

Rabbit Dental Disease

“Rabbit Dental Problems” provides information on dental problems that are common in pet rabbits and treatment options that are available.

Rabbit Dental Disease- Diagnosis and Treatment Options (portions excerpted from 2003 International Conference on Exotics, Teresa L. Lightfoot DVM, DABVP-Avian)
First let's start with some rabbit dental anatomy

- Six upper cheek teeth (premolars and molars are identical in structure, so the designation 'check teeth' or CT, is used for both) and five lower CT.
- Six total incisors; four upper incisors (two primary incisors and 2 small secondary incisors or peg teeth) and two mandibular incisors.
- White enamel (as do guinea pigs – most other rodents have yellow to orange colored enamel on their incisors).
- Do not need to chew wood or other hard material to produce incisor wear – mandibular and maxillary incisors abrade one another during mastication, maintaining normal occlusal length.
- Apical portions (root equivalent) of the incisors of the mandible are anatomically associated with the apex of the first and second mandibular cheek teeth.
- Most mandibular check teeth are accessible extra-orally for extraction (unlike guinea pigs, where the masseter muscle covers the apical portion of the tooth roots).
- **Diphyodont** (two sets of teeth, not constantly replaced as in fish), **Heterodont** (having teeth with different morphologies), **Elodont** (constantly elongating), **Hypsodont** (high crowned enamel for grinding-like cows – opposite is brachyodont – such as squirrels and people), **Duplicidentata** (rabbit specific term – referring to the possession of two upper sets of incisors) Yahoo!!

Overgrowth of either or both the incisors and the molars of rabbits may occur.

Generally, primary incisor malocclusion is a congenital problem of dwarf breeds, which is manifest at a young age.

Older rabbits are more likely to have gradual overgrowth of the molars. This may be due to metabolic bone disease, insufficient dietary roughage, and/or periapical abscesses. Secondary incisor overgrowth then occurs when molar malalignment prevents normal incisor occlusion and wear.

Congenital or Traumatic Primary Incisor Malocclusion Treatment Options

1) Routine incisor trimming. The frequency of this trimming varies with the rabbit, but the interval between necessary trims decreases with age. The incisors tend to develop an exaggerated curvature, both in toward the mouth and laterally. Many owners start out choosing this option, but as the months and years go by and the need for trimming becomes more frequent, they may elect to have the incisors extracted.

2) Extraction of all six incisors (two lower, and four upper). This has been shown to be well tolerated in most rabbits, with the most common side effect (after the immediate post op period) being mild lip fold dermatitis. The length of the roots of the upper incisors makes it critical that all ligaments, especially those on the medial aspects, be completely severed prior to attempting

extraction. Skull radiographs should be taken in advance of extraction to detect any existing infection or anatomical abnormality. The radiographs will demonstrate the degree of curvature of the incisors. Extractions must be accomplished utilizing this angle so as not to fracture the incisors.

Post-operative pain medication and supportive care with parenteral fluids and syringe feeding are critical for the first 24-48 hours or until the rabbit is eating on its own.

Molar Malocclusion without Abscessation

Overgrown incisors in adult rabbits are usually the result of lack of wear due to molar malalignment. The most common presenting complaint is anorexia. The molars can overgrow considerably, causing oral and lingual ulcerations, inability to masticate and partial occlusion of the pharynx. Clinical signs indicative of potential molar occlusion problems include anorexia, "slobbers" (wetness of the chin and dewlap), and grinding of the teeth. Occasionally, there will be frank blood in the saliva.

The oral cavity is extremely small and visualization in the awake rabbit is difficult. Some animals will tolerate being held like a child sitting in an assistant's lap. Others are more docile when allowed to stand in a normal position on an examination table, with the veterinarian positioned at the level of the oral cavity. Some animals are too fractious or too painful to allow an oral examination while awake. Rabbits tolerate isoflurane and sevoflurane very well. If one is comfortable with inhalant anesthesia but not with restraint, it may be wise to mask the rabbit with isoflurane or sevoflurane rather than struggle with a fractious patient. Anti-anxiety and analgesic agents can be given pre-anesthesia, and occasionally will suffice alone for an oral examination.

