History

A 4-month-old 5.8-kg (12.8-lb) sexually intact male Scottish Terrier with a medical history of behavior indicative of neck pain was evaluated. When first adopted 4 weeks earlier, the dog was lethargic and would yelp when picked up. The dog also vocalized when being touched on the head while receiving an intranasal *Bordetella bronchiseptica* vaccine. Radiography of the cervical vertebral column was performed by the referring veterinarian. On radiographic evaluation, a vertebral fracture was not evident. The dog was treated with an NSAID and had some improvement in clinical signs.

A few weeks later, the dog was referred for further evaluation. No abnormalities were found on physical examination except for signs of discomfort during manipulation of the jaw. The dog also appeared guarded and tense on palpation of the cervical vertebral column. No neurologic deficits were observed. Radiography of the skull and cervical vertebral column was performed (Figure 1).

Determine whether additional imaging studies are required, or make your diagnosis from Figure 1—then turn the page.
Exuberant solid, organized, and smoothly marginated mineral opaque lesions associated with both tympanic bullae are evident (Figure 2). The lesions are indicative of new bone formation. The air-filled lumens of the bullae are completely obliterated. The lesions appear to be osteoproliferative with no signs of lysis. The left lesion (3.7 x 3.6 cm) is larger than the right (2.5 x 2.9 cm). No clear involvement of the ramus, body, or angular processes of the mandibles is appreciable; however, the cranial margins of the mineral opaque lesions appear to encroach on the temporomandibular joints, overlapping the area of the retroarticular processes, mandibular fossae, and caudal aspects of the mandibular condyles. This appearance may be caused by superimposition rather than true involvement of these structures. Considering patient signalment, location, and radiographic changes, the findings are most consistent with craniomandibular osteopathy.

**Treatment and Outcome**

It was recommended that NSAID administration be continued on an as-needed basis for the dog of the present report. On repeated radiography 2 months later, the lesions remained unchanged. Once the dog was neutered at 8 months of age, signs of pain started to regress. It is possible that regression of signs at this time coincided with cessation of physeal activity. Aside from limited range of motion in the jaw, the dog continued to remain free of clinical signs of pain.

**Comments**

Craniomandibular osteopathy is a bilateral, irregular, nonneoplastic, osseous proliferative disease of dogs that usually affects multiple bones of the cranium. Craniomandibular osteopathy is most frequently observed in West Highland White Terriers and has been observed across the terrier group as well as in other breeds. The age of onset is usually 5 to 8 months, and the disease is often self-limiting. Growth of the lesions frequently stops at approximately 1 year of age, coinciding with cessation of physeal activity, and lesions may regress or resolve completely. Clinical signs may include mandibular swelling, drooling, difficulty with prehension, moderate signs of pain, and occasionally pyrexia. Although craniomandibular osteopathy is not typically fatal, unrelenting pain and resultant malnutrition may call for euthanasia in rare instances. Supportive care with the use of anti-inflammatory treatment may improve signs of craniomandibular osteopathy. The diagnosis can be confirmed radiographically by observing osseous proliferations that are usually confined to the mandibles and occipital and temporal bones. Typically, lesions are bilateral but asymmetric changes are possible. The striking osseous proliferation associated with the tympanic bullae, in the case described in the present report, led to the diagnosis. Histologic samples can also confirm the diagnosis; however, biopsy or other imaging modalities are typically not necessary because the radiographic changes are pathognomonic. If there is concern for the involvement of the temporomandibular joints or other structures, CT may be helpful for further evaluation.