Images in Veterinary Dental Practice

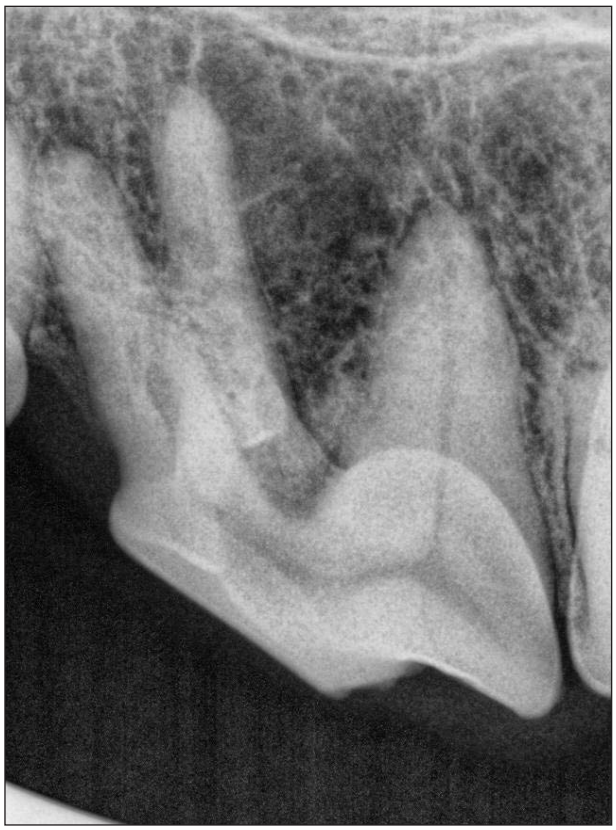

Figure 1—Radiographic view of the maxillary right fourth premolar in a dog examined because of advanced periodontitis and poor appetite.

History and Physical Examination Findings

A 9-year-old 25-kg (55-lb) spayed female Boxer was referred for examination because of advanced periodontitis and poor appetite. The dog had recently undergone periodontal cleaning, but its appetite had not improved as it had after other cleanings. At home, the dog would not allow the owner to clean the right maxillary arcade, particularly in the region of the maxillary right fourth premolar (tooth 108).

On physical examination, the dog appeared healthy but slightly underweight. Oral examination with the dog awake revealed attrition of the maxillary and mandibular incisors and mobility of the mandibular incisors. An area of gingival recession was evident at the mesiobuccal root of tooth 108. Results of a CBC, serum biochemical profile, heartworm test, borreliosis test, electrocardiography, and thoracic radiography were unremarkable.

The dog was anesthetized with sevoflurane, and a complete oral examination was performed. A 10-mm area of attachment loss was seen on the mesial surface of tooth 108 in the interproximal region between tooth 108 and the maxillary right third premolar (tooth 107). The sulcus bleeding index in all quadrants was 3 (bleeding on probing, change in color, and slight edematous swelling) on a scale from 0 to 5.[1] There was minimal plaque and tartar. The attrition index for the maxillary and mandibular incisors was 3 (enamel and dentin missing and pulp exposure) on a scale from 1 to 3. Pitting of enamel was seen in multiple sites. Mobility of the mandibular incisors with gingival hyperplasia was also present.

Radiography of the mandibular incisors revealed moderate horizontal bone loss. The maxillary right first and second molars (teeth 109 and 110) and tooth 107 were radiographically normal, other than minimal oblique bone loss around the distal aspect of tooth 107. A radiograph of tooth 108 was also obtained (**Fig 1**).

Determine whether additional imaging studies are required or make your diagnosis from Figure 1, then turn the page ⧫

