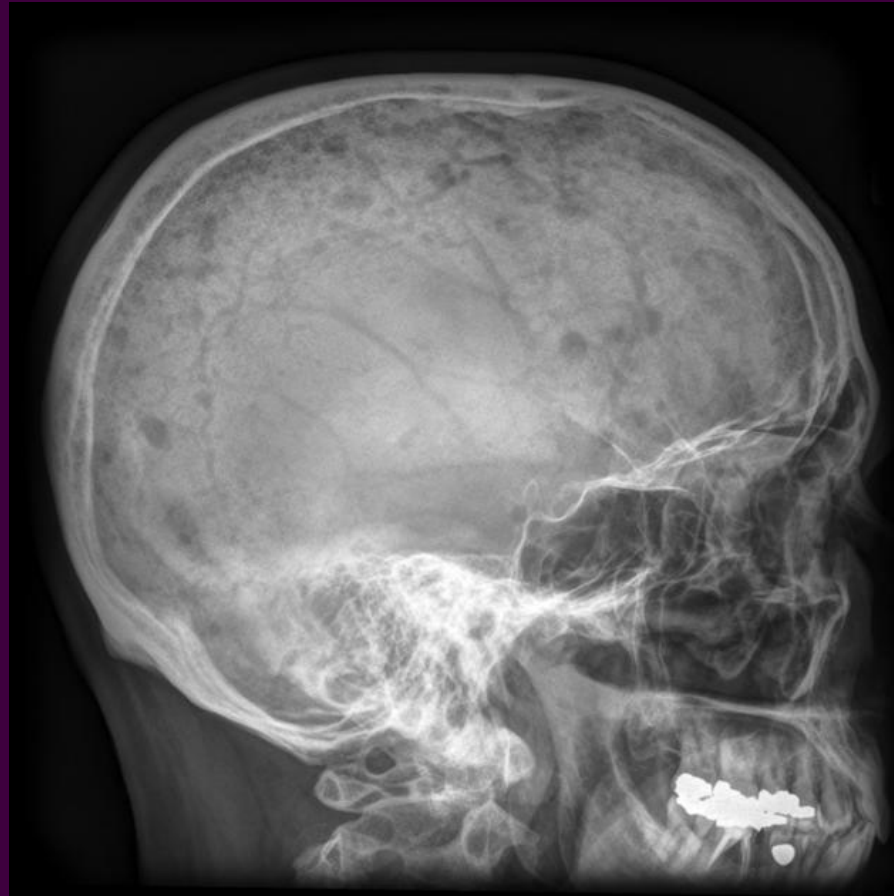


Spinal Tumors and Tumor-like conditions



Spinal cord lesions

- Lesions usually designated by their relationship to the cord
 - Extradural
 - Intradural extramedullary
 - Intramedullary
 - Short segment – Less than 2 vertebral segments
 - Long segment – More than 2 vertebral segments

Spinal cord lesions

- Contrast used for:
 - Cystic vs Solid lesion
 - Tumor – intradural/extramedullary lesion
 - Infection – differentiation of ST edema from abscess
 - Differentiation of Post-op fibrosis vs recurrent disk lesion

Gac



Spinal cord lesions

- Extradural lesions include:
 - Lesion extending from spine include
 - Disk lesions
 - Lymphomas, sarcomas
 - Multiple myeloma
 - Metastatic lesions

45 y.o. female

Right-sided neck pain and marked decrease motion

Radicular symptoms on right C5/C6

No significant history of trauma or malignancy

Extradural lesions



Extradural lesion



Non-Hodgkins Lymphoma

Extradural lesions



Extradural lesions

Arachnoid cysts throughout spine



Case courtesy of Dr Aruna Pallewatte, Radiopaedia.org, rID: 27648

Spinal cord lesions

- Intradural extramedullary lesion include:
 - Meningiomas
 - Neurogenic tumors (i.e. neurofibroma/neurilemoma)
 - Lipomas
 - Intradural cysts
 - Intradural METS

