

WSC 2011-2012, Conference 24

Case 1. Tissue from a pig.

MICROSCOPIC DESCRIPTION: Long bone: The growth plate is multifocally and irregularly thickened **(1pt)** with marked expansion and disorganization of the zone of hypertrophy **(1pt)**. Tongues of unmineralized cartilage are present within thickened primary trabeculae **(1pt)**. Primary trabeculae are largely unmineralized, and both primary and secondary spongiosa are disorganized **(2pt)**, occasionally oriented perpendicular to the growth plate **(1pt)**, and composed primarily of woven bone **(1pt)**. Within the metaphysis, primary and secondary trabeculae are separated and the marrow space filled by moderate numbers of spindle cells separated by loosely arranged collagen **(1pt)**, and little erythropoietic marrow is present. The metaphyseal cortex is flared **(1pt)** and the cortex is markedly thinned **(1pt)** and composed primarily of woven bone **(1pt)**. Secondary and tertiary trabeculae are lined by hypertrophied osteoblasts **(1pt)** and many osteoclasts within Howship's lacunae, and surrounded by wide osteoid seams. Metaphyseal blood vessels are markedly distended by air.

MORPHOLOGIC DIAGNOSIS: 1. Long bone, physis: Chondrodystrophy, multifocal, severe with retention of unmineralized cartilage cores. **(2pt)**

2) Long bone: Osteopenia with fibrous osteodystrophy and metaphyseal fibrosis. **(2pt)**

NAME THE CONDITION: Rickets **(3pt)**

O/C: **(1pt)**

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Case 2. Tissue from a pig.

(THIS IS NOT A GOOD DESCRIPTIVE SLIDE, AS NORMAL TISSUE IS NOT APPARENT. APPARENTLY THERE IS MARKED SLIDE VARIATION ON THIS CASE, WITH ANOTHER SLIDE DEMONSTRATING OSTEOMYELITIS. THIS PARTICULAR SLIDE ONLY HAS PART OF THE FRACTURE CALLUS)

MICROSCOPIC DESCRIPTION: Bone: The section of bone is composed of disorganized **(1pt)** trabeculae of woven **(2pt)** bone admixed with islands of cartilage **(2pt)**; the pre-existent cortex is inapparent. Trabeculae of woven bone with normal maturation extend outward into the surrounding soft tissue **(2pt)** (presumably from a site of cortical bone injury which is not in this plane of section) The trabeculae are lined by a single layer of osteoblasts and occasionally osteoclasts within Howship's lacunae **(2pt)**. Throughout the proliferating trabeculae of woven bone are islands of metaplastic cartilage, in which chondrocytes are haphazardly arranged in a chondroid matrix of varying density and basophilia **(2pt)**. Spaces between trabeculae and potential marrow spaces are filled with variably dense collagen and plump fibroblasts **(1pt)**, no erythropoietic marrow is visible **(1pt)**. There are multifocal areas of hemorrhage within the fibrous connective tissue **(1pt)**, and at one edge of the section, trabeculae of compact lamellar bone, presumably pre-existent, are visible **(1pt)**. There is abundant collagen which extends into and replaces the adjacent fat. **(1pt)**

MORPHOLOGIC DIAGNOSIS: Bone: Fracture callus with marked periosteal bone production and multifocal cartilaginous metaplasia **(3pt)**

O/C: **(1pt)**

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Case 3. Tissue from a sheep.

MICROSCOPIC DESCRIPTION: Nasal turbinate with respiratory glands: Within the submucosa, expanding, and elevating the mucosa **(1pt)**, there is a poorly demarcated, unencapsulated, infiltrative, oval-shaped, moderately cellular neoplasm **(2pt)**. The neoplasm is composed of loosely arranged bundles and streams of spindle cells **(2pt)** separated by fibrillar collagen **(2pt)**, edema, and variably-sized trabeculae of woven **(1pt)** and rarely, lamellar bone. Spindle cells have indistinct cell borders with a small amount of fibrillar eosinophilic cytoplasm **(1pt)**. Nucleoli are spindle-shaped with finely stippled chromatin and 1-2 small basophilic nucleoli **(1pt)**. Mitoses are rare **(1pt)**. Bony trabeculae are lined by a single layer of osteoblasts **(1pt)** and contain numerous osteocytes within lacunae. There are low to moderate numbers of lymphocytes and plasma cells scattered throughout the collagenous stroma **(1pt)**, as well as in the in the overlying congested mucosa, as well as small aggregates of neutrophils **(1pt)**.

MORPHOLOGIC DIAGNOSIS: Nasal turbinate: Ossifying fibroma **(5pt)**.

O/C: **(1pt)**

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Case 4. Tissue from a chicken.

MICROSCOPIC DESCRIPTION: Tibia, including epiphysis, physis, metaphysis and proximal diaphysis: Diffusely, the physis is markedly thickened by an expansion of the hypertrophic zone and extends up to 1cm deep into the proximal diaphysis. Vessels penetrating the physis are rare and irregularly distributed. Chondrocytes are orderly arranged, and trabeculae within the metaphysis are lined by a variably thick osteoid seam. Osteoblasts are often missing from these trabeculae. Along some metaphyseal trabeculae as well as on endocortical surface, there is marked osteoclast hyperplasia. There is mild peritrabecular fibrosis in metaphysis as well as in endocortical and cortical vascular spaces. There is loss of the metaphyseal cutback zone, and the cortex is diffusely thinned, composed of woven bone with minimal compaction of bony lamellae. There is mild serous atrophy of fat within the marrow and in the subcutaneous tissue.

(1pt).

MORPHOLOGIC DIAGNOSIS: Lung: Bronchopneumonia, necrosuppurative, multifocal, severe, with fibrinous pleuritis. **(3pt)**

CAUSE: *Francisella tularensis* (*Yersinia pseudotuberculosis* and *Bordetella bronchiseptica* OK) **(3pt)**

O/C: (1pt)