Bone – Fibro-Osseous Lesion

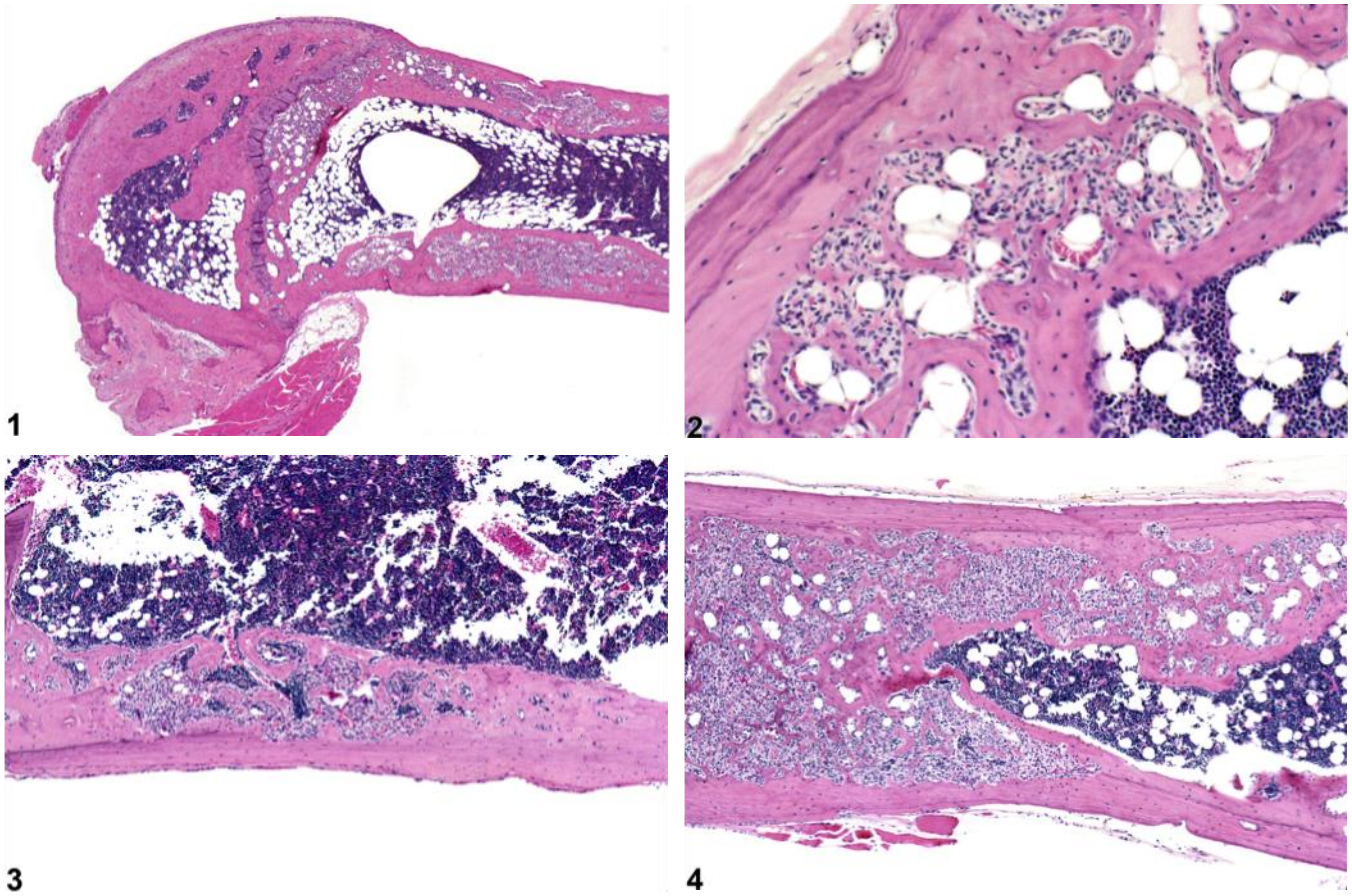
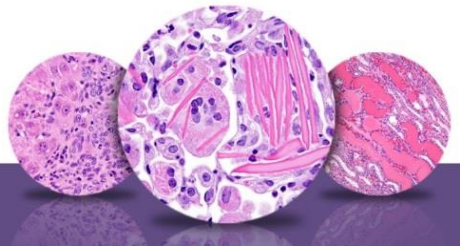


Figure Legend: **Figure 1** Bone - Fibro-osseous lesion in the femur of a female B6C3F1/N mouse from a chronic study. **Figure 2** Bone - Fibro-osseous lesion in a female B6C3F1/N mouse from a chronic study. This fibro-osseous lesion shows replacement of bone by fibrovascular tissue. **Figure 3** Bone - Fibro-osseous lesion in a female B6C3F1/N mouse from a chronic study. **Figure 4** Bone - Fibro-osseous lesion in a female B6C3F1/N mouse from a chronic study. There is replacement of bony trabeculae and the marrow cavity with fibrovascular stroma.

Comment: Fibro-osseous lesions (FOLs) arise commonly within the sternebrae, vertebrae, tibias, femurs, and other bones in a variety of mouse strains. The incidence of FOL is higher in B6C3F1 mice than in other strains, and it is the most common primary bone lesion in B6C3F1 mice. This lesion has not been reported in the rat.



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These lesions are characterized by partial or complete replacement of bony trabeculae and marrow cavity by fibrovascular stroma containing fibroblasts, osteoclasts, and osteoblasts embedded in eosinophilic matrix (Figure 1 and Figure 2). The histopathologic features are similar to fibrous osteodystrophy; however, FOLs occur in the absence of parathyroid or renal alterations, typically arise as focal lesions within the metaphyseal or endocortical regions (Figure 3), and may progress to involve larger areas of the bone (Figure 4).

FOL increases in incidence with age and arises most often in female mice (40–100% incidence in B6C3F1 females, <1% in males), suggesting involvement of estrogens. These lesions are often accompanied by alterations in the uterus or ovary consistent with hyperestrogenism (endometrial cystic hyperplasia, vaginal epithelial cell hyperplasia and hyperkeratosis, ovarian follicular development/atresia and cysts). However, these lesions also arise in ovariectomized female mice and castrated males.

Historically, FOL has been referred to by a variety of names, including fibro-osseous dysplasia, fibrous dysplasia, focal osteodystrophy, osteodysplasia, osteofibrosis, and osteodystrophy, but the preferred term for these lesions is “fibro-osseous lesion.”

Recommendation: Although this is a fairly common age-related background lesion in the B6C3F1 mouse, the incidence and severity of FOL may be influenced by treatment with compounds that possess estrogenic effects. Therefore, this lesion should be diagnosed, given a severity grade, and described in the narrative whenever present. Advanced FOL in mice is indistinguishable histologically from fibrous osteodystrophy. Therefore, when this lesion is observed in mice in an advanced state and in the absence of parathyroid or renal lesions, the diagnosis of FOL should be made. If the lesion occurs concurrently with chronic renal disease or proliferative parathyroid lesions, the diagnosis of fibrous osteodystrophy should be made (see Bone - Fibrous Osteodystrophy).

References:

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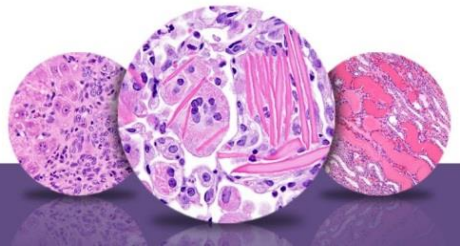

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