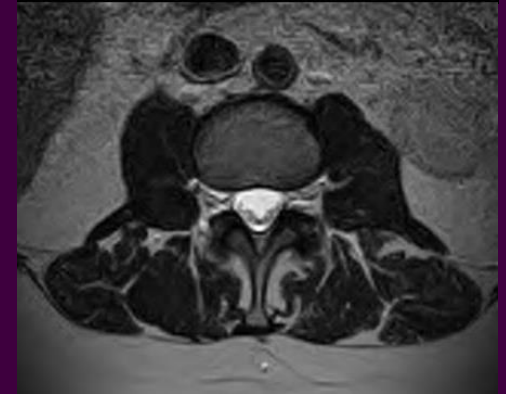
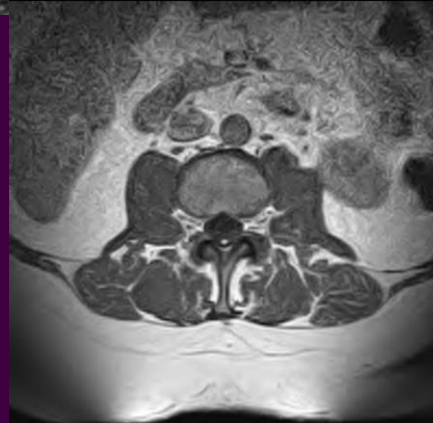
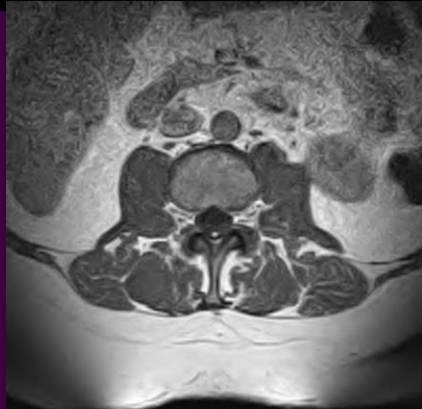
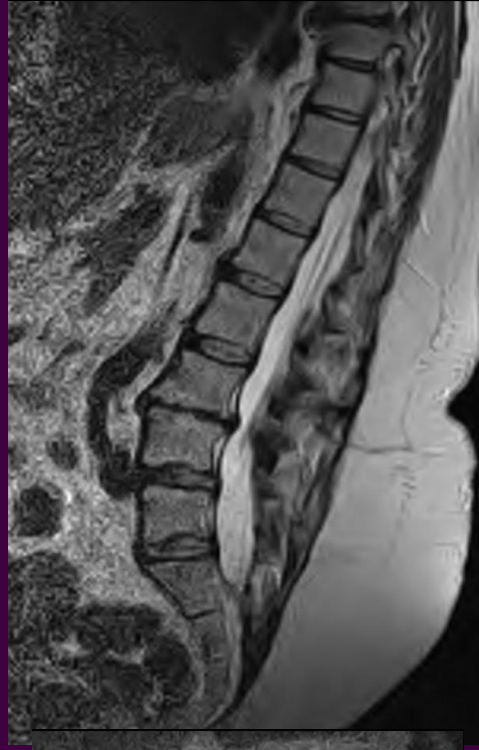
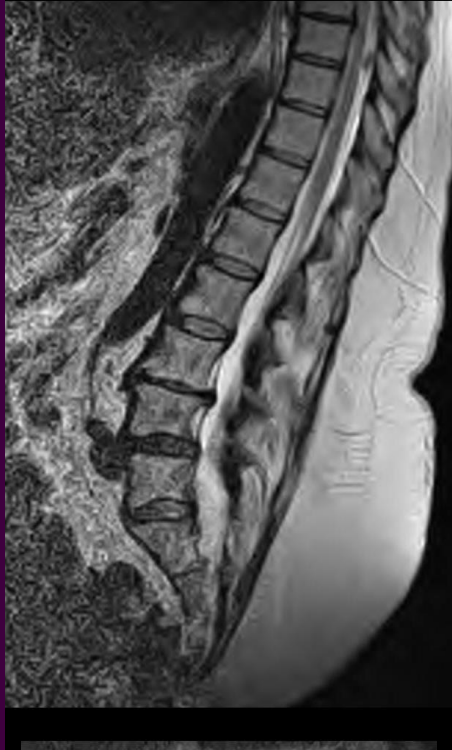
Intradural extramedullary lesion



