

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

- Osteopen
 - Overall
opacity
with thi
and inc
trabecu



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

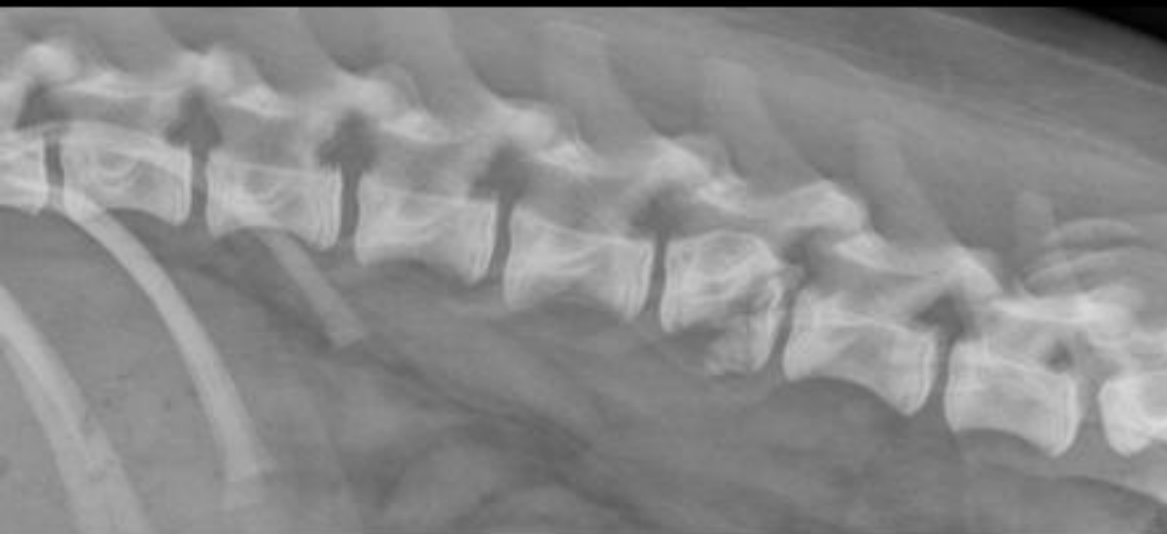
- **Neoplasia**

- Primary Bone Tumors
- Metastases

Trauma



Trauma



Compression Fracture



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



