What Is Your Diagnosis?

**History**
A 10-year-old spayed female Dalmatian was examined because of an acute-onset, non–weight-bearing, progressive lameness of 2 weeks’ duration. Additional history included chronic recurrent hematuria that had been treated with antimicrobials.

On physical examination, the dog was pyrexic (40°C [104°F]) and was non–weight-bearing on the right forelimb. Palpation elicited signs of pain and revealed that the right elbow was warm and swollen. Results of serum biochemical analyses and a CBC were within reference limits. The only pertinent abnormality noted on the urinalysis results was a moderate number of RBCs in the sediment. Radiographs of the right elbow area were obtained (Fig 1).

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

Figure 1—Lateral (A) and craniocaudal (B) radiographic views of the right forelimb of a 10-year-old dog with acute-onset progressive lameness of 2 weeks’ duration.

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Diagnosis

Radiographic diagnosis—Trabecular bone destruction in the distal humeral metaphysis and the proximal radial metaphysis. Periosteal proliferation is evident in the craniomedial margins of the humeral lesion and on the cranial and lateral margins of the proximal portion of the radius. Soft tissue swelling is evident at both lesion sites. These radiographic findings are most consistent with metastatic neoplasia involving the bone or osteomyelitis (Fig 2).

Comments

Thoracic and abdominal radiographs were obtained; thoracic radiography revealed 2 small nodular lesions most consistent with metastatic lung disease. Bone biopsy specimens were collected from the distal portion of the humerus and proximal portion of the radius. A histologic diagnosis of metastatic transitional cell carcinoma (TCC) was made.

Abdominal ultrasonography was performed to locate the source of the metastatic cells. Two masses were found in the lumen of the urinary bladder; one in the trigone region, the other in the apex (Fig 3).

The owner was given treatment options of amputation, chemotherapy, both, or palliative treatment. Euthanasia was elected. Necropsy revealed masses in the urinary bladder, vagina, lung, liver, and right radius and humerus. Results of histologic examination of all masses were consistent with TCC.

Radiographic lesions consisting of various degrees of osteolysis and osteoproliferation characterize neoplastic bone disease. Most primary bone tumors are confined to the bone of primary origin and do not cross joint spaces. If osteoprolific or lytic lesions are seen in multiple bones, other types of neoplasia should be considered in addition to non-neoplastic diseases.

Metastasis of TCC to bone is uncommon but documented. Tumors of the urinary bladder comprise about 1% of all tumors in dogs, and TCCs are the most common primary malignant tumor of epithelial origin in the urinary bladder. Clinical signs in dogs with TCC of the urinary bladder include hematuria, dysuria, pollakiuria, and, less commonly, other clinical signs such as lameness caused by bone metastasis or other paraneoplastic syndromes. Survey radiography rarely reveals soft tissue masses within the urinary bladder; therefore, the diagnostic procedures of choice are double contrast cystography and abdominal ultrasonography.