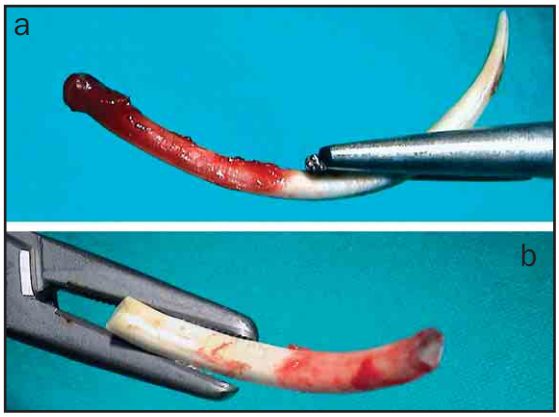
7 The lateral and medial sides of the incisor are grasped with extraction forceps. A needle holder of the proper size and strength can also be used for this purpose.



8 This step of the procedure is most critical because of the risk of iatrogenic fracture of the incisor. A steady, slowly-increasing extraction force should be applied along with careful rotation. The surgeon should not apply pressure on the forceps, or the tooth may fracture.



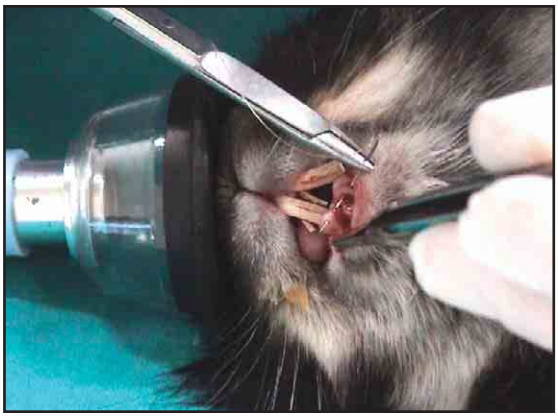
9 The tooth is gently extracted. If the periodontal ligament has been transected completely and correctly and if the tooth is not severely deformed, it should slip out without significant extraction force.



10 **a)** This incisor has been extracted along with complete germinative tissue visible at the tooth's apex. **b)** The germinative tissue of this incisor has remained in the alveolus, so the incisor apex appears empty.

11 After extraction, any in situ germinative tissue must be destroyed in order to reduce or prevent the risk of incomplete incisor regrowth. This is done by repeatedly inserting a needle into the alveolus.

12 The alveolar cavity is flushed with dilute povidone iodine or chlorhexidine solution. This step is particularly important when the incisor apex is infected.



13 The alveolus is closed with a purse string pattern using 3-0 or 4-0 absorbable suture. This is performed for cosmetic purposes and to prevent food from entering the alveolus. The alveolus should not be sutured in cases of infection.

14 The suture needs at least four points of fixation before being tightened. The cosmetic appearance improves slightly after 2-3 days.

Extraction of Upper Incisors

1 In the author's experience, a contoured needle is the best tool for transecting the periodontal ligaments associated with the rostral and caudal aspects of the upper incisors.

2 Crossley's luxator is useful for elevating the tooth from the medial and lateral aspects of the alveolus.

3 **a)** The tooth is grasped with a forceps or needle holder. Upper incisors are more resistant to extraction than lower ones due to the long curved root of the upper incisors. **b)** The extraction force must be applied in a curved direction. If applied in a straight manner, the tooth or the incisor bone may fracture. As the loosened tooth is being elevated, it is rotated laterally.

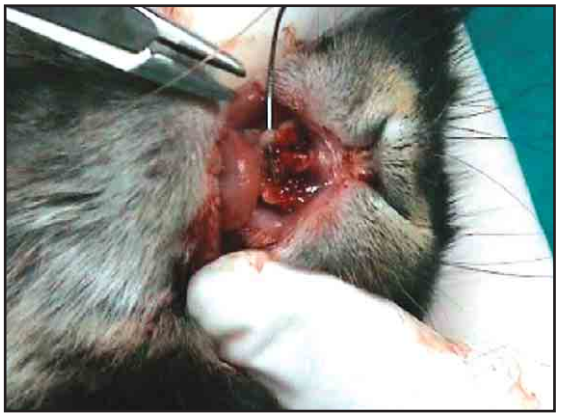
4 The tooth is completely extracted and examined for germinative tissue. The procedure is repeated on the other main upper incisor.

5 Bleeding is controlled with sterile cotton-tipped applicators.

6 A 22-gauge needle is used as a luxator to loosen the secondary incisors. These are easier to free from soft tissues but may be easily fractured.