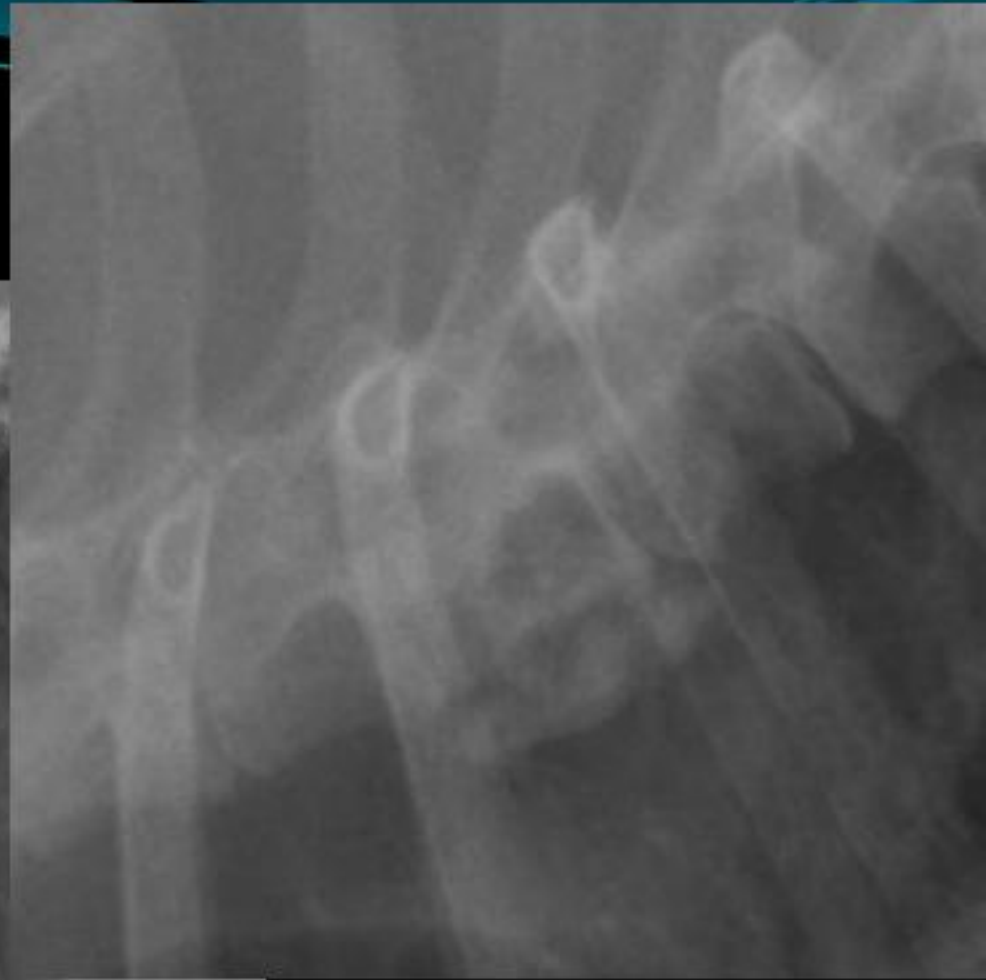
Primary Bone Tumor



Primary Bone Tumor



Bone Mets



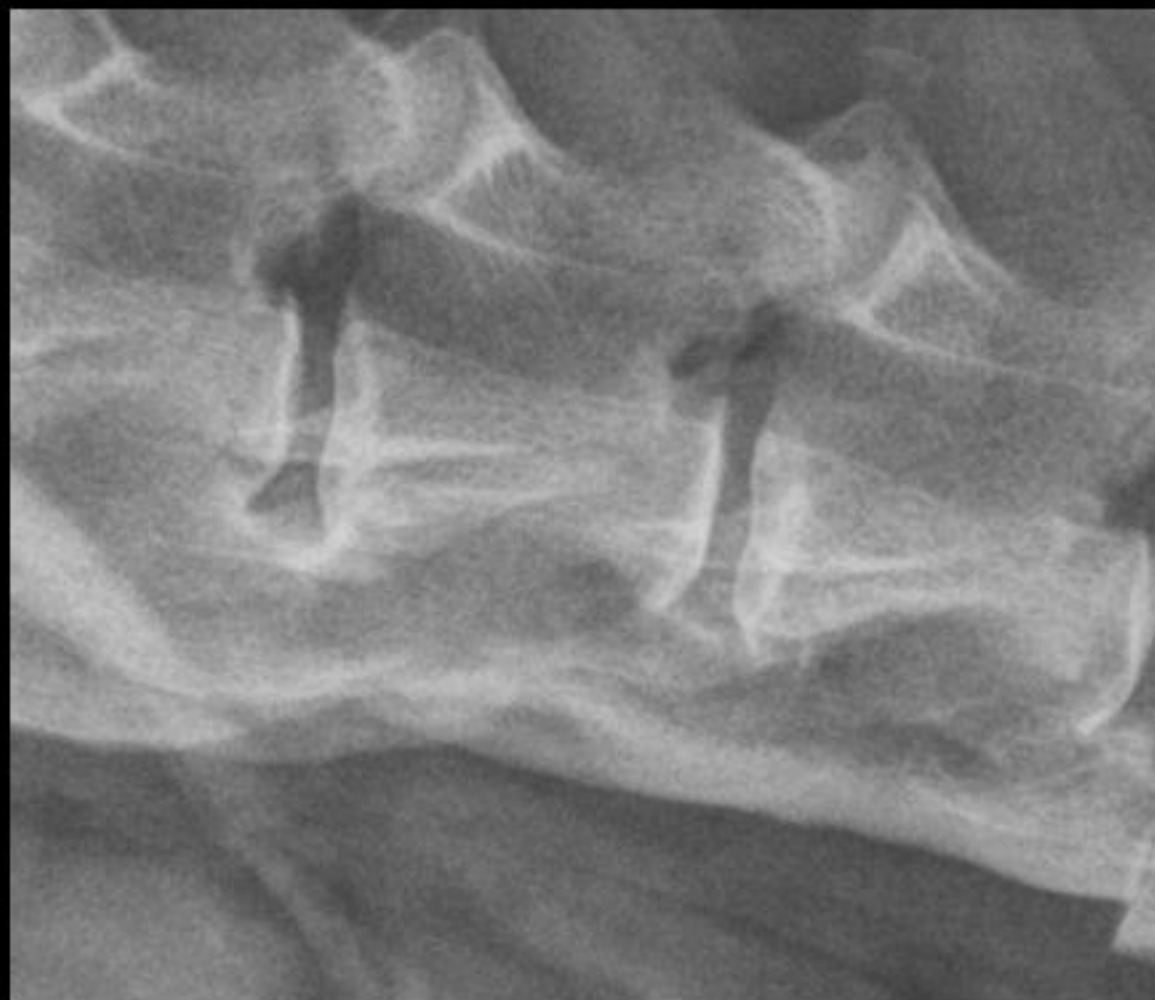
Spondylosis Deformans

- Smooth bony bridging of adjacent vertebral bodies
- Noninflammatory
- May indicate instability
- Centered at disc spaces
- Mostly ventral and lateral