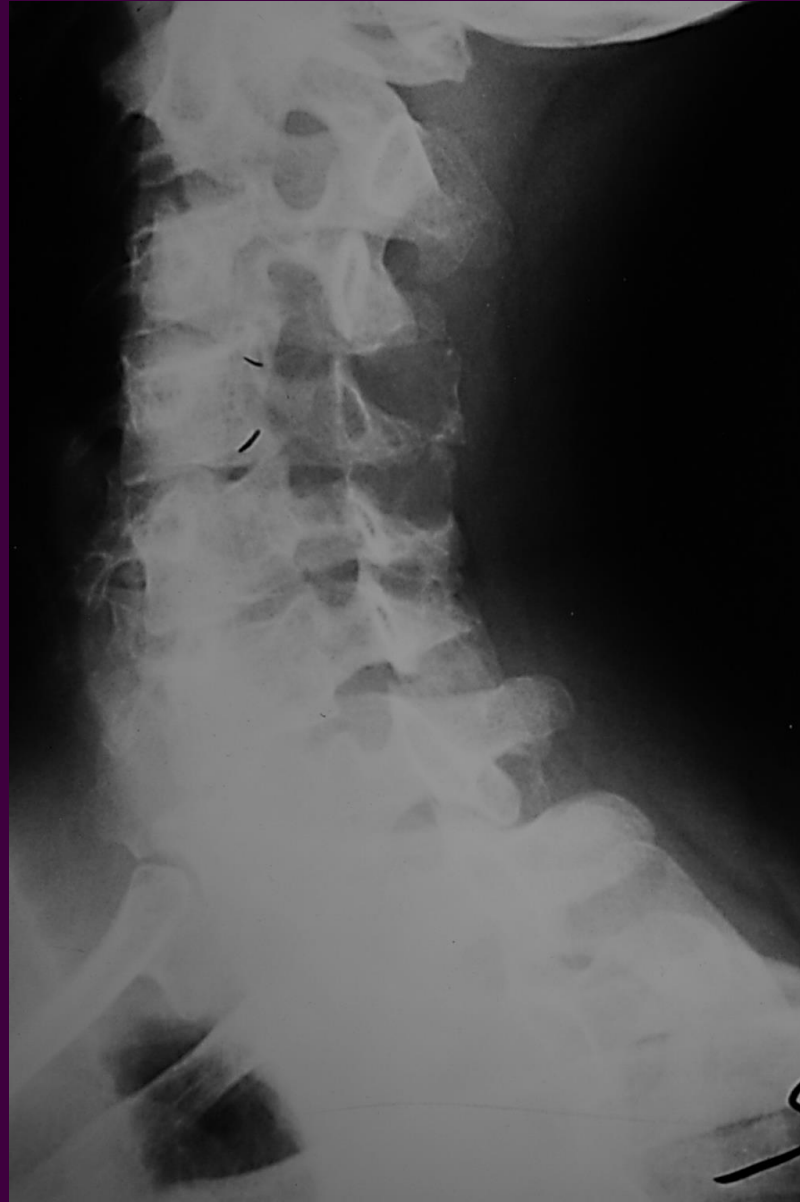
Fibrolipoma
within filum
terminale

