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Elizabeth A. Riedesel

Iowa State University

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What's Your Radiographic Diagnosis?

Elizabeth A. Riedesel, DVM, DACVR

A 10-day-old Maine Anjou heifer calf was presented to the Veterinary Teaching Hospital at Iowa State University for evaluation of a non-weight bearing lameness of the right hind leg. The lameness had been present since birth. This calf was born by traction-assisted delivery. The owner had treated the calf for 5 days with antibiotics which had not improved the lameness. No treatment had been given for the past 5 days.

The physical examination confirmed the non-weight bearing lameness of the right hind leg. Palpation of the leg revealed crepitus with motion of the femur and hip joint. The calf was otherwise healthy. Radiographic evaluation of the pelvis and femur was done (see Figure 1).

Radiographic findings

Separation along the right capital femoral physis is evident. The femoral head remains within the acetabulum. The neck of the femur is displaced lateral-cranial by approximately 50% of the contact surface. Dorsal to ventral displacement cannot be determined from this view. All other physeal regions are radiographically normal.

Turn to page 49 for the diagnosis.
Figure 1. - Partially extended femur VD view of the pelvis of a 10-day-old calf with non-weight bearing lameness of the right hind leg.
Larry Poduska is an active veterinarian in a predominantly mixed animal practice. He lives in Lisbon with his wife Judy and their children, Beth, Stephen, Nettie, Nick, and Bernadette. He is a member of the AVMA, IVMA, EIVMA, Linn County VMA, and is a board member and past-president of EIVMA. His associate is Jerome Jallen, ISU '96.

Warren Thompson is in a two-member practice working mostly with cattle and swine in Iowa and South Dakota. He lives in Akron, IA, with his wife Verna. He spent three years in the US Army Veterinary Corp in Kinama, Yokohama, and Chicago. He practiced for 15 years in Sioux Center, IA. Dr. Thompson spent about a year traveling throughout Canada, US, and Mexico relaxing and job hunting. He purchased the Akron Veterinary Clinic in July of 1995. He is a member of IVMA, AVMA, and is a Cub Scout leader in his spare time.

Roger Wonderlich is a partner in a four-person mixed practice with Jack Kimbrough, James Coots, and Frank Figg. He and his wife Jan live in Shelbyville, Kentucky with their three children, Ryan, Kortney, and Grant. He is a member of AABP, AVMA, is a 4-H leader, and is active in church.

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Radiographic diagnosis
Type I right capital femoral physeal fracture.

Discussion
Numerous reports of the occurrence and management of the "slipped capital femoral physis" (Type I physeal fracture) of the bovine are available in the veterinary literature.1-4 In the neonatal calf this fracture most commonly occurs in the larger, heavily muscled breeds: MaineAnjou, Charolais, and Simmental. In one report of 28 calves, the majority were associated with traction deliveries.2 The same study reported an approximate 1.5 times greater incidence in heifer versus bull calves. The fracture was generally unilateral. Lameness is generally exhibited at or shortly after birth; however, some calves may not show lameness for several days to weeks following delivery. Crepituation with manipulation of the femur and hip suggests differential diagnoses of femoral diaphyseal fracture, coxofemoral luxation, pelvic fractures, or capital femoral physeal fractures. Radiography is necessary for definitive diagnosis. Either the frog-legged or extended femur ventrodorsal view of the pelvis and hip joints produces satisfactory images.

Surgical and non-surgical treatment have been used to manage these fractures.1-4 If the calf is a bull calf intended for breeding, surgical repair is recommended. Femoral head removal has been suggested to reduce pain in the calf to be kept for early slaughter. Non-surgical treatment is likely to result in greater pain due to development of secondary osteoarthritis. Although few long term assessment studies have been done, the general success of treatment of the neonatal calves intended for breeding is less than 50%.2+ 4

References