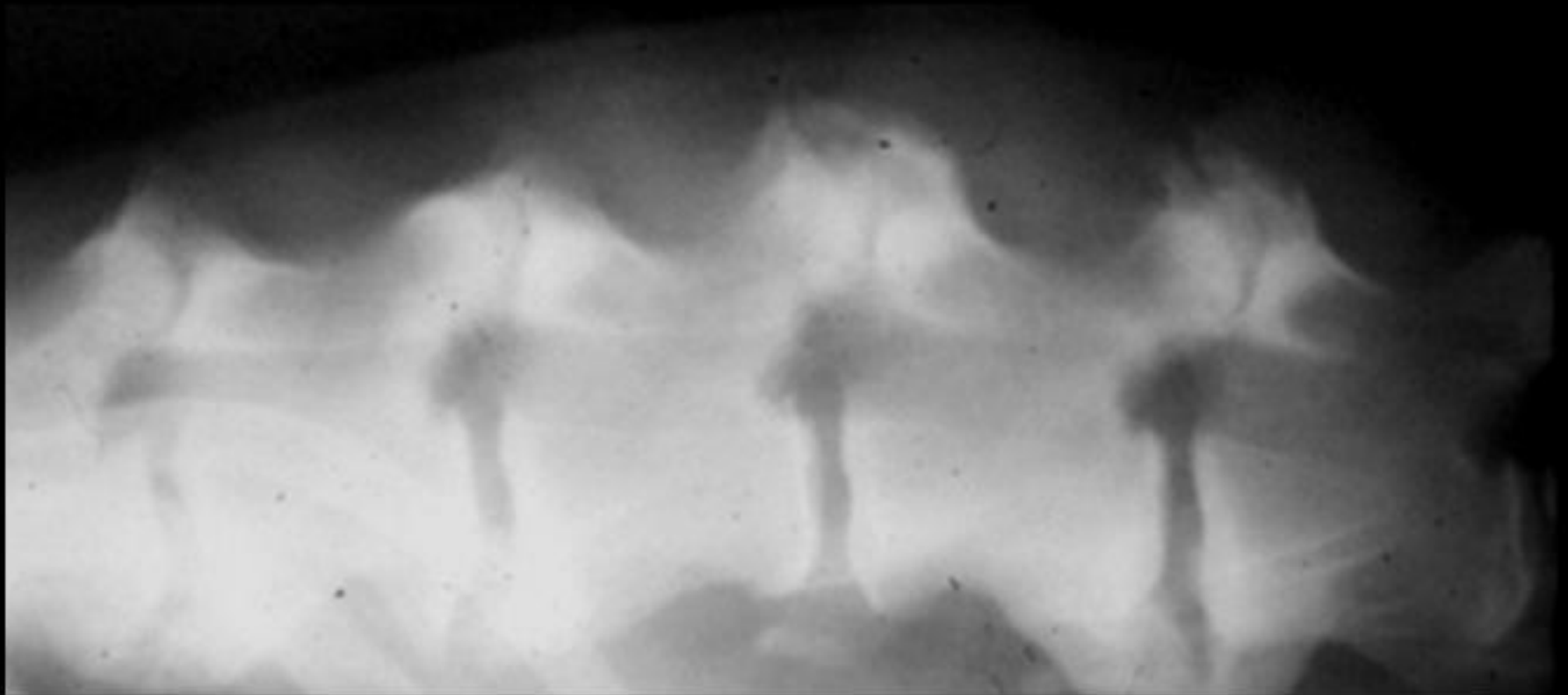
Spondylosis Deformans



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/fluid
 - Loss of detail with increased opacity
- Lysis
 - Loss of fine detail with radioluceny
 - Often associated with fungal rhinitis or soft tissue tumor

Nasal Disease



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PCR#9688



Septic Arthritis



Degenerative Joint Disease



DJD- Hip Dysplasia



Aggressive Lesions



Pathologic Fracture



Panosteitis



4-5



Hypertrophic Osteodystrophy



Hypertrophic Osteopathy



Osteochondrosis





Thank You

Taiwan Humane Society Association

Kaohsiung Veterinary Association