History and Physical Examination Findings

An 8-year-old 3.02-kg (6.65-lb) male lop-eared pet rabbit (*Oryctolagus cuniculus*) was evaluated because of swelling of the caudal aspects of the left maxilla and mandible, inappetence, fever, and difficulty breathing. The rabbit had been adopted as an adult and was housed alone but did have contact with other rabbits in the house. Previous medical history included an abscess of the right maxilla that responded to treatment consisting of surgical exploration and débridement and oral administration of penicillin G potassium every other day for 3 weeks; the abscess had resolved 4 weeks prior to the current examination.

Results of general physical and neurologic examinations were unremarkable. An extraoral examination revealed diffuse soft tissue enlargement extending from the rostral aspect of the left mandible caudally along the mandibular ramus, with several discrete nodular subcutaneous masses rostrally. In addition, there was a 20 X 20 x 20-mm, well-circumscribed, firm, nonulcerated swelling that was adhered to underlying tissues located at the level of the caudal aspect of the left maxilla, adjacent to the left eye. Signs of pain were evident during palpation of the swelling. Severe upper respiratory stridor was noted. The left eye was displaced slightly laterally. Intraoral examination with the rabbit anesthetized revealed mild incisor, premolar, and molar malocclusion and multiple sharp lingual and buccal points. The left maxillary first, second, and third molars were slightly mobile. There was mild gingivitis at the level of the left maxillary molars. The rest of the oral mucosa appeared to be unremarkable, and no ulcerations or masses were detected.

Results of a CBC, serum biochemical profile, and urinalysis were within reference limits. The rabbit was anesthetized, and radiographs, including laterolateral, dorsoventral, and oblique views, were obtained. In addition, with the patient in sternal recumbency, contiguous, 1-mm, collimated computerized tomographic images were acquired by means of incremental acquisition with a small field of view and bone reconstruction filter (120 kVp, 100 mA, and 1-second image acquisition). Window width and level were adjusted manually to optimize bone detail of the images. Selected diagnostic images are provided (Figure 1).

Determine whether additional studies are required, or make your diagnosis, then turn the page →
Diagnostic Imaging Findings and Interpretation

Skull radiography revealed soft tissue enlargement in the area of the left maxilla without radiographic evidence of bone involvement and mild malocclusion (Figure 2).

There was apical elongation of the mandibular premolars and molars. Thickening of the tympanic bullae suggestive of chronic otitis media was also present. On computed tomographic images and the 3-D reconstruction, a large, expansile lesion was visible dorsal to the left maxillary molar teeth. The bone of the left maxilla was thin and disrupted in this area, and the tooth roots associated with the mass had a curvilinear shape and appeared sclerotic. There was apical elongation of the mandibular premolars and molars as well as multiple sharp buccal and lingual points. The skin and superficial soft tissues of the left side of the face appeared thickened. The left globe was displaced laterally.

Likely differential diagnoses for the described lesion include periapical lesion (endodontic infection) consistent with granuloma or abscess formation, retro-orbital abscess formation, neoplasia, hematomata, cyst (including *Taenia serialis* cyst), retrobulbar fat prolapse, salivary sialocele, lacrimal gland disease, foreign body, and trauma. In this case, periapical lesions associated with the left maxillary molar teeth and associated cellulitis were the most likely diagnoses owing to the obvious involvement of these roots with the lesion.

Treatment and Outcome

The rabbit was hospitalized for supportive care for 1 week. Once the rabbit’s condition was determined to be stable, extraction of the involved teeth and abscess debridement were scheduled. With the rabbit anesthetized, tooth height reduction and occlusal adjustment were performed and all of the sharp points were removed. In addition, with the rabbit in sternal recumbency, an intraoral approach to the left maxillary molars was performed and the left maxillary molars were extracted by means of luxation and forceps delivery. The abscess was debrided, and inspissated material was removed from the alveoli and submitted, along with a sample of the abscess capsule, for aerobic and anaerobic bacterial culture and susceptibility testing. No organisms were seen during microscopic examination of a direct smear of the inspissated material. Aerobic bacterial culture yielded mixed growth of a small number of organisms, which included *Aracanobacterium pyogenes*. Anaerobic culture yielded large numbers of *Bacteroides* spp, *Prevotella* spp, *Fusobacterium* spp, and *Peptostreptococcus anaerobius*.

The rabbit was hospitalized for an additional 3 days; supportive care during this time included SC fluid administration and administration of analgesics and antimicrobials. By the day of discharge, the rabbit was eating voluntarily and appeared to be comfortable. Treatment after discharge consisted of administration of enrofloxacin (9 mg/kg [4.1 mg/lb], PO, q 12 h), penicillin G potassium (50,000 U/kg [22,700 U/lb], SC, q 48 h), and meloxicam (0.273 mg/kg [0.124 mg/lb], PO, q 12 h) for 14 days.

The rabbit was reevaluated 2, 4, 6, and 12 weeks after surgery and was found to be bright, alert, and responsive; the client reported that the rabbit was doing well at home. Swelling of the caudal aspects of the left mandible and maxilla resolved, and a palpably normal bony contour was achieved. The oral mucosa was intact, and there was no clinical evidence of recurrence.
Facial and jaw abscesses are most likely the result of endodontic infection, periodontal infection, or penetrating foreign bodies or develop secondary to bactere mia, although other causes have also been reported. However, rabbits with painful disorders of the teeth, jaws, or oral mucosa will typically be reluctant to eat or have difficulties prehending, chewing, or swallowing food. Because rabbits typically have a small oral aperture and a long narrow oral cavity, complete oral examination in awake patients is nearly impossible. A cursory examination can be conducted with an otoscope, a light nasal speculum, or a video-otoscope, but general anesthesia with endotracheal intubation is recommended to allow thorough evaluation and treatment of oral diseases in rabbits. Nasotracheal intubation is preferred to orotracheal intubation to optimize intraoral working space and visibility. Radiography is an essential part of a comprehensive oral examination, and skull radiography is an extremely useful diagnostic tool in a patient suspected of having malocclusion, periapical lesions, or bone disease. However, the small size of rabbits and the superimposition of the dental quadrants make radiographic interpretation difficult. Other radiographic modalities that may be used include magnified radiography and the use of high-resolution mammography film or dental films. Computed tomography has been found to have a higher diagnostic yield than conventional radiography in diagnosing dental and maxillofacial problems in animals and computed tomography in rabbits has been described in detail. Improved anatomic identification and lesion detection with computed tomography allow for accurate assessment and treatment planning. In the present case, conventional radiography did not provide sufficient detail and computed tomography was more definitive with regard to evaluation of and treatment planning for the periapical lesion involving the left maxillary molars. The favorable outcome in the present case demonstrates the need for comprehensive oral and maxillofacial examinations accompanied by appropriate diagnostic imaging in the evaluation and treatment of dental disease in rabbits.

References