Note: It is not necessary to identify all of the involved dentition on initial examination. If dental disease is present, sedation will be needed for treatment. A thorough examination can be done under anesthesia while obtaining skull radiographs and/or performing the molar trim. This author has found that the index finger inserted between the buccal mucosa and the molars can often palpate maxillary sharp edges without visualization.

Pathophysiology of Dental Disease and Facial Abscessation

The trend in the United States has been to feed a diet with less calcium in order to prevent calcium oxalate uroliths in rabbits. Research by Frances Harcourt-Brown of the U. K. indicates that calcium deficiency may add to or cause the bony lysis that predisposes these animals to dentition problems. This evidence, including the measurement of parathyroid hormone levels and Vitamin D levels in rabbit populations with various diets and environments, was quite remarkable and in keeping with the radiographic evidence of decreased bony density noted in affected rabbits. We may be inadvertently adding to the dental disease problems of rabbits by decreasing dietary calcium, especially in young rabbits. Other factors, such as insufficient roughage for normal dental occlusal wear; lack of access to both sunshine (normal UV for Vitamin D3 formation) and dietary natural grasses may be involved.

The anatomy of the rabbit lends itself to infection by extension. Additional predisposing or causative factors include: dental pathology, hematogenous infection with *Pasteurella*, or environmental infection with *Fusobacterium necrophorum*, *Pseudomonas* sp. or *Staph* sp. Due to the nature of rabbit pus and extensive capsule formation, complete surgical excision of facial abscesses can be difficult.

Mandibular Abscesses:

Mandibular molar abscessation is the most common facial abscess in rabbits. It appears in many cases to be secondary to previous MBD, subsequent incisor and/or cheek tooth instability and

eventual apical infection. The apex of the mandibular incisors lies in close proximity to the first and second mandibular cheek teeth.

Maxillary Abscesses:

There is a close association in rabbits of the maxillary tooth apices, maxillary sinus, nasolacrimal ducts, Eustachian tubes, lower respiratory tract and middle and inner ear. It is common to see older rabbits with multiple concurrent or recurrent infections related to this anatomical proximity and communication. Dacrocystitis, conjunctivitis, pneumonia, head tilt with radiographic evidence of bulla ossification and molar abscessation are all commonly related. In rabbits, a peculiar bone structure called the alveolar bulla occurs at the apex of the four distal (caudal) cheek teeth. When a periapical (tooth root) infection involves these cheek teeth, the alveolar bulla acts as a cavity that can fill with food debris, and pus. If the thin dorsal cortical bone of alveolar bulla is perforated, a true retrobulbar abscess occurs.

Rabbit abscesses differ considerably from abscesses in cats with respect to their presentation and treatment. Rabbit abscesses are usually not hot or painful and the animal is generally euthermic. The abscess itself does not seem to cause sufficient discomfort to affect the appetite. It is not until there are oral lacerations, or osteomyelitis, that rabbits become anorexic. Extensive capsule formation and associated mandibular osteomyelitis have often developed by the time treatment is attempted. Complete capsule resection is ideal, but is not always possible.

Options for Treatment of Tooth Related Facial Abscesses in Rabbits include:

1) Long term Antibiotics:

Lowest budget option. When finances are extremely limited and the rabbit is still eating or can be readily syringe fed, the use of antibiotics alone can often limit the abscess and its systemic effects.

2) *Lancing and minor debridement followed by the above.

3) Surgical excision of the abscess and capsule (often impossible to resect in toto)

4) Partial surgical excision of the abscess and capsule.

5) Skull radiographs to examine affected molars and bone, extraction of affected teeth (externally) and bone debridement as needed. In extensive cases, this may involve partial mandibulectomy, eye enucleation, etc. Skull radiographs identify affected apices and the extent of osteomyelitis. All affected teeth and the associated periapical debris and necrotic bone must be removed if a cure is sought

If inanition has been a problem (and it is often the presenting complaint) then the patient should not be released until it has returned to eating or the owner can accomplish syringe feeding at home. The owner may try the pet at home to see if the home environment stimulates its appetite. If not, syringe feeding and subcutaneous fluids should be administered to prevent further debilitation. Analgesia and anti-inflammatory agents remain important parts of the treatment.