7 After luxation, the secondary incisor is extracted using a small hemostat as an extraction forceps.

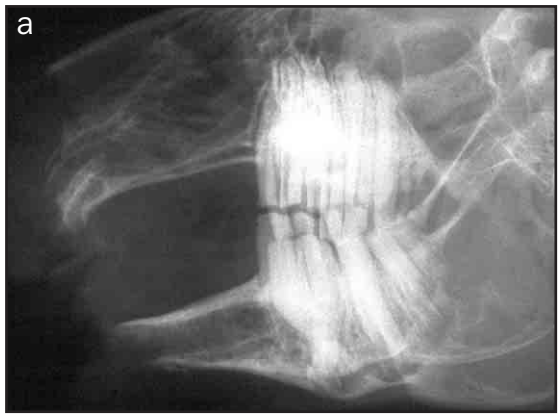
8 After extraction of all four upper incisors, the site is rinsed with dilute povidone iodine or chlorhexidine.



9 A purse string suture pattern using 3-0 or 4-0 absorbable material is used to close the alveolus for cosmetic purposes and to prevent food accumulation.

10 The suture needs to be fixed at a minimum of six points before being tightened. The cosmetic appearance improves slightly after 2-3 days.

11 Appearance of gingival sutures after the complete extraction of upper and lower incisors.



12 **a)** The control radiograph shows both upper and lower incisors extracted completely. **b)** Appearance of the gingival sutures 1 day after extraction of all incisors.

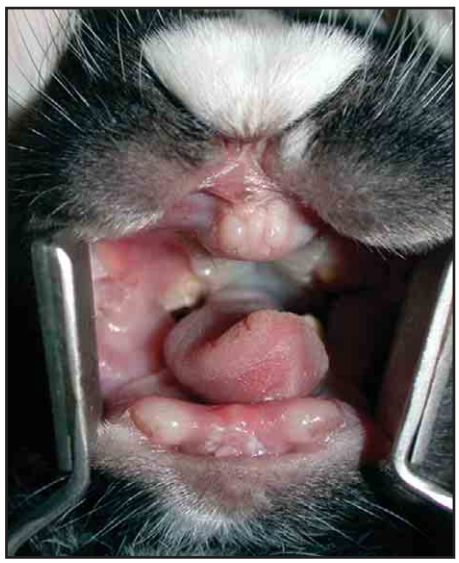


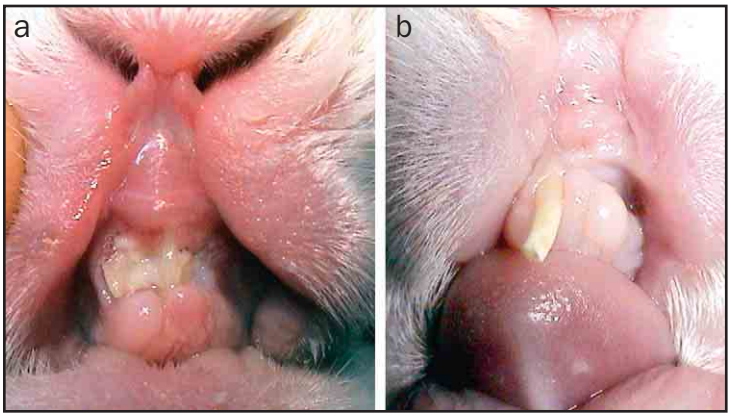
Photo courtesy of M. Gracis, DVM

13 Shown is the follow-up of the gingival healing two weeks after the extraction. The suture material has been reabsorbed or removed spontaneously after healing.

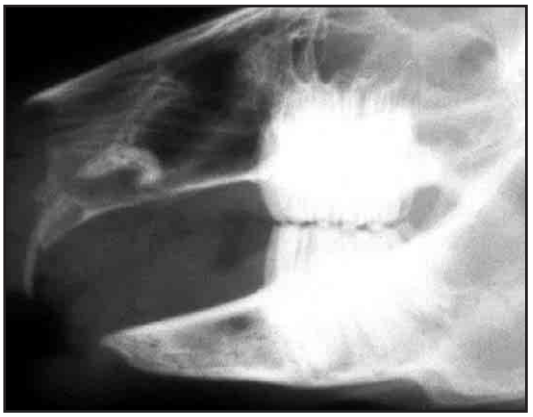
Complications

If luxation of the upper incisor has not been performed completely, or if the affected tooth has formed adhesions to the alveolar bone, a partial fracture of the incisor bone can occur.

Complications



a) Dehiscence of the upper gingival sutures can occur, but this can heal secondarily. **b)** The secondary upper incisors can partially regrow if the tooth has not been removed completely or if even a small amount of germinative tissue remains.



A radiograph shows partial regrowth of both a primary and secondary upper incisor after incomplete removal of germinative tissue. Primary incisors are rarely able to erupt again through the gum. A secondary incisor does not represent a problem and can be removed during the next scheduled anesthesia.

References and Further Reading

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2. Harcourt-Brown F: Surgical technique for incisor removal. *In* Harcourt-Brown F: Textbook of Rabbit Medicine. Oxford, UK, Butterworth-Heinemann imprint of Elsevier, 2002, pp 198-199.
3. Nelson WB: Rabbit dental care: Protocols for rabbit incisor extraction. Exotic DVM 2(4):12, 2000.