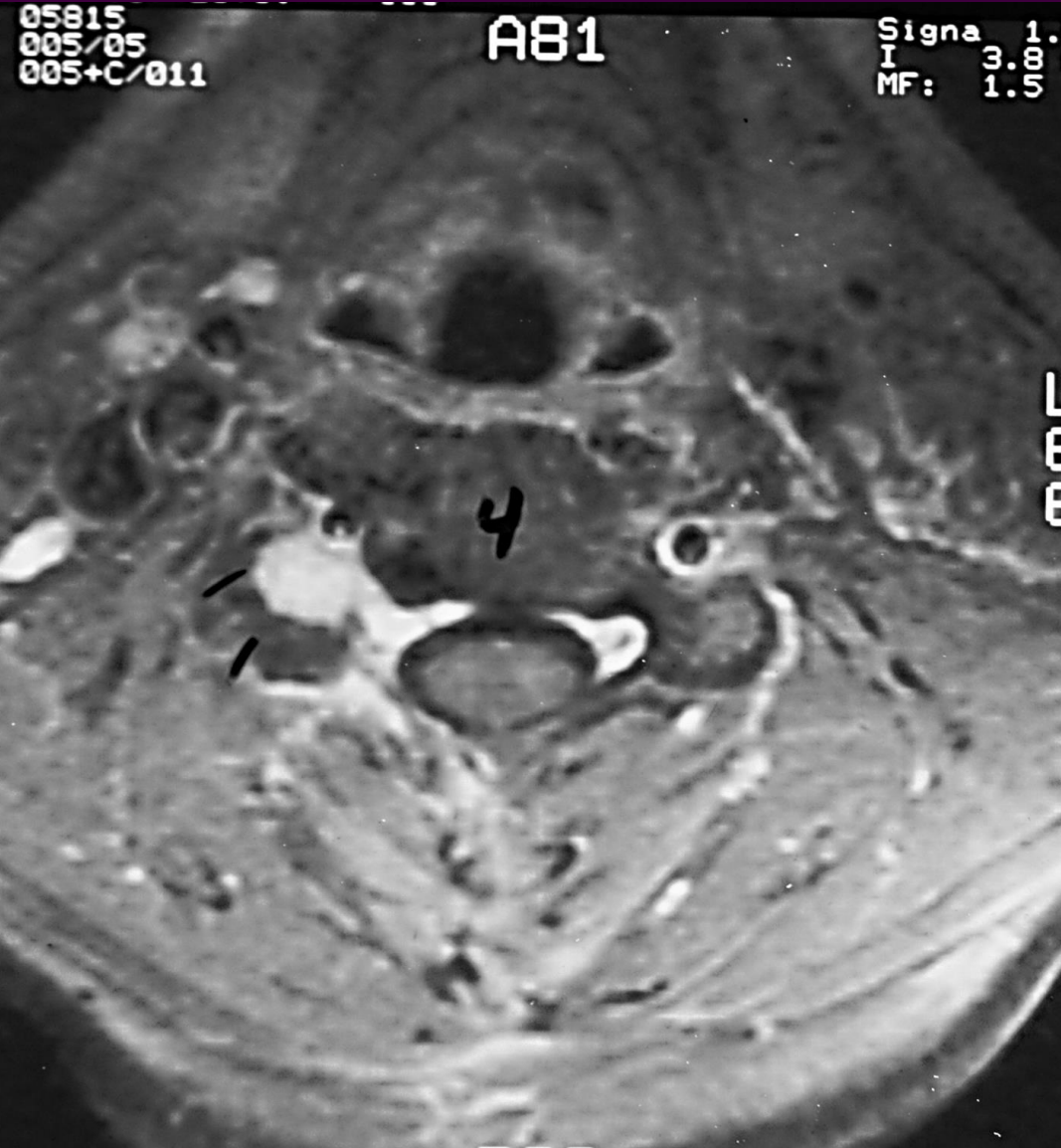
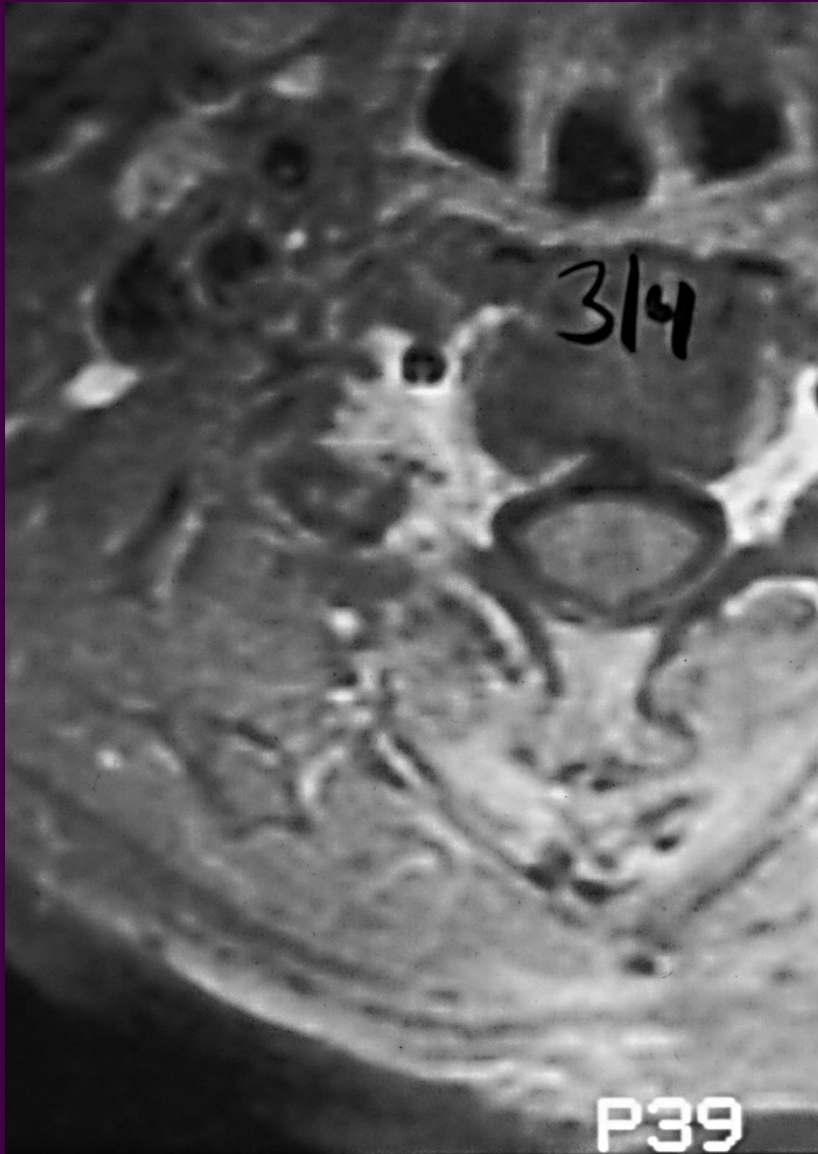


