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## What's Your Radiographic Diagnosis?

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# What's Your Radiographic Diagnosis?

Elizabeth A. Riedesel, DVM, DACVR<sup>†</sup>

## Presentation

A 10 month old, female, Manchester Terrier was presented for evaluation of right hind leg lameness. The lameness began three months prior and had progressively gotten worse. No incident of trauma could be recalled at the onset of the lameness. There was moderate atrophy of the right hind leg muscles. There was minimal pain to manipulation of the right hip joint. Both patellae palpated normally. All other body systems were within normal limits. Radiographs of the hip joints were requested. See Figure 1.

## Radiographic findings

The right coxofemoral joint space is widened. The subchondral bone of the right acetabular rim is decreased in opacity. The cranial most edge of the right acetabulum is remodeled to flair cranially. The right femoral head is mildly flattened at its junction with the femoral neck. The right femoral neck is thickened and sclerotic. Two 1-2 mm linear bone opacities are separated from the proximal margin of the right head and neck junction. The remainder of the pelvis and the left coxofemoral joint are radiographically normal.



Figure 1: VD radiograph of a 10 year old female Manchester Terrier presenting right hind leg lameness.

Please Turn to page 98 for the diagnosis.

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## **Radiographic diagnosis**

The changes in the right coxofemoral joint are typical of aseptic necrosis of the femoral head (Legg-Calves-Perthes disease) with moderate secondary changes.

## **Discussion**

Aseptic necrosis of the femoral head is a disease of the skeletally immature small and toy breeds of dogs.<sup>1-4</sup> The terrier breeds seem to be particularly affected. In the Manchester terrier the disease was found to be a multifactorial inherited disease with high heritability.<sup>4</sup> Clinical signs are apparent from 3-13 months. There is no sex predilection. At physical examination, pain is most often detected with extension and abduction of the affected hip joint. Diagnosis of Legg-Calves-Perthes disease is generally made by a combination of signalment and radiographic findings. Radiographic changes vary with the chronicity of the disease. The findings progress from subtle focal lucencies in the femoral head in early phases to flattening of the femoral head; irregular, malformed head; thickening and osteosclerosis of the femoral neck; widening of the coxofemoral joint space; to culmination in osteoarthrosis.<sup>1</sup>

The pathogenesis of this disease is necrosis secondary to an interruption of the vascular supply to the femoral head. The inciting cause of the vascular compromise is usually not determined. When blood sup-

ply is restored, the repair stage begins. The articular cartilage develops clefts and fissures where the subchondral bone collapses. The shape of the head changes relative to the load bearing forces on it, usually becoming flattened to some degree. This shape is maintained through the repair process because the repair process is asymmetrical. The abnormal shape of the head causes secondary changes in the acetabulum and the process of degenerative joint disease is established.<sup>1</sup>

Conservative treatment has been successful in a small number of dogs reported in the literature. Surgical treatment by femoral head and neck excision has been found to result in a good response with near normal use of the limb in the majority of dogs. Following extensive exercise, long periods of inactivity, or cold weather dogs treated by surgery may experience transient lameness.<sup>3</sup>◆

## **References**

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