Case # 50 28th Midwest Association of Veterinary Pathologists, 13-14 August, 2009
Uneeda K. Bryant; University of Kentucky

Case History

Signalment: 2-week-old, female, Thoroughbred foal

Clinical history: The foal was born with a deformed jaw. Radiographic examination revealed a radiolucent cystic mass located within the proximal aspect of the left mandible.

Gross lesions: A foal in good postmortem preservation and good body condition was submitted to the Livestock Disease Diagnostic Center in Lexington Kentucky with a large, firm swelling involving the proximal aspect of the left mandible. The mass measured approximately 11 x 9.5 x 6 cm in diameter and had a 1.5 cm irregular opening within the gingiva just proximal to the first premolar tooth. Plant material was partially protruding from the gingival opening. The outer surface of the mass had multifocal soft/pliable regions while other regions were non-collapsible and firm. Cut sections of the mass revealed variably-sized cystic spaces containing clotted blood and yellow gelatinous and fibrinous material. The cysts were separated by variably-thickened fibrous and bony septa. The mass contained a distinct white, firm, bony capsule abutting an unerupted deciduous wolf tooth (first premolar (P1)). Deeper sections of the mass also contained an unerupted deciduous canine tooth.

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Case Results

Histopathologic description: The cystic mandibular mass was composed of mixed elements of mature and immature reactive bone, randomly dispersed mineral, loose, dense and proliferative mesenchyme, osteoclasts, osteoblasts, suppurative inflammation, hemosideriophages, encysted plant material, bacteria, hemorrhage, and 2 well-differentiated unerupted teeth. The outer periphery of the cystic mass was composed of variable amounts of fibrocollagenous tissue, fibrovascular tissue, organized and disorganized spicules and trabeculae of mature and immature reactive bone. The more organized regions of bony elements were frequently lined by well-differentiated osteoblasts and the more disorganized regions often had scalloped edges accompanied by several osteoclasts. The inner linings of the cysts were often composed of flattened to plump spindloid cells and variably thickened bands of organized fibrovascular tissue with and without infiltrates of multinucleated cells resembling osteoclasts. There were denticles (unerupted deciduous teeth (canine and premolar teeth)) in some sections composed of normal well-differentiated elements of ameloblasts, odontoblasts, cementum, dentin, dental pulp, and alveolar bone. Randomly dispersed throughout the mass were disorganized accumulations of basophilic material indicative of mineral. The cystic spaces were separated by variably-thickened septa containing spindle cells (loose and dense mesenchyme) and/or spicules of bone, hemorrhage, multinucleated cells, and variable amounts of suppurative inflammation (intact and degenerative neutrophils, lymphocytes, and hemosiderophages) occasionally encompassing entrapped plant material. Also observed within septa separating cysts are cross and longitudinal sections of well-differentiated nerve bundles.
Morphologic diagnosis: Congenital aneurysmal bone cyst

Comments: Aneurysmal bone cysts (ABCs) are rare benign cystic proliferations that have been reported in the dog, cat, cow, llama, human, and horse. These are non-painful multicystic lesions that can contain variable amounts and proportions of blood, serosanguinous fluid, and fibrin separated by variably-thickened bands of fibrocollagenous and/or fibro-osseous tissue. Multinucleated cells and hemosiderophages are common features. ABCs have been reported to occur within long bones and the cranium. In horses, the mandible has been the most common sited region of occurrence. The etiopathogenesis of developing ABCs is poorly understood although theories include congenital malformation of intraosseous/medullary vasculature or secondary to trauma, bleeding disorders, fibrous dysplasia, hematomas, or neoplasia. Primary differentials for ABCs include telangiectatic osteosarcoma and hemangiosarcoma. Recommended treatment for ABCs is surgical curettage with bone grafting.

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