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What’s Your Radiographic Diagnosis?

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Presentation

A 9 year old, neutered male, Old English Sheepdog presented for evaluation of 6 week’s duration lameness on the right front leg. The lameness had not been noted to be acute in onset and had not worsened over the 6 weeks. A transient episode of diarrhea one week prior to presentation was the only other history. The dog had a current vaccination history and was on heartworm preventive. Physical examination found a partial weight-bearing lameness of the right front leg. All joints exhibited a normal range of motion. Muscle atrophy was generalized in the right front leg. The mid-right humeral region was thickened and pain was pronounced by direct palpation of the humeral diaphysis. Temperature, pulse rate, and respiration rate were normal. Mucus membrane color and capillary refill time were normal. Thoracic auscultation was normal. Abdominal palpation was normal. Radiographs of the right humerus were taken. (Fig. 1A & B)

Fig 1A. Medio-lateral view of the right humerus of a 9 year old, neutered male, Old English Sheepdog presented for evaluation of a 6 week’s duration lameness. Pain was isolated to the humerus.

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character areas of lucency, most with poorly defined borders, are intermixed with increased medullary and periosteal new bone. Areas of cortical bone destruction are present originating predominately from the endosteal surface. However there is a larger area of cortical destruction in the caudal cortex that is bounded proximal and distal by periosteal new bone with concave edges. The peripheral aspects of the periosteal new bone are smooth and solid. Within the soft tissue immediately adjacent to the caudal cortical lysis there is an irregular region of mineralization.

Radiographic Diagnosis

Aggressive bone lesion of the right humerus. Neoplasia or osteomyelitis are the general diagnostic categories most suspected. Location of the lesion is atypical for central osteosarcoma. Another primary bone tumor or a site of tumor metastasis are considered to be more likely.

Clinical Diagnosis

Thoracic and abdominal radiographs were normal. A biopsy of the lesion was done. Histopathological diagnosis was hemangiosarcoma.

Discussion

Osteosarcoma is the most common malignant primary bone tumor of the canine appendicular skeleton. It has been studied fairly extensively and sites of predilection have been determined in the medium to large size breeds of dogs. The majority of osteosarcomas in these breed sizes arise in the metaphyseal regions of the proximal humerus, distal radius, proximal and distal femur and tibia. Hemangiosarcoma is a common malignant tumor of the dog with tumors of cutaneous, splenic, and right atrial origin being most common. Hemangiosarcoma present in the bone can be of primary or metastatic origin. Primary skeletal hemangiosarcoma develops from precursor cells of the endothelium of the vasculature of the bone as an organ. In a review of the literature for the locations and numbers of primary hemangiosarcoma of
the bone, the proximal humerus was noted as the site of origin in 10 of 44 total skeletal primary hemangiosarcomas. Humeral diaphyseal origin however was not listed. Both osteosarcoma and hemangiosarcoma produce a mixture of osteolytic and productive changes. There is no specific radiographic feature that definitively distinguishes these two tumors. Biopsy for histologic and immunochemistry is needed for diagnosis. Thoracic and abdominal radiography and abdominal ultrasonography are warranted for identifying probable sites of metastasis or possible multicentric origin in the case of hemangiosarcoma.

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One-er-of-war and concentration camp from WWII—and took a one day trip by train to Berlin to visit the Checkpoint Charlie Museum, the remains of the Berlin Wall, and other beautiful places such as churches, historic buildings, and palaces. Sightseeing, picture taking, and shopping opportunities were abundant not just in Berlin, but in downtown Hannover (just two stops away via the subway), quaint cities such as Celle, and the medieval town of Goslar (my favorite).

All in all, this was quite a memorable study abroad experience, with very little sleep! The professors and students at the ThHo were helpful, accommodating, and very generous with their time and their hospitality. Most of our meals were free and the food was abundant and delicious, although occasionally we were offered a uniquely German meal (just ask one of us about “sauer fleisch!”) I learned a lot about public health and production animal medicine, as well as cultural relations, and am glad I was able to participate in this new study abroad course. Now, if we could have requested that the United Airlines pilots not go on strike while we were still in Frankfurt, it would have made for a much shorter trip home! Danke sch’n to Drs. Uhlenhopp and Kluge for providing this learning opportunity and making it so affordable.

References

