

**Osteosarcoma**

**Clinical Signs**

- Lameness in a giant breed dog
- “Toward the knee” and “away from the elbow”
- Some evidence that metal implants may increase risk
- Possible increased risk for sterilized animals as compared to sexually intact

**Osteosarcoma**

**Diagnosis**

- Cytology taken with 18g needle can be diagnostic
- If not, sedate and take radiograph guided biopsy of the lytic bony mass
- Do not amputate without biopsy
  - DDx fungal osteomyelitis
  - DDx metastatic carcinoma
- Abdominal ultrasound is a low yield test for OSA, but a reasonable test for fungal infection and carcinoma
  - FNA of liver and spleen can reveal systemic mycosis

**Osteosarcoma**

**Diagnosis**

- Osteoblasts (“flag cells”)
- Osteoclasts (multinucleate giant cells)
- Mesenchymal cells

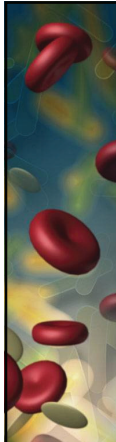
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**Osteosarcoma**

**Osteosarcoma**

**Amputation**

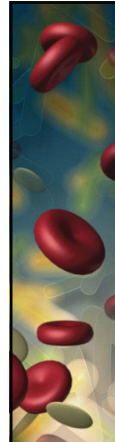
- Amputation provides pain relief, but almost all have already metastasized
- Surgery alone improves quality of life, but does not prolong survival
  - May not be indicated for dogs with pulmonary metastasis
- Median survival 4 months
- 10% of dogs are alive at one year
- Mobility issues should be considered
  - Large dogs can have difficulty ambulating without a front limb
  - Orthopedic problems in remaining limbs can be exacerbated
- Radiograph all 4 limbs prior to amputation



### Osteosarcoma

#### Limb Sparing Surgery

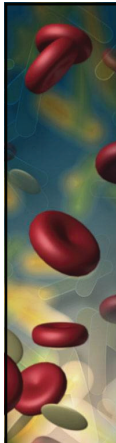
- Reasonable option only for relatively small lesions in the distal radius
- Function is poor for the other 3 locations
- Tumors involving more than 50% of bone or those that invade soft tissue in any location have poor mobility
- CT reveals that tumor is often larger than it appears on radiographs



### Osteosarcoma

#### Palliative Radiation

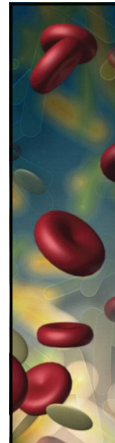
- Once weekly for three weeks
- 75% have significant clinical improvement in lameness and pain score
- Median pain relief is 2 months
- Increased mobility may increase risk of pathologic fracture (?)



### Osteosarcoma

#### Chemotherapy

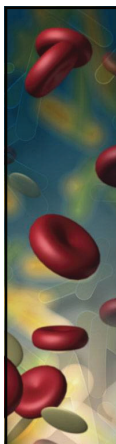
- lengthens survival significantly following amputation
- doxorubicin q3 weeks x 5
  - Get a baseline echocardiogram
- Or carboplatin q3 weeks x 5
- Cisplatin or cisplatin + doxorubicin are equally effective, but much more toxic
- Chemotherapy should begin 2 weeks after surgery



### Osteosarcoma

#### Prognosis

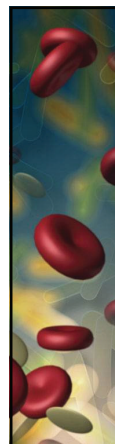
- Median survival 4 months with amputation only
- Median survival 6-16 months with amputation and chemo
- 10% alive in 1 year with amputation alone
- 30-62% alive in 1 year with both
- 2 year survival is 7-21% with amputation and chemo
- Dogs almost never survive to 2 years with amputation alone



### Osteosarcoma

#### Prognosis

- Those with thoracic metastasis at the **time of diagnosis do poorly no matter how treated**
- Elevated SAP
  - Median survival 5.5 months if SAP elevated
  - Median survival 12.5 months if SAP within normal range
- High grade tumors have worse prognosis
- Dogs between 7-10 years of age do the best
  - Young and older dogs don't fare as well
- Dogs with elevated lymphocytes and/or monocytes do not do as well
- Advances in the last 20 years have led to increase in survival by 500%



### Client Handouts

- [Hemangiosarcoma](#)
- [Osteosarcoma](#)
- [Yunnan Pai Yao](#)