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DIAGNOSIS: TOOTH FRACTURE

Pets with fractured teeth require prompt treatment, whether or not the dental pulp is exposed.

By Brett Beckman, DVM, Diplomate American Veterinary Dental College

BECAUSE DOGS AND CATS WITH TOOTH FRACTURES don't usually exhibit pain, most fractured teeth do not present with obvious clinical signs. But even subtle fractures without pulp exposure, as well as cases of tooth discoloration, need dental radiography and subsequent therapy based on the radiographic findings.

For example, the patient in Figure 1 on pg. 5 has an uncomplicated crown fracture (UCF). The tooth's dentin is exposed to oral-cavity microbes (Figure 1, white arrow), and a small enamel segment is attached to the gingiva (Figure 1, black arrow). Without pulp exposure, it's easy to assume the fracture is minor. Take a look, however, at the radiographic changes present in Figures 2A and 2B, showing the same tooth. Arrows point to the bone lysis that is present at the tips of the roots. These changes represent chemical and bacterial degradation of the bone.

Most tooth fractures are only discovered through a thorough oral examination. Unfortunately, pets can silently suffer for months to years while a tooth fracture leads to infection that progresses, eventually causing decreased appetite, lethargy, dropping food and facial or gingival fistulation (Figure 3), among other less pronounced signs.

Treatment varies depending on the extent and duration of the fracture, whether or not the pulp is exposed, radiographic changes and the periodontal status of the area adjacent to the tooth. >>



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Treatment for Deep Fractures

Tooth fractures that result in pulp exposure are classified as complicated crown fractures (CCF).

If the patient is less than two years old and the pulp is exposed less than 48 hours, a veterinary dentist may be able to save the tooth with odontoplasty, vital pulpectomy and restoration. If the patient is older than two years and the pulp is exposed, root-canal therapy or extraction are likely the best options.

Root-canal therapy and crown placement add to the expense of therapy for a fractured tooth. Crowns are placed primarily to seal the endodontic access site, preventing micro-leakage of oral fluids that could eventually result in root-canal failure. Crowns also protect teeth in working dogs prone to tooth trauma (Figure 4). Root-canal therapy (Figure 5) is an option for most tooth fractures. It should always be presented as an alternative to extraction when discussing therapy with pet guardians.

Treatment for Minor Fractures

For fractured teeth with no pulp exposure, treatment options depend on the extent of the fracture. If trauma is confined to an enamel fracture, then odontoplasty

with an aluminum oxide or fine diamond bur will eliminate sharp edges and prevent further fracture.

In UCFs where dentin is exposed, dental radiographs may indicate changes consistent with pulp death. A lucency surrounding the root apex (Figures 2A and 2B)

If the patient is less than two years old and the pulp is exposed less than 48 hours, a veterinary dentist may be able to save the tooth.

or a relatively large pulp cavity indicates that the tooth and pulp are non-vital. In this case, either root-canal therapy or extraction is indicated.

In UCFs where radiographic evidence shows that the tooth is still vital, dentinal bonding and composite restoration can prevent subsequent exposure to oral microbes. In these cases, radiographic follow-up at six to twelve months and at reasonable intervals thereafter are needed to monitor tooth vitality.

Teeth can lose vitality even if they aren't fractured. Pink, grey, tan, purple or black discoloration (also called intrinsic staining) of a tooth is also an indication for root-canal therapy or extraction, even though the dentin is not exposed (Figure 6).

Education for Prevention

It's essential to educate clients on how to prevent tooth fractures. Let your clients know that hard objects can and often do fracture teeth. If a dental chew is not easily bendable, it can cause tooth fractures. Common objects that can fracture pets' teeth include rawhide, cow hooves, bones, large sticks or branches, rocks, ice and non-bendable chews of any type. Dog fights and vehicular trauma are also common causes that can't always be prevented.

Fractured teeth in dogs and cats require prompt care, even though the patient doesn't show any signs at all. Please take the time to perform a thorough oral examination of all patients. Fractured teeth are more common than we might think. ■

Dr. Brett Beckman specializes in veterinary dentistry. www.veterinarydentistry.net



The Team Approach

Veterinarians

Perform a thorough oral examination in all patients to screen for tooth fractures. Provide therapeutic and referral options to pet guardians. Offer referral alternatives to extraction, such as root-canal therapy or periodontal regenerative therapy.

Technicians

Use images of fractured teeth and radiographs showing potential changes to aid the veterinarian in client education. Stress to clients that most patients with tooth fractures do not show signs of pain.

Practice Managers

Schedule continuing education with a veterinary dentist, veterinary dental technician or an educated product representative to discuss the importance of tooth fractures with the

entire staff. Have brochures available with referral information from the closest veterinary dental specialist to help clients find proper advanced care such as root-canal therapy. Obtain client education handouts that explain options for treating fractured teeth. Only select tooth-friendly chew products when making purchasing decisions for your practice.

Receptionists

Provide estimates for the various options available for treating fractured teeth. Assist clients in finding the closest veterinary dentist for advanced procedures. Distribute and explain handouts and client education information. Warn clients of the danger of hard chew products that may cause tooth fractures.

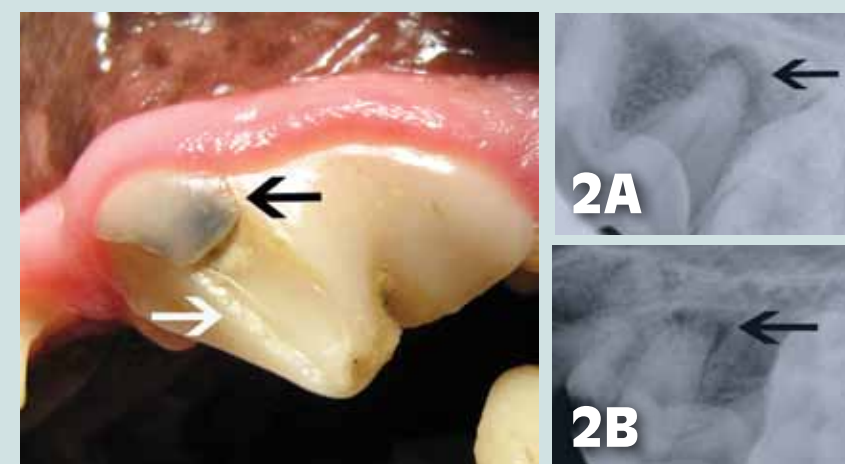


FIGURE 1. The left maxillary fourth premolar pictured here shows dentin exposure from an uncomplicated crown fracture (white arrow). A portion of the fractured enamel is still attached at the gingival margin (black arrow).

FIGURE 2A. A periapical lucency (dark area) is present in the bone surrounding the distal root, indicating bone degradation.

FIGURE 2B. A periapical lucency is present in the bone surrounding the mesial buccal root as well, indicating further bone degradation.



FIGURE 3. A fractured premolar in this patient resulted in a sub-orbital fistula. Periodontal disease can produce similar lesions.

FIGURE 4. Cast-metal alloy crowns protect the endodontic access site from micro-leakage that could result in root-canal failure.

FIGURE 5. A radiograph of a successful root-canal procedure performed three years prior on a cat's fractured canine tooth.

FIGURE 6. Intrinsic purple discoloration in this tooth indicates that the tooth is non-vital, necessitating root-canal therapy or extraction.