Intradural extramedullary

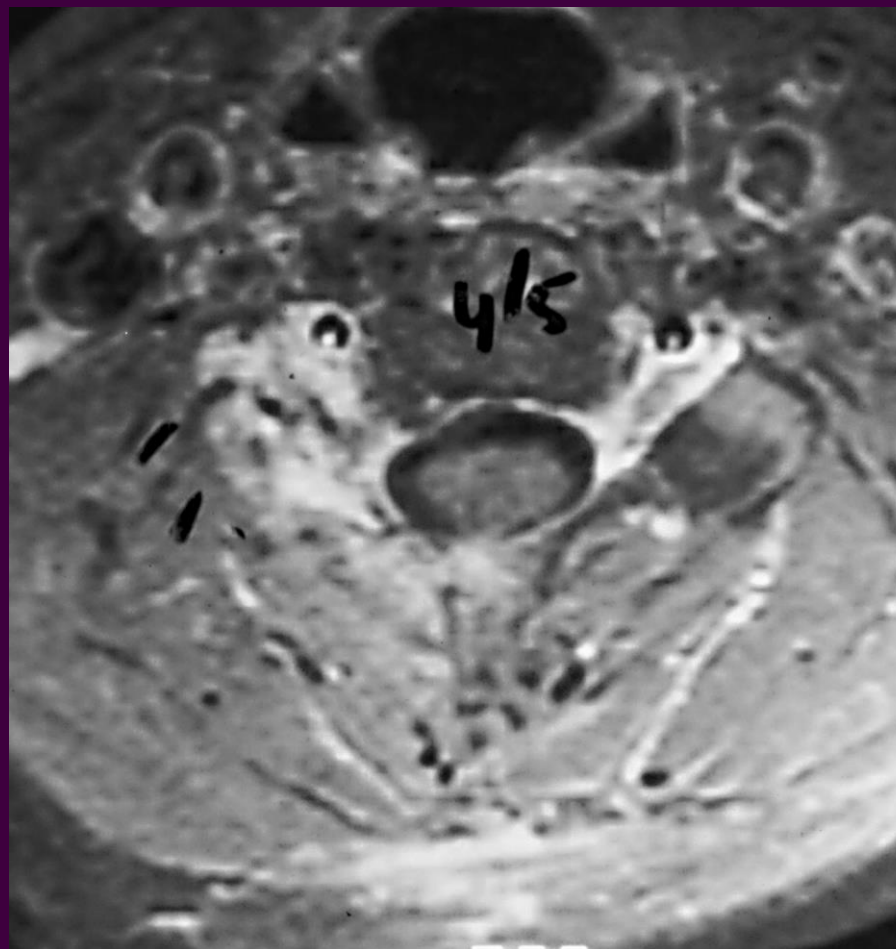


Erosion of pedicle enlarged IVF





Neurofibromatosis



UBCC



UBCC

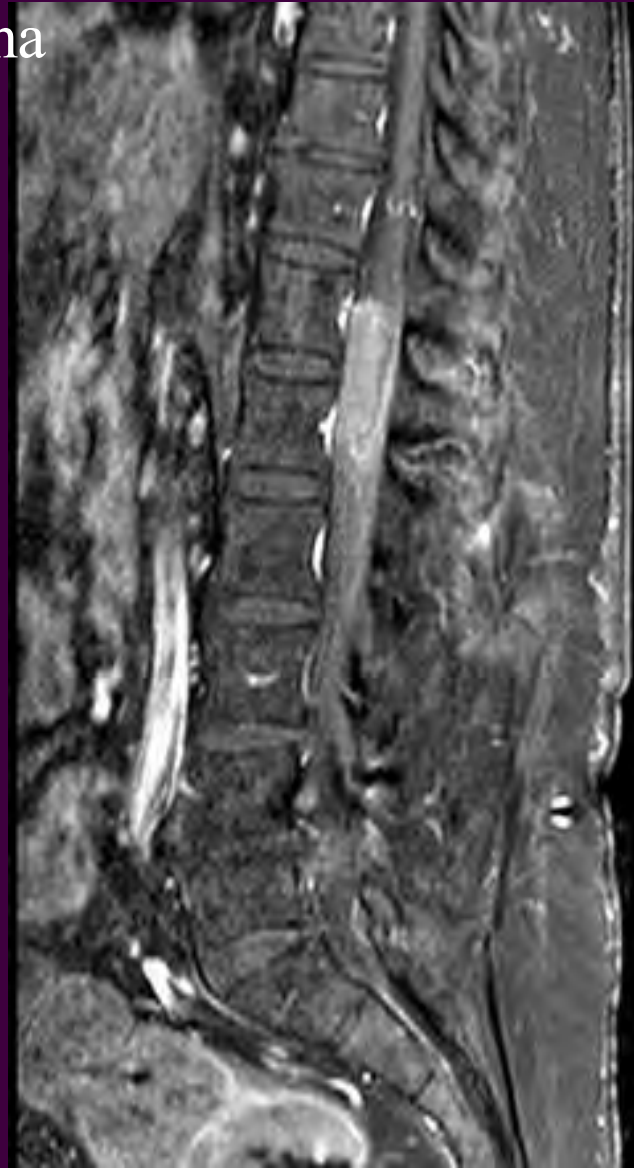


Spinal cord lesions

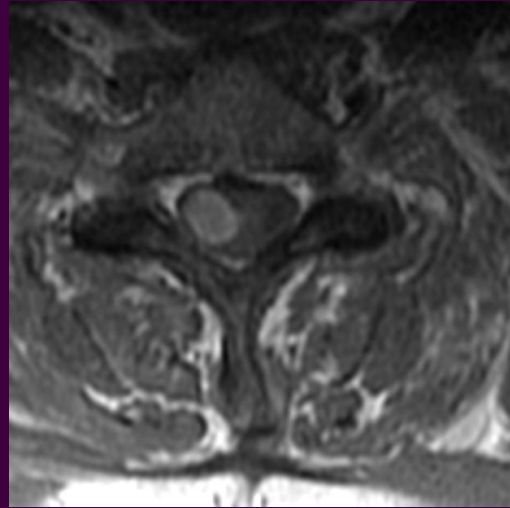
- Intramedullary lesions include:
 - Ependymoma — Myxopapillary ependymoma in filum terminale
 - Astrocytoma
 - Hemangioblastoma
 - Metastatic disease
 - Multiple sclerosis

