

Diagnosis and Treatment of Dental Disease in Ferrets

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Abstract

Ferrets commonly present with dental disease. Principles of veterinary dentistry can be applied to diagnose and treat dental conditions in these animals. Common presentations include calculus, gingivitis, missing teeth, fractured teeth, necrotic teeth, periodontal disease, and dental abscesses. Regular dental cleaning and prophylaxis, along with home brushing, should be encouraged. Copyright 2008 Elsevier Inc. All rights reserved.

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Although small animal practitioners may be familiar with dental disease and oral health issues in dogs and cats, many do not provide the same thorough dental examinations and care for ferrets. Ferrets, as carnivores, develop many, if not all, of the common dental disorders as do dogs and cats. An oral examination should be included in all physical examinations, and at least annual prophylaxis provided. Owners can be taught how to care for their ferret's teeth at home, thereby providing prophylactic dental care to reduce the incidence of disease and oral discomfort.

Dentition and Oral Anatomy

The ferret is a strict carnivore and has teeth and jaw structure to accommodate such a diet (Fig 1). The jaws are short, with the articular condyle of the mandible fitting into a transverse articular fossa. This has a post-articular process that prevents dislocation on wide opening for a strong bite.¹ The tooth-bearing arcades of the jaws are approximately equal in length, but the mandibular arcade is narrower and fits medially to the maxillary arcade, typical of the anisognathic jaw (Fig 1, A-D). This allows for the shearing motion during chewing.

The domestic ferret has 28 to 30 deciduous teeth (DI3-4/3: DC1/1: DM3/3). The permanent dental

formula is I3/3: C1/1: PM3/3: M1/2 = 34. The 6 upper incisors are slightly longer than the 6 lower incisors, whereas the second incisors of the mandible are set back from the others. The mandibular canines close in front of the maxillary canines, thus the jaw demonstrates slight mandibular prognathism at rest. Although there are usually 4 premolars in Carnivora, only 3 are present in the ferret, because the first premolar has been lost in development. The fourth maxillary premolar is therefore the third cheek tooth (CT3) and is also called the carnassial tooth. It has 3 roots. There is a single molar in the maxillary arcade that has 3 roots and is wider in the buccolingual breadth compared with the mesiodistal length, making it appear to be rooted at right angles to the rest of the teeth. It has a narrow, depressed waist that separates its lingual side from the buccal side of the crown. There are 2 small cusps on the

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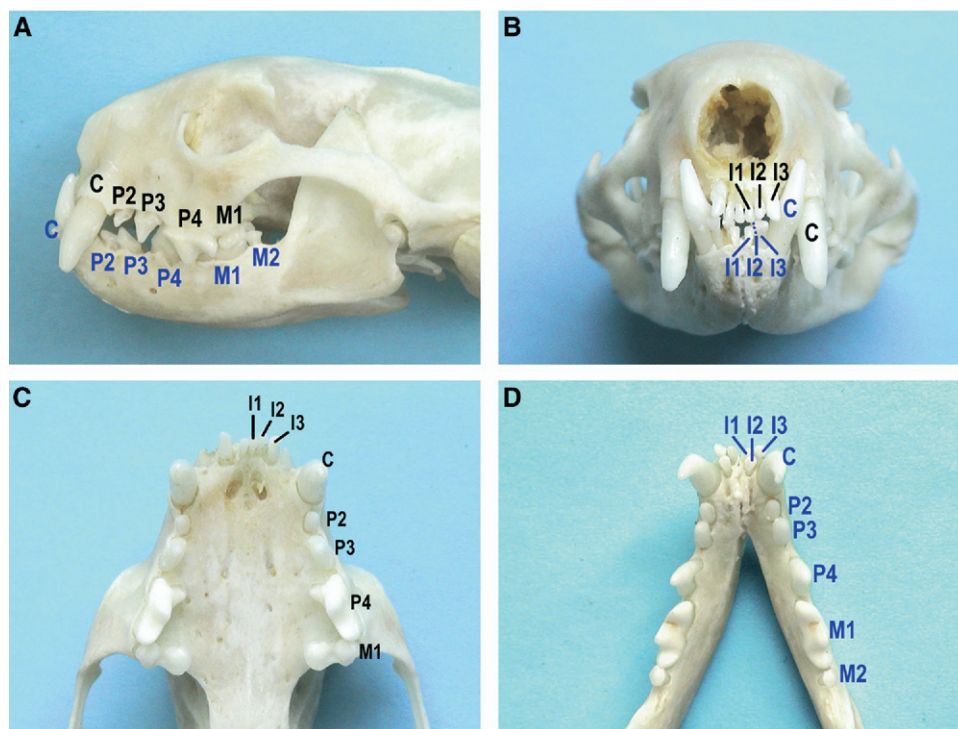


Figure 1. Dentition of the ferret. Note a number of dental abnormalities in this specimen, including malalignment of the incisors and blunting of the maxillary canine teeth. (A) Close-up of the dental arcades, lateral view. (B) Close-up of the dental arcades, rostral view. (C) Closeup of the maxillary arcades. Note the large carnassial tooth (fourth premolar or CT3) and the buccolingual direction of the molar tooth. (D) Close-up of the mandibular arcades. Note the large carnassial tooth (first molar or CT4) and that the second mandibular incisors are set back from the others. Courtesy of Vittorio Capello, DVM.

buccal part and a single cusp on the lingual part. The lone lingual cusp tooth may be overlooked in an oral examination of a conscious ferret because of its location. The mandibular carnassial tooth is the first molar (CT4). All living mustelids only have the first molar in the maxilla and both the first and second molars in the mandible.^{1,2} The crown of the first mandibular molar has 3 distinct cusps. Two form the blades of the carnassial, and the smaller, lower cusp in conjunction with the second molar interlocks with the cusps of the maxillary molar. The first mandibular molar has 2 roots, although sometimes there is an accessory slender central root present. The second mandibular molar is a small tooth with a single root and a simple crown with a minor ridge and cusplets.² It does not occlude with any maxillary teeth but helps with the crushing function for the caudal cusp of the first mandibular molar. Congenitally, the second mandibular molar may be missing in many pet ferrets. There is speculation that it is in the evolutionary process of becoming lost or vestigial as has happened in other carnivores.² Mustelids crush their food with the postcarnassial molars.

Ferrets have a relatively large oral cavity. The labial commissures extend farther caudally than the carnas-

sial teeth.¹ The orbicularis oris muscle is moderately well developed. The lower lip is closely attached to the mandibular gingiva, with little flexibility. The opening of the parotid duct is at the level of the maxillary carnassial tooth. The mandibular gland opens on a sublingual papilla and joins with several small ducts from the sublingual gland. The molar or buccal gland duct opens into the oral cavity just opposite the mandibular molars, whereas the zygomatic gland has several ducts opening opposite the maxillary cheek teeth.¹ Duct openings should be examined routinely during any oral examination or procedure.

Periodontal and gingival tissues and structures are similar to those of other carnivores. Oral flora, pH, and enzymes have not been characterized as they have in other species such as dogs. Using dog and cat dentistry guidelines for veterinary and home care appears to be relevant.

Dental Disease Conditions

As mentioned previously, there may be a congenitally-based lack of mandibular second molars. There may also be supernumerary teeth, most commonly found between the first and second maxillary incisors.²

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