Bone – Cyst

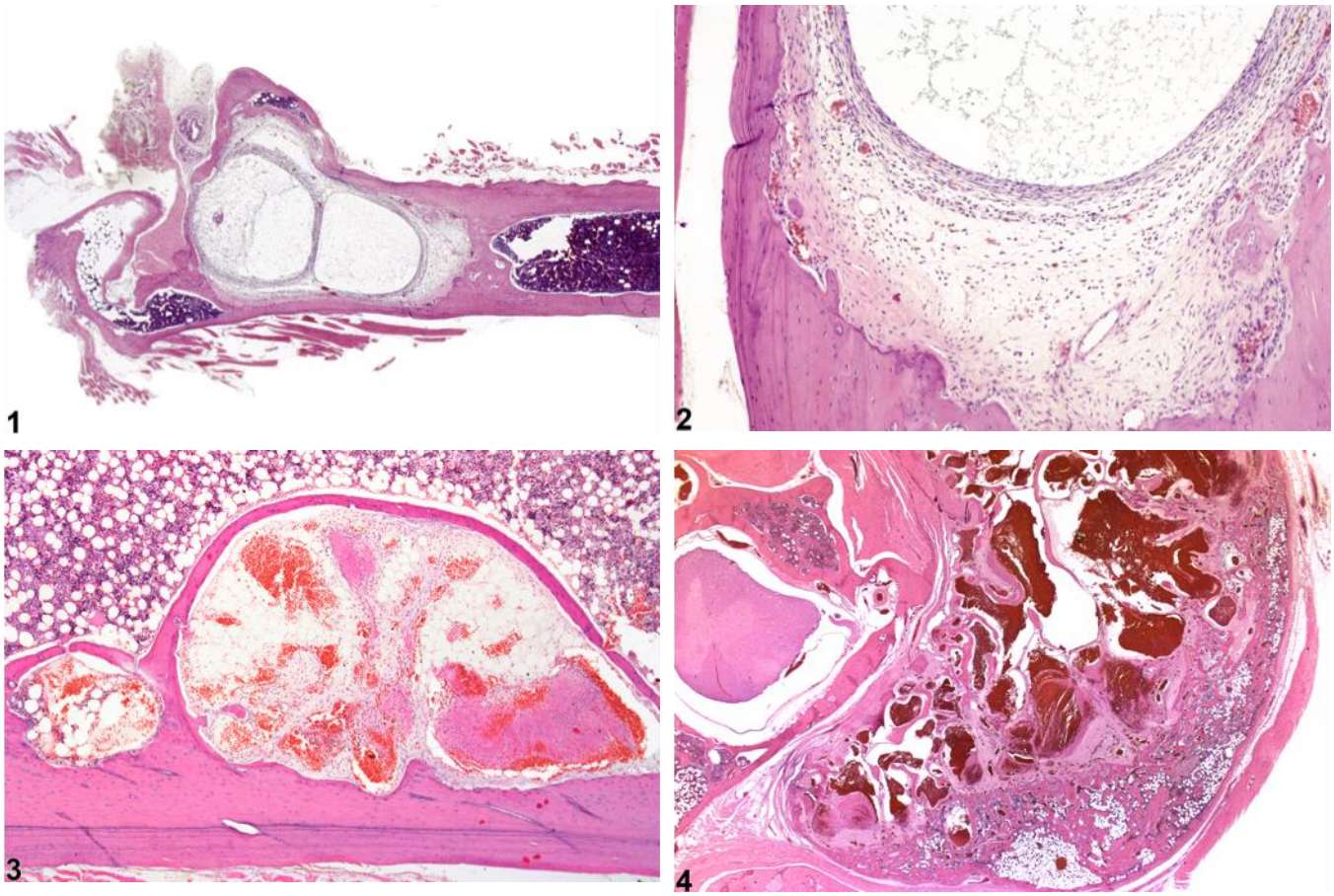
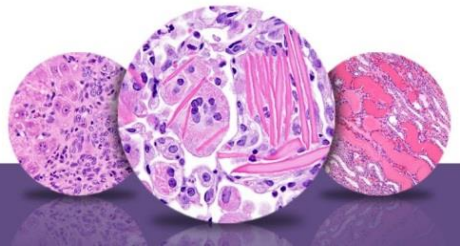


Figure Legend: **Figure 1** Bone - Cyst in a female B6C3F1/N mouse from a chronic study. The cyst is expansile and has a thin wall of cortical bone. **Figure 2** Bone - Cyst in a female B6C3F1/N mouse from a chronic study (higher magnification of Figure 1). The bone directly surrounding the cyst has been replaced by fibrous connective tissue. **Figure 3** Bone - Cyst in a male F344/N rat from a chronic study. The cyst contains large amounts of hemorrhage. **Figure 4** Bone - Cyst in a male F344/N rat from a chronic study. The multilocular bone cyst contains variable amounts of erythrocytes and proteinic material.

Comment: Cortical bone cysts (aneurysms) are characterized by expansion of the cortex and/or marrow cavity by an expansile cystic space composed of a thin wall of cortical bone (Figure 1). The expansile nature of these lesions may induce pressure atrophy of the surrounding bone, with loss of bony trabeculae or cortical bone and replacement by connective tissue (Figure 2). Bone cysts may be



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unilocular (Figure 3) or multilocular and may contain variable amounts of erythrocytes, fibrin, or proteinic material (Figure 4). Solitary bone cysts are rarely observed in the F344 rat, and their significance and pathogenesis are not known. These lesions may occur anywhere along the diaphysis; however, cysts may occur within the subchondral bone as a component of joint degeneration or osteochondrosis in the rat.

Recommendation: Solitary bone cysts should be diagnosed when observed. However, when a cyst occurs as a component of a primary lesion of osteochondrosis (seen as a developmental defect in Sprague-Dawley rats) or degeneration of the joint, it should not be diagnosed. These lesions represent sporadic background processes in the B6C3F1 mouse and F344 rat; increases in bone cysts have not been associated with chemical exposures. Secondary lesions, such as atrophy, should not be diagnosed separately unless warranted by severity.

References:

Leininger JR, Riley MGI. 1990. Bones, joints, and synovia. In: Pathology of the Fischer Rat: Reference and Atlas (Boorman G, Eustis SL, Elwell MR, Montgomery CA, MacKenzie WF, eds). Academic Press, San Diego, 209-226.

Long PH, Leininger JR. 1999. Bones, joints, and synovia. In: Pathology of the Mouse (Maronpot R, Boorman G, Gaul BW, eds). Cache River Press, St Louis, 645-678.

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