Intramedullary lesion

Ependymoma



Intramedullary lesion



Metastatic disease
from lung CA



T1 w/contrast

Intramedullary lesion

Multiple Sclerosis involving cord



T2WI

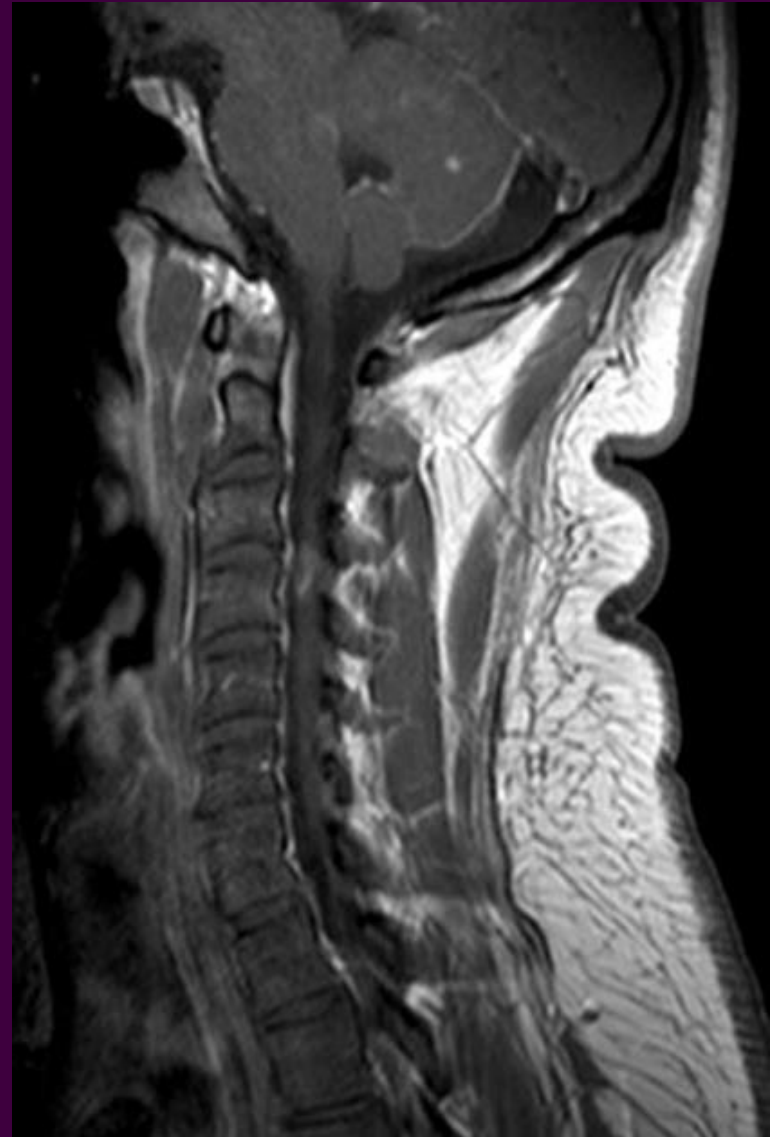


T2 Fat Saturated

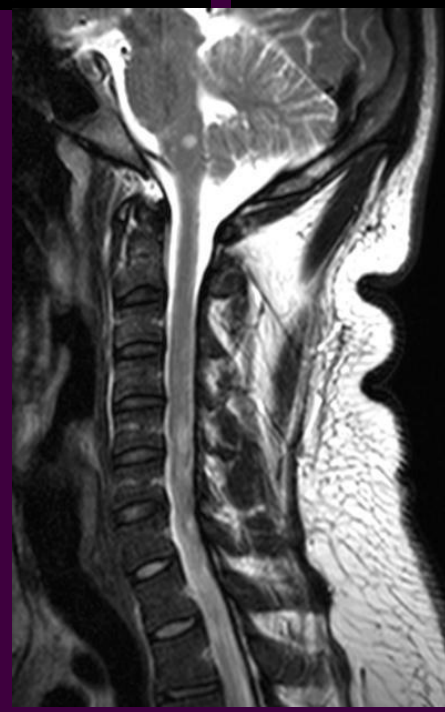
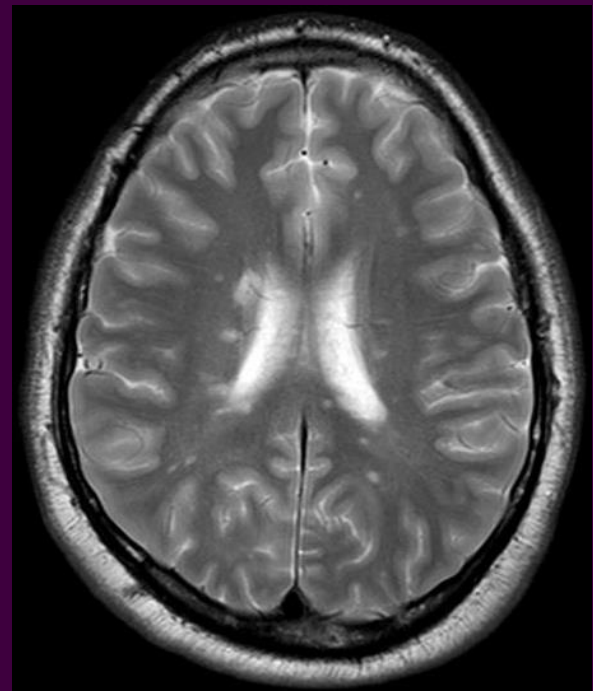
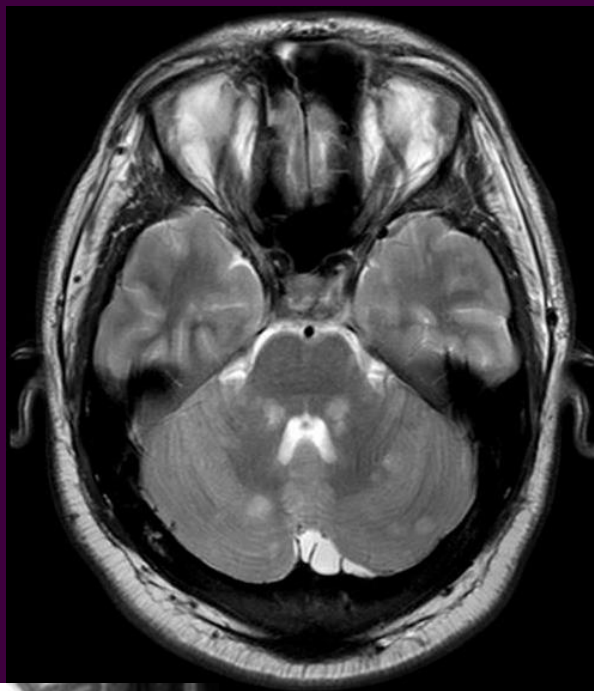
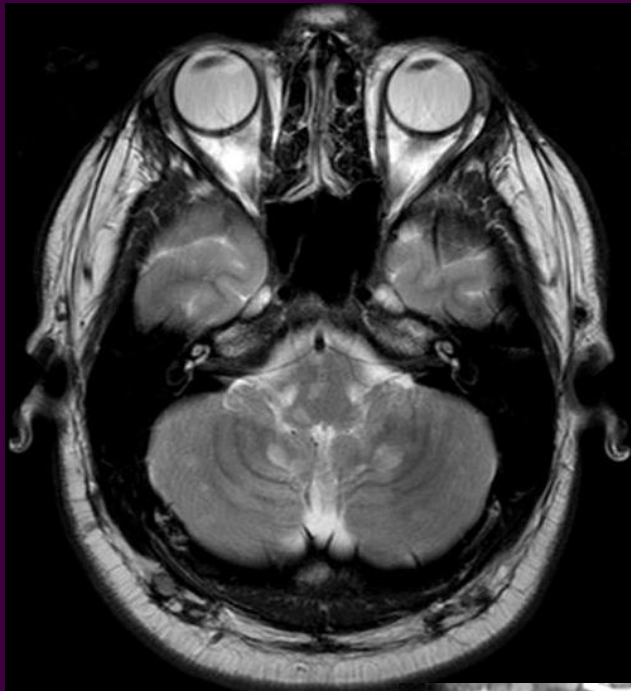