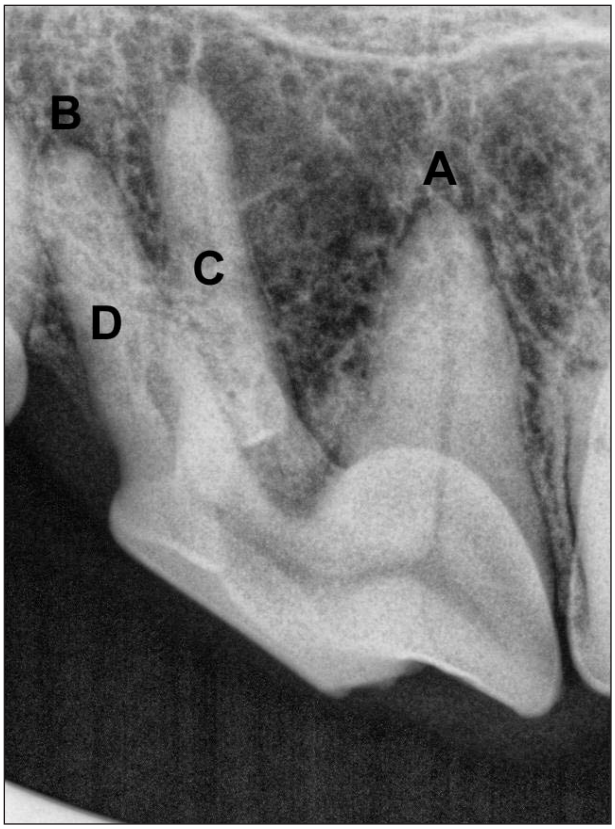

Figure 2—Same radiographic view as in Figure 1. Notice the osteolysis of the apices of the distal (A) and mesiobuccal (B) roots of tooth 108. Root canals in the mesiobuccal and palatal roots are calcified. Internal root resorption is evident in the middle portion of the palatal root (C). External root absorption is evident on the mesial surface of the mesiobuccal root in the area of a periodontal pocket (D); the buccal bone is reduced to the depth of the pocket.

Radiographic Diagnosis

Osteolysis of the apices of the distal and mesiobuccal roots of tooth 108. Root canals in the mesiobuccal and palatal roots are calcified, internal root resorption is evident in the middle portion of the palatal root, external root absorption is evident on the mesial surface of the mesiobuccal root in the area of a periodontal pocket, and the buccal bone is reduced to the depth of the pocket (**Fig 2**).

Treatment and Outcome

Interdental spaces were covered with soft tissue to the cemento-enamal junction, so that the defect on tooth 108 was not clinically apparent. With probing, a 10-mm infrabony pocket was identified on the mesial aspect of tooth 108. Radiographically evident root surface resorption in this area was likely related to granulation tissue in the periodontal pocket.[2]

Conventional root canal therapy was contraindicated in this dog because of the calcified canals and internal and external root resorption. Surgical root canal therapy was considered unlikely to be of any benefit. Therefore, the owner elected to have the tooth extracted. The site was closed with a full-thickness mucoperiosteal flap. Prior to closure, the site was packed with a bioactive ceramic[a] to assist with regeneration of lost bone.

The dog was discharged with instructions to administer cephalexin (10 mg/kg [4.5 mg/lb], PO, q 8 h) and morphine sulfate (0.5 mg/kg [0.23 mg/lb], PO, q 12 h) and to mist the oral cavity with 0.12% chlorhexidine gluconate solution twice daily. In addition, the owner was instructed to feed a gruel for 14 days and to remove all hard chew toys for 60 days. Starting 30 days after surgery, the owner was to institute a maintenance periodontal care program consisting of misting the oral cavity with 0.12% chlorhexidine gluconate solution once daily and brushing all of the teeth for at least 2 minutes daily with a canine dentifrice.

Within 2 weeks, the dog was eating normally. Follow-up periodontal cleaning was performed 6 months after surgery. At this time, dental radiography revealed filling of the surgery site with bone and maintenance of the alveolar ridge. The dog had gained 5 kg (11 lb) and, according to the owner, was still eating normally.

Comments

This case points out the importance of dental radiography in the diagnosis and treatment of oral pain in dogs.

[a]Consil, Nutramax Laboratories, Edgewood, Md.

References

1. Wiggs RB, Lobprise HB. Periodontology. In: Wiggs RB, Lobprise HB, eds. *Veterinary dentistry. Principles and practice*. Philadelphia: Lippincott Raven, 1997;186–231.

2. Klaus H, Rateitschak EM, Wolf HF, et al. *Periodontology*. 2nd ed. New York: Thieme Medical Publishers Inc, 1989;118.

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