Anatomy and Disorders of the Oral Cavity of Ferrets and Other Exotic Companion Carnivores

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KEYWORDS

• Ferrets • Dental disease • Oral disease • Exotic carnivores • Dental treatment

KEY POINTS

- Carnivore dental and oral anatomy is similar in the species discussed and the ferret serves as a model for description and function.
- Common carnivore dental diseases include plaque and calculus, malocclusion, tooth extrusion, wear, fractures, loss and necrosis, gingival hyperplasia, gingivitis and periodontal disease, and abscesses.
- Ferret oral disorders in addition to dental disease include cleft lips and/or palate, ulcers, fracture of the jaw, tonsillitis, salivary microliths and mucocele, and neoplasia.
- Dental care should include annual or biannual dental examination under anesthesia, and cleaning.
- Treatment of dental and oral disease in exotic carnivores is similar to that used in dogs and cats.

INTRODUCTION

Exotic carnivores share similar dental anatomy, function, and diseases. Dental and oral diseases are most commonly described in ferrets (*Mustela putorius furo*), which serve as the model for the rest of the category. Dog and cat dentistry guidelines for veterinary and home care seem to be relevant. Exotic carnivores seen in practice include skunks (*Mephitis mephitis*), fennec foxes (*Vulpes zerda*), and procyonids, including raccoons (*Procyon lotor*), coatimundis (*Nasua* sp) and kinkajous (*Potos flavus*). The most common dental and oral problems are plaque and calculus; teeth fractures; gingivitis and periodontitis; tooth loss caused by a variety of disease processes, such as malnutrition or renal disease; abscesses; and neoplasia. In ferrets, oral

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ulceration and tonsillitis are frequently seen and may accompany systemic disease, whereas salivary microliths and mucoceles are seen occasionally.

THE FERRET

Anatomy and Physiology

The ferret is a strict carnivore and has teeth and jaw structure to accommodate such a diet. It has 28 to 30 deciduous teeth 2(dI 3–4/3: dC 1/1: dM 3/3) (**Fig. 1**). The permanent dental formula is 2(I3/3: C1/1: P3/3: M1/2) = 34 (**Fig. 2**). The mandibular second molar is congenitally missing in some ferrets, which changes the formula to M1/1 = 32.[1] There is speculation that it is in the evolutionary process of becoming lost or vestigial, as has happened in other carnivores. There may also be supernumerary teeth, most commonly found between the first and second maxillary incisors.[2] The ferret, like other mammals, is diphyodont in having 2 distinct sets of teeth: deciduous and permanent.[1] The 3 maxillary incisor teeth of each quadrant are slightly longer than the 3 mandibular incisors. The second incisor of the mandible is set back from the others.[3] (**Fig. 3**A) The mandibular canines close rostrally to the maxillary canines.[3] (**Fig. 3**A, B). Although usually there are 4 premolars in Carnivora, only 3 are present in the ferret. The first premolar has been lost in development.[4] The last maxillary carnassial tooth is the fourth premolar. It has 3 roots.[5] There is a single molar in the maxillary arcade that has 3 roots. It 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 palatal side from the buccal side of the crown. There are 2 small cusps on the buccal part and a single cusp on the palatal part.[5] This tooth may be overlooked in an awake ferret examination because of its location. The large mandibular carnassial tooth is the first molar. The crown of the first mandibular molar has 3 distinct cusps. Two form the blades of the carnassial tooth. The smaller, lower, and distal cusp, in conjunction with the second molar, interlocks with the cusps of the maxillary molar during occlusion.[5] The first mandibular molar has 2 roots, although sometimes there is an accessory slender central root present. The second mandibular molar, if present, is a small tooth with a single root and a simple crown with a minor ridge and cusplets. It does not occlude with any

Fig. 1. A 2.5-month-old ferret before complete shedding of deciduous teeth. The smaller deciduous canine tooth, as well as the second and third thin deciduous molars, are still present. The first deciduous molar tooth has already shed. (*Courtesy of* Vittorio Capello, DVM, Milano, Italy; with permission.)