Advances in Surgical Oncology

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Osteosarcoma

- Basics
  - Amputation: MST 3-6 months
  - Amputation + chemo: MST 1 year
  - Limb spare + chemo: MST 1 year
  - Chemo-Carboplatin q3 weeks for 6 treatments??
- Palliation
  - Pain management
  - Palliative Radiation (day 0, 7, 21)
  - 74%-92% improvement
  - MST 73-130 days (Ramirez 1999)

Osteosarcoma

- Pathologic Fractures:
  - Old school—must amputate
  - Recent study (Boston 2011)—Repair of pathologic fracture
  - Interlocking Nail and Bone Plates
  - MST—similar to amp + chemo and Limbspare
- New Limb Spare??
  - Percutaneous Cementoplasty
  - Complications—leakage of cement, infection, thrombosis
Osteosarcoma

Bisphophonates
- Plays a role in human medicine
- Manages pathologic bone resorption (osteoporosis)
- Inhibits bone resorption without impeding bone mineralization
- Reduces osteoclastic activity

Bisphosponates
- Oral or IV
- Oral bioavailability poor
- Therapeutic effect: reduce the rate and magnitude of bone resorption
- Low incidence of adverse effects
Osteosarcoma Bisphosphonates

Anti-Cancer Effects
- Antiproliferative
- Anti-Invasive
- Antiangiogenesis

Treatment
- Pamidronate
- 1-2mg/kg IV dilute in 250ml of 0.9% NaCl
- Given over 2 hours
- Every 4 weeks
- 63% Improvement (Barnard 2007)

Axial Pattern Flaps
Caudal Auricular
Facial Artery

- Between the wing of the atlas and the vertical ear canal
- Centered over lateral wing of atlas
- Central 1/3 of the lateral cervical area
- To the level of the scapula
Axial Pattern Flap

Facial Artery
- Cutaneous branch of the facial artery
- Midway between the zygomatic arch and midcervical to midline
- More ventral access than caudal auricular

Latissimus Dorsi Muscle Flap
- Utilized to cover defects beneath the skin
- Most commonly used for thoracic wall reconstruction
- Elevate and rotate muscle flap
- +/- closed suction
Cranioplasty
Reconstruction with PMMA
Exterior Helmets
Skull Tumors

- Cranioplasty PMMA
  - Extensive skull lesion (MLO)
  - Molding PMMA to defect
- Complications
  - Chronic draining tracts
  - Infection
  - SQ emphysema
  - Necrosis of skin

External Helmet

Ligasure

- Introduced in 1998
- Vessel Sealing Device

- Combination of pressure & energy
- Permanently fuses vessels 7mm in diameter
- Seal cycle 2-4 seconds
- Automatically discontinues when finished
- Hemostasis achieved by reforming collagen & elastin
Ligasure

Indications

- Splenectomy
- Liver Lobe Resection
- Amputation
- Soft Palate Resection
- Thyroid/PTH excision
- Cholecystectomy

Ligasure

Nitinol Stents
Nitinol Stents

- First described in dogs for tracheal collapse
- Intraluminal stents
- Self expanding
- Superelastic-can sustain up to 10% alteration
  - Stainless steel only 0.3%

Urethral

- Weisse 2006
- Fluoroscopic Placement
- 10% greater than diameter
- Complications:
  - Inflammatory response
  - Incontinence
  - Tumors grow through stent

Colorectal

- Culp 2011
- Palliative
- Complications:
  - Stent migration
  - Perforation
  - Tenosynus
  - Obstructed
  - Tumor regrowth
Wound Soaker Catheters

Wound Soaker Catheter

- Provides periodic instillation of local anesthetic
- Placed in deepest layer of wound bed
- Infusion holes span long axis of the wound
- Exit port dorsal
- Administration 24 hours to 3 days

Dog Dosing:
- Lidocaine 1.0-2.0 mg/kg/hr
- Dilution from 1-2%
- Example: 5-25 kg 1-3 mls per hour
- Bupivacaine 0.5 mg/kg 4-6 hours (dilute 0.5% to 0.25%)

Cat Dosing:
- Bupivacaine 0.5 mg/kg every 4-6 hours (diluted to 0.25%)
Vascular Access Ports
• Convenient
• Surgically Placed
• Expensive ($1500)

Spiral (Helical) CT Scan
• Traditional—rotate around patient
• Spiral—Moves patient through gantry at constant speed while x-ray tube rotates

3D Reconstruction CT
Allows for better planning
Laser Ablation for TCC

- Requires open surgery (cystotomy)
- Followed by laser ablation
- Can be repeated 4-5 times
- Improves Clinical Signs
- In conjunction with Chemotherapy

EBC-46

- Elixir from Blushwood Tree
- A Current Affair
- No clinical trials
- No publications
- Anecdotal
- Inject tumor
Bloodroot Extract

- Sanguinaria canadensis
- Anecdotal until recently
- Childress 2011
  - 2 dogs
  - Necrosis and severe inflammation
  - Benign tumors

Bloodroot extract

- Escharotic:
  - Elicits inflammation, necrosis, & eschar formation
  - Extensive necrosis
  - Unknown anti-cancer cytotoxic
  - Toxic doses
  - Interferes with histopathology

- If surgical, hard to determine margins
- Painful, cosmetically unappealing
- May be unnecessary
- May delay or prevent definitive treatment

Radiation

- Full Course
- Stereotactic Radiation
Tyrosine Kinase Inhibitors

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<th>Palladia</th>
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Questions???