

## What Is Your Diagnosis?

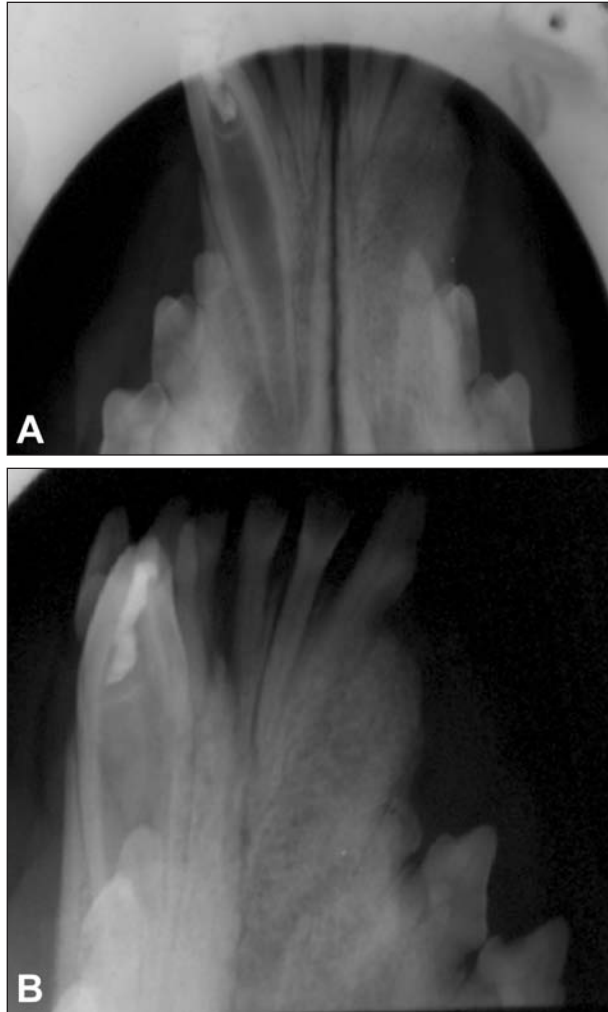


Figure 1—Rostral ventrodorsal (A) and oblique rostral ventrodorsal (B) intraoral radiographic views of the mandible of a 3-year-old mixed-breed dog evaluated for a chronic draining tract lesion ventral to the location of the left mandibular canine tooth, which had been extracted 5 months earlier.

### History

A 3-year-old sexually intact male mixed-breed dog was evaluated because of a chronic draining tract of the left mandible ventral to the location of the left mandibular canine tooth. The tooth had been extracted 5 months earlier because of a draining tract lesion associated with a nonvital tooth. The lesion healed after the tooth was extracted but returned 4 months later. The dog was initially treated with amoxicillin-clavulanic acid for 2 weeks without resolution of clinical signs. The dog was anesthetized, and intraoral radiographs of the rostral portion of the mandible were obtained (Figure 1).

