Introduction to Imaging the Skeletal System

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Technique

- Low kVP to contrast medullary (trabecular) vs. cortical bone

- Requires increase in time (mAs)
  - Sedation for appendicular skeleton
  - Anesthesia for spine and skull
Concepts

- **Sclerosis:**
  - Loss of trabecular pattern with increased opacity
Concepts

Lysis:
- Loss of trabecular pattern with decreased opacity.
- Bone resorption/destruction
Concepts

- **Periosteal proliferation:**
  - Irregular bony proliferation at bone surface
  - Inflammation
Conce:

- **Osteopenia**
  - Overall, there is a decreased density of bone with thinning of the cortical bone and increased inter trabecular spacing.
Trauma

- Two views optimal
- Horizontal Beam VD
- CT is more sensitive
- Sedation and anesthesia may be contraindicated
Concepts

- **Monostotic:**
  - Only one bone involved
Concepts

- **Polyostotic:** Multiple bones involved
Survey Spinal Radiographs

- Trauma
  - Fracture
  - Luxation
- Infection
  - Discospondylitis
  - Osteomyelitis
- Neoplasia
  - Primary Bone Tumors
  - Metastases
Trauma
Trauma
Discospondylitis

- Centered at the disc space
- Widened (early) or collapsed (late), lytic disc space
- Irregular endplates
- Sclerotic bone
- Often hemotogenous spread from infection (pneumonia, cystitis, dental dz)
- Associated with *Brucella canis*
Discospondylitis
Discospondylitis
Discospondylitis
Discospondylitis
Primary Bone Tumor
Primary Bone Tumor
Primary Bone Tumor
Bone Mets
Spondylosis Deformans

- Smooth bony bridging of adjacent vertebral bodies
- Noninflammatory
- May indicate instability
- Centered at disc spaces
- Mostly ventral and lateral
Spondylosis Deformans
Disseminate Idiopathic Skeletal Hyperostosis (DISH)
Spinal Degenerative Joint Disease
Skull - Principles

- Requires heavy sedation/general anesthesia
  - Straight positioning to compare right to left
  - Low kVp and high mAs for high detail and contrast
  - Special views for different areas
Skull-Symmetry
Skull - Interpretation

- Loss of fine detail indicates disease
  - Soft tissue mass/liquid
    - Loss of detail with increased opacity
  - Lysis
    - Loss of fine detail with radiolucency
    - Often associated with fungal rhinitis or soft tissue tumor
Septic Arthritis
Degenerative Joint Disease
DJD- Hip Dysplasia
Aggressive Lesions
Pathologic Fracture
Panosteitis
Hypertrophic Osteodystrophy
Hypertrophic Osteopathy
Osteochondrosis
Thank You

Taiwan Humane Society Association

Kaohsiung Veterinary Association