T1 contrast

Multiple Sclerosis



Case courtesy of Dr Hani Salam, Radiopaedia.org, rID: 8662



McDonald diagnostic criteria

Dissemination in space

- Greater than 1 T2 bright lesion in 2 or more of the following locations:
 - Periventricular
 - Juxta cortical
 - Infratentorial
 - Spinal cord

Dissemination in time

- Presence of a new bright lesion on T2 or contrast-enhanced (compared to previous scan)
- Presence of asymptomatic enhancing and nonenhancing T2 lesions on one scan

Tumors of the spine



Benign and Malignant osseous lesions

Spinal lesions

- Osseous lesions within the spine can include:
 - Benign tumors
 - Hemangiomas
 - Osteoid osteoma/Osteoblastoma
 - Malignancies
 - Metastasis
 - Myeloma
 - Lymphoma

26-AUG-1999

02:41:12.01

TP -1737.0

IMA 4

SEQ 45

F-SP-CK

R

kV 140
mA 309
TI 2.0
GT 0.0
SL 5.0
130 25/30
AB40 L0
001 693

5
C
M

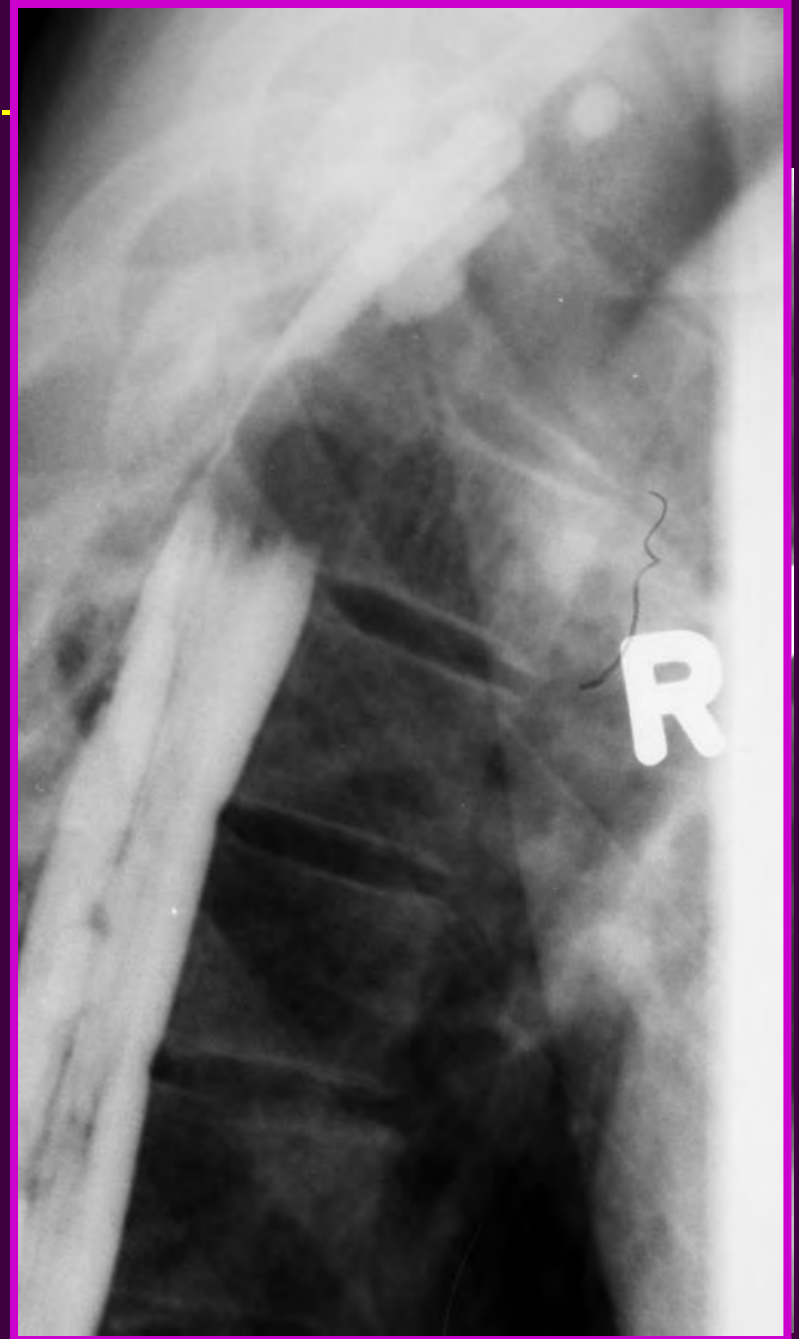
W 654
C 231



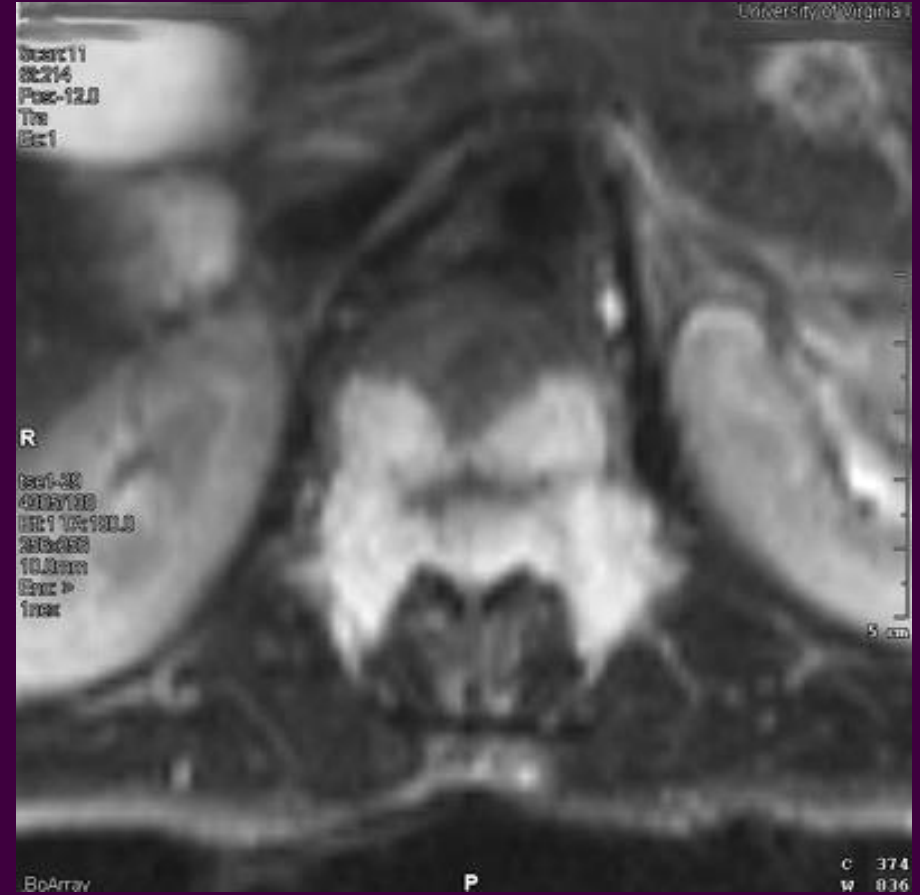
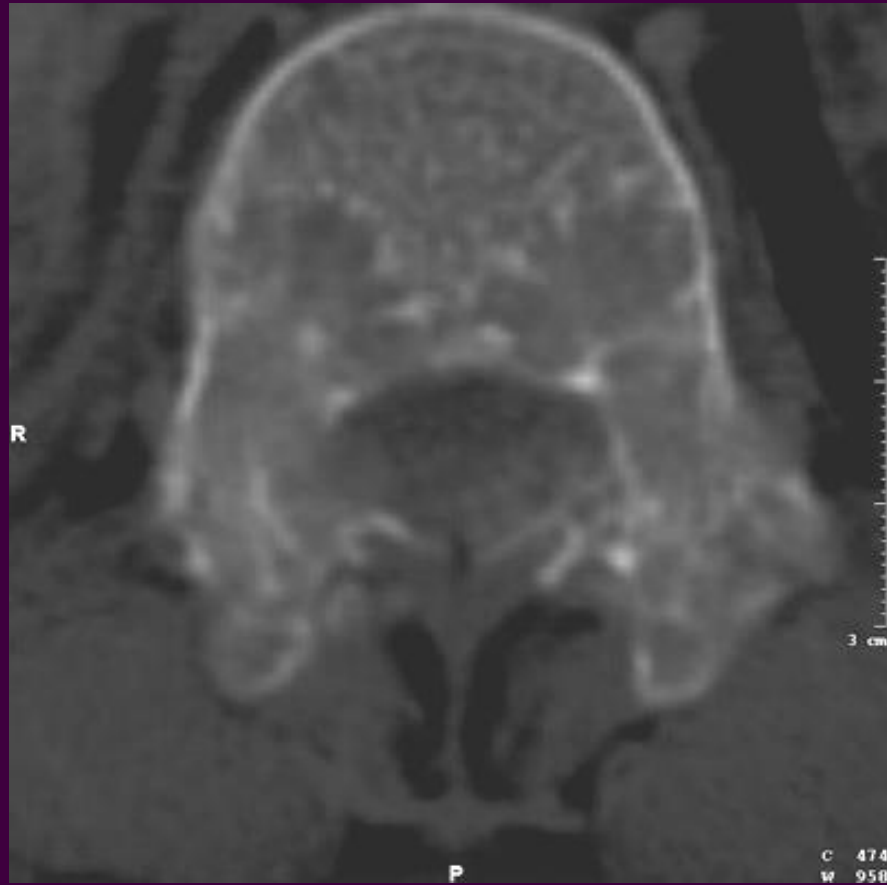
Hemangioma



Spinal lesion



Hemangioma



Hemangioma



38 y.o.male

Pain in back of neck (cervicothoracic junction) after
minor fender-bender

State that region has been “sore” for months but post-
accident is painful

Aneurysmal Bone Cyst



