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Chronic Forelimb Lameness in a German Shepherd



A 9-year-old spayed female German shepherd was presented for evaluation of chronic left-forelimb lameness that did not respond to conservative management.

History. Fifteen months earlier, the dog first showed intermittent signs that responded well to carprofen (Rimadyl; Pfizer Animal Health, www.rimadyl.com). After approximately 3 months, the signs returned but the lameness again resolved with carprofen. Seven months following the first reported episode, the animal was non-weight-bearing on the left forelimb and nonresponsive to carprofen. The dog resented elbow flexion and extension.

Radiographs were within normal limits. Joint fluid submitted for analysis and culture following arthrocentesis revealed mild neutrophilic inflammation but no organisms. Tick titers were also negative. Immune-mediated arthritis was suspected and the dog was prescribed prednisone 2 times a day. She showed a partial response and could bear weight on the limb but a noticeable limp was always present. Attempts to decrease the prednisone dose resulted in increased pain and lameness. At this time, the dog was referred to the teaching hospital for evaluation.

Physical Examination. The 90-pound dog was bright, alert, and responsive with temperature, pulse, and respiration inside normal limits.

Thoracic auscultation was normal. The animal exhibited a pendulous abdomen with cranial abdominal organomegaly. She had non-weight-bearing lameness in the left forelimb and extensive swelling over and around the elbow. The left elbow had a decreased range of motion and marked pain was elicited with movement and palpation.

Diagnostics. Radiographs were taken of the left elbow (Figures 1 and 2) and thorax. Thoracic radiographs were normal. Results from a CBC, chemistry profile, and urinalysis were consistent with chronic steroid hepatopathy.

continues

ASK YOURSELF ...

- How would you describe the radiographic changes in the left elbow?
- What is the most likely cause of the changes?
- What should be ruled out?
- What additional diagnostic tests would you perform?



1 Lateral view of left elbow



2 Craniocaudal view of left elbow

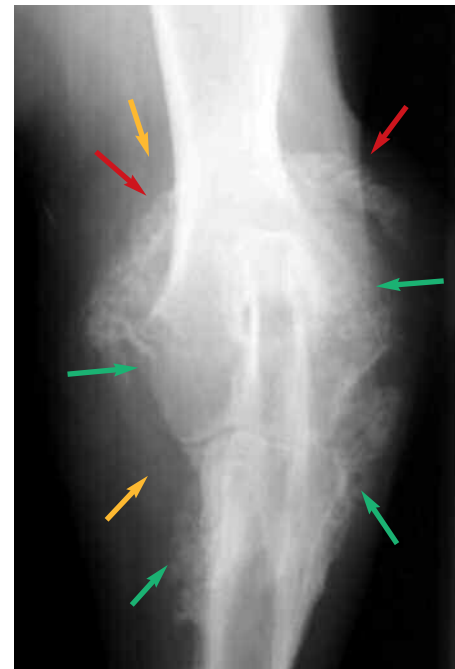
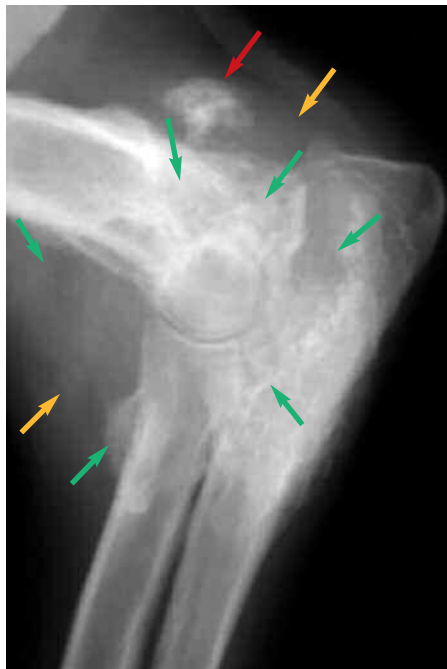
Diagnosis: Synovial tumoral calcinosis of the left elbow

Lateral and craniocaudal views of the elbow reveal extensive irregular bone production centered at the joint and seen at the proximal radius and ulna as well as the distal humerus. A stippled area of mineral in the caudodorsal aspect of the elbow does not appear associated with the humerus or ulna. The extensive bone production makes the humerus, ulna, and radius appear sclerotic and there is a large amount of intracapsular swelling. There are no signs of osteolysis.

The severity and location of the productive changes are not typical of chronic degenerative joint disease and the multiple-bone involvement—along with the lack of lytic changes—is atypical for neoplasia. Therefore, the primary differential diagnosis was *synovial tumoral calcinosis*. However, because of the severe intracapsular swelling, an underlying soft tissue tumor (synovial cell sarcoma) could not be ruled out.

Further Diagnostic Testing. Based on the radiographic interpretation, further diagnostics included arthrocentesis and surgical biopsy of the humerus, ulna, and synovium. Cytology of the joint fluid did not reveal evidence of suppurative inflammation but showed an increase in mononuclear cells and evidence of previous hemorrhage. Biopsy samples confirmed the diagnosis of synovial tumoral calcinosis and excluded underlying neoplasia.

Tumoral calcinosis—most often found in the feet, spine, and elbows of German shepherds—is a disorder of undetermined etiology characterized by formation of calcareous material, usually solitary lesions, in soft tissues adjacent to joints. It is speculated that tumoral calcinosis occurs secondary to trauma or metabolic disturbance. Synovial osteochondromatosis is similar to tumoral calcinosis, but in that condition changes in the joint are more defined and have smoother margins, often presenting as a well delineated joint body.



Red arrows: Stippled areas of mineralization in the caudal and dorsal aspects of the joint that are not associated with the underlying bone. This is consistent with mineralization within the synovium.

Green arrows: Extensive irregular bone production that gives the elbow a sclerotic appearance without signs of lysis or destruction. **Yellow arrows:** Intracapsular soft tissue swelling

DID YOU ANSWER ...

- Changes revealed in the radiograph involve severe irregular proliferative reaction around the elbow joint, including the soft tissue of the joint, without evidence of lysis.
- Synovial tumoral calcinosis is the most likely cause of the changes.
- Because of severe intracapsular swelling, an underlying neoplasia such as synovial cell sarcoma should be ruled out.
- Additional diagnostic tests should include biopsy of the bone and synovium, as well as joint fluid analysis.

Tx at a glance

- If the lesion is focal, surgical excision may be curative.
- If the lesion is advanced, attempted conservative pain management is recommended. Once this is no longer effective, amputation of the limb can be considered.

See Aids & Resources, back page, for references, contacts, and appendices. Article archived on www.cliniciansbrief.com

Prognosis. Tumoral calcinosis is not neoplastic, so surgical removal of the affected area may be curative. Incomplete excision can, however, stimulate progression. In this case, the diffuse distribution of changes rendered surgery impossible and taking into consideration the lack of response to conservative pain management, amputation of the limb was recommended. ■