

The Sheltie Shuffle

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Increased radiodensity, which is associated with subchondral sclerosis and osteophyte formation, was noted in the region of the trochlear notch of the ulna (white arrow) and the anconeal process (yellow arrow).

A 5-year-old, female, spayed Shetland sheepdog was presented with an abnormal gait of the forelimbs.

History. The owner reported a shuffling gait, but could not determine which leg was problematic. The clinical signs had been present for several months, but the owner did not recall a specific cause or traumatic event. The problem was typically more severe in the morning and after chasing squirrels. The gait improved slightly with rest and treatment with carprofen and a glucosamine/chondroitin sulfate supplement.

Physical Examination. A mild, persistent, weight-bearing lameness of the right forelimb was observed. Manipulation of the right carpus, elbow, and shoulder did not reveal obvious swelling, instability, or pain. Muscle and bone palpation was normal except for mild muscle atrophy over the right shoulder. Examination of the left forelimb was normal.

Laboratory Work. CBC, serum chemistry profile, ANA, rheumatoid factor, and titers for *Ehrlichia*, *Borrelia*, and *Rickettsia* showed no abnormalities.

Radiographs. The right shoulder and elbow were evaluated radiographically. No abnormalities were noted in the shoulder. Increased radiodensity was noted in the region of the trochlear notch and the anconeal process of the right ulna (Figure 1).

ASK YOURSELF ...

What is the cause of the lameness?

What are your differential diagnoses?

What other diagnostic tests could help localize the problem or make a definitive diagnosis?

What predisposing condition can lead to this problem?

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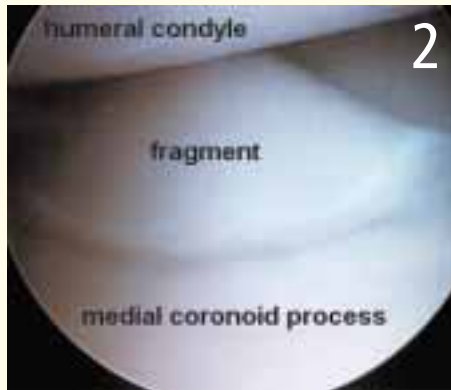
ANA = antinuclear antibodies; CBC = complete blood count

Diagnosis. Mild synovitis and fragmentation of the medial coronoid process (Figure 2).

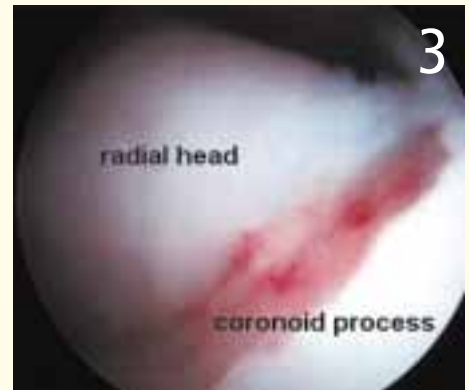
Arthroscopic evaluation of the right elbow was performed. No obvious joint incongruity was seen radiographically or arthroscopically. Arthroscopy is a highly sensitive method of diagnosing fragmentation of the medial coronoid process because it allows direct visualization of the medial coronoid process as well as articular surfaces of the humeral condyle, ulna, and radius. Synovial fluid analysis was not performed due to absence of joint swelling and negative laboratory findings; however, use of this test can help rule out conditions such as septic arthritis and immune-mediated arthritis.

Treatment. Arthroscopic treatment allowed removal of the osteochondral fragment associated with the medial coronoid process (Figure 3). Debridement of adjacent chondromalacic cartilage was done. The subchondral defect was carefully abraded to encourage neovascularization and fibrocartilage repair. The dog responded well to treatment. Lameness resolved 4 weeks postoperatively and has not returned after 2 years.

Discussion. Fragmented medial coronoid process is a manifestation of elbow dysplasia. The condition is reported in many purebred and mixed-breed dogs. Labrador retrievers, rottweilers, Bernese mountain dogs, and golden retrievers seem to be overrepresented; however, this disorder has recently been identified with increasing frequency in Shetland sheepdogs. Clinical signs generally appear between 4 and 12 months of age, but lameness occasionally does not occur until the patient is mature. Shelties typically develop clinical signs later than most breeds, often between 2 and 5 years of age. The history usually includes unilateral or bilateral lameness and exercise intolerance. In mild cases, lameness may be apparent only after aggressive exercise.



Arthroscopic view of a fragmented medial coronoid process. The osteochondral fragment arising from the medial coronoid process is easily visualized and removed arthroscopically.



Arthroscopic view after removal of the fragmented medial coronoid process; after removal of the fragment, chondromalacic cartilage is debrided in the area. The radial head is clearly visible following fragment removal. Mild curettage of the coronoid process is performed to encourage neovascularization and fibrocartilage repair of the defect.

Osteoarthritis is expected to occur secondary to this condition despite surgical intervention. Obesity would be expected to increase the severity of clinical signs of both fragmented medial coronoid process and of osteoarthritis, and weight loss has been shown to improve signs of osteoarthritis. Surgical removal of the fragment appears to decrease pain and improve lameness in most patients. Fragment removal may also reduce progression of osteoarthritis due to reduced synovitis and decreased direct

trauma to cartilage from the fragment and incongruent joint. If joint incongruity is identified, corrective osteotomy should be considered to improve joint alignment. Clinical signs associated with osteoarthritis should be treated with NSAIDs, nutraceuticals, or other chondroprotectants as needed. ■

See Aids & Resources, back page, for references, contacts, and appendices.

DID YOU ANSWER ...

- The cause of the lameness is unknown at this time, but mild radiographic changes in the right elbow may localize the problem there.
- Elbow dysplasia, shoulder instability, immune-mediated polyarthritis
- Synovial fluid analysis, comparative radiographs of the left forelimb, bone scan, CT scan of the elbow, arthroscopy of the shoulder and elbow
- Premature closure of the distal radial growth plate or asynchronous growth of the radius and ulna may lead to a relative shortening of the radius compared with the ulna; excessive force to the medial coronoid process of the ulna due to joint incongruity can lead to fragmentation.

CT = Computed tomography; NSAIDs = nonsteroidal antiinflammatory drugs