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

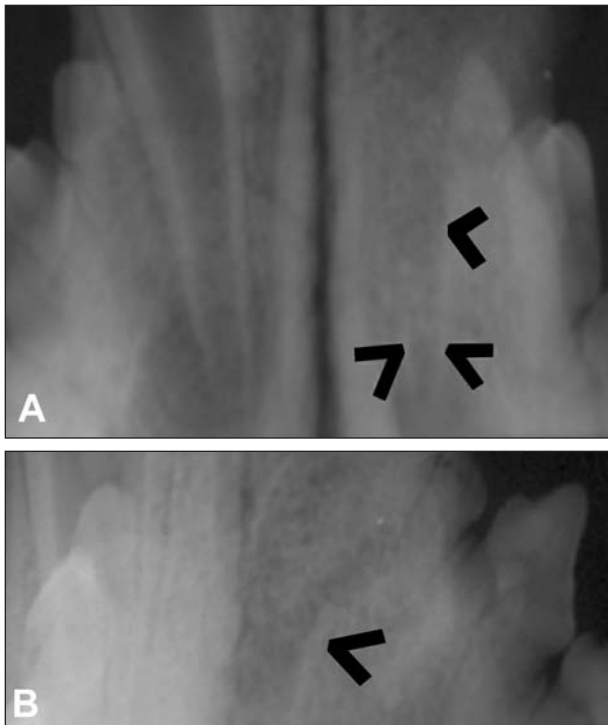


Figure 2—Same radiographic views as in Figure 1 (enlarged). Notice the opaque line of the retained root (arrowheads) of the extracted left mandibular canine tooth.

### Diagnosis

**Radiographic diagnosis**—Retained root fragment of the left mandibular canine tooth (tooth No. 304). In the rostral ventrodorsal view of the mandible, the opaque line of the apical portion of the root is seen (Figure 2). It is of the same density and in the same location as the root of the intact right mandibular canine tooth (tooth No. 404). The calcium filling from a previous vital pulpotomy is also visible in 404. A portion of the retained root fragment of the left mandibular canine tooth can be seen on the oblique rostral ventrodorsal view of the left mandible.

### Comments

A fistulogram was performed to confirm the presence of the retained root but was nondiagnostic. The dog was maintained on isoflurane anesthesia for removal of the root fragment. A gingival flap was created. A 21-gauge needle was placed through the buccal gingiva, and serial radiographs were obtained to ensure proper exposure to the alveolar socket. The root fragment was curetted with a high-speed drill. Radiography

revealed that the entire fragment had been removed. The gingival flap was closed with 3-0 polyglactac suture. Amoxicillin-clavulanic acid (375 mg, PO, q 12 h for 30 days) and etodolac (300 mg, PO, once daily for 3 days) were administered. Results of examinations performed 10 and 30 days after the procedure indicated that the draining tract had healed.

The dog of this report underwent vital pulpotomy at 10 months of age because of mandibular brachygnathism, which caused protrusion of the canine teeth into the hard palate. Mandibular brachygnathism, a genetically influenced skeletal malformation in which the mandible is shorter than the maxilla, is common in dolichocephalic breeds. This malocclusion is not normal in any breed. Treatment of mandibular brachygnathism requires the elimination of obvious occlusal or dental interferences that prevent adequate prehension and mastication.<sup>1,2</sup> If the maxilla is penetrated, orthodontic tooth movement or crown reduction via vital pulpotomy is performed. Vital pulpotomy is an easy, quick procedure and saves a vital tooth from removal. Complications can occur, and radiographic assessment is warranted if problems develop.<sup>2</sup>

This dog's tooth eventually became nonviable. A periapical abscess and draining tract formed. A periapical abscess results from irreparable and irreversible inflammation of the pulp. Death of pulp tissue leads to infection of apical tissues and surrounding structures. Treatment of a periapical abscess requires elimination of the source of infection (ie, extraction of the infected tooth) and broad-spectrum antimicrobial treatment.<sup>1</sup>

Extraction complications include broken root tips, hemorrhage, maxillary or mandibular fracture, osteomyelitis, and oronasal fistula. A retained root tip in the presence of a periapical abscess is a nidus of infection requiring removal.<sup>3</sup>

1. Tholen M, Hoyt RF Jr. Oral pathology. In: Bojrab MJ, Tholen M, eds. *Small animal oral medicine and surgery*. Philadelphia: Lea & Febiger, 1990;32, 50-54.

2. Bellows J. *The practice of veterinary dentistry: a team effort*. Ames, Iowa: Iowa State University Press, 1999;137-138, 158.

3. Marettta SF, Tholen M. Extraction techniques and management of associated complications. In: Bojrab MJ, Tholen M, eds. *Small animal oral medicine and surgery*. Philadelphia: Lea & Febiger, 1990;87-88.

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