

NTP Nonneoplastic Lesion Atlas

Bone – Osteochondrosis

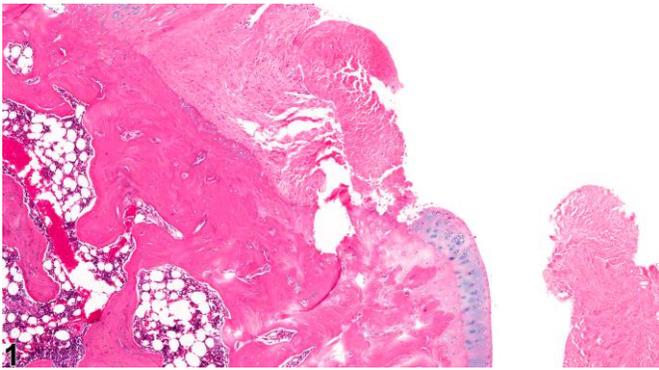
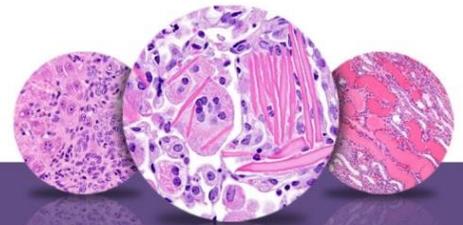


Figure Legend: **Figure 1** Bone - Osteochondrosis in a male F344/N rat from a chronic study. There is focal loss of articular cartilage with proliferation of subchondral fibrous connective tissue.

Comment: Osteochondrosis (Figure 1) is defined as a focal disturbance of enchondral ossification. The lesion is characterized by focal thickening of articular cartilage with extension of the cartilage into the subchondral bone. Hypertrophy of cartilage results from defective mineralization and decreased cartilage resorption, leading to a persistence of enlarged chondrocytes. Fissures form within the basal layers of the thickened cartilage, and fibrous connective tissue proliferation occurs subjacent to these fissures. Eventually, separation of the cartilage occurs, with formation of an articular flap. The lesion may progress to erosion of articular cartilage due to subchondral bone collapse.

Osteochondrosis occurs in a variety of domestic species, primarily as a lesion of young, rapidly growing animals, and is thought to be influenced by dietary, hormonal, anatomic, and genetic factors. Osteochondrosis occurs as a spontaneous lesion in aged rats, although lesions may sporadically occur earlier in life. Early histologic evidence of osteochondrosis includes thickening or fragmentation of the basal layer of articular cartilage and may be observed in Sprague-Dawley rats as early as six weeks of age. This lesion tends to occur in regions of articular cartilage that are thicker, such as the caudal aspect of the medial femoral condyles and humeral head. Lesions of osteochondrosis are focal in nature, although they may occur multifocally or bilaterally in the same animal.

Historically, osteochondrosis has also been recorded as osteochondritis and osteochondritis dissecans. The term “osteochondritis” is not appropriate since inflammation is not a characteristic feature of the lesion. The term “dissecans” is inappropriate since it implies cleft formation through the articular



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cartilage, while osteochondrosis is a spectrum of histologic features, cleft formation being an end-stage or progressed manifestation.

Recommendation: Although osteochondrosis is a spontaneous lesion, it should be diagnosed and given a severity grade whenever present.

References:

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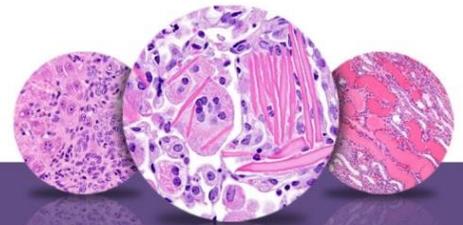
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