Case: 43  ( slide 992 )

Presenter: Paola Cazzini, DVM (paola@uga.edu)
Co-presenter: Bridget Garner, DVM, PhD, DACVP
Signalment:
9-year-old, mixed breed, male neutered dog

History:
recent left forelimb lameness

Left proximal humerus with a lytic bone lesion
Predominant Cell Type

- Exfoliating individually and in loose aggregates
- Ovoid to spindle shaped cells, indistinct cellular borders, “plasmacytoid” appearance
- Cytoplasm: moderate, basophilic, with eosinophilic dusting
- Nucleus: eccentric, ovoid to reniform, coarsely stippled chromatin with 1-2 nucleoli
- Occasional mitotic figures, bi-nucleated cells
- Moderate anisocytosis and anisokaryosis

Most compatible with osteoblasts
Multinucleated Giant Cells

- Large (50 to 100 microns in length), irregularly shaped
- Cytoplasm: abundant, basophilic, with eosinophilic dusting
- Nuclei: 3 to 20, uniform, round to oval, coarsely stippled chromatin with an evident nucleolus

Most compatible with osteoclasts
## Differential Diagnosis

<table>
<thead>
<tr>
<th>Osteosarcoma (giant cell type)</th>
<th>Giant cell tumor of bone</th>
</tr>
</thead>
<tbody>
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<td>Subclassification for osteoblastic osteosarcomas</td>
<td>Rare osteolytic tumor</td>
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<td>Cells of histiocytic origin (many giant cells)</td>
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Osteosarcoma (Giant Cell Type)

Giant Cell Tumor of Bone
Alkaline Phosphatase Stain

- Nitroblue tetrazolium chloride/5-bromo-4-chloro-3-indolyl phosphate toluidine salt (NBT/BCIP)
- Detects ALP activity
- ALP in epithelial tissue, liver, kidney and placenta
- Among connective tissues, bone is the only one to produce ALP
Alkaline Phosphatase Stain

- Inexpensive
- Easy
  - Unstained
  - Previously stained slides
- Fast
  - 10 minutes for unstained slides
  - 1 hour for previously stained slides
## Differential Diagnosis

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**ALP +**

**ALP -

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Thank you
Elizabeth Howerth and Victoria Watson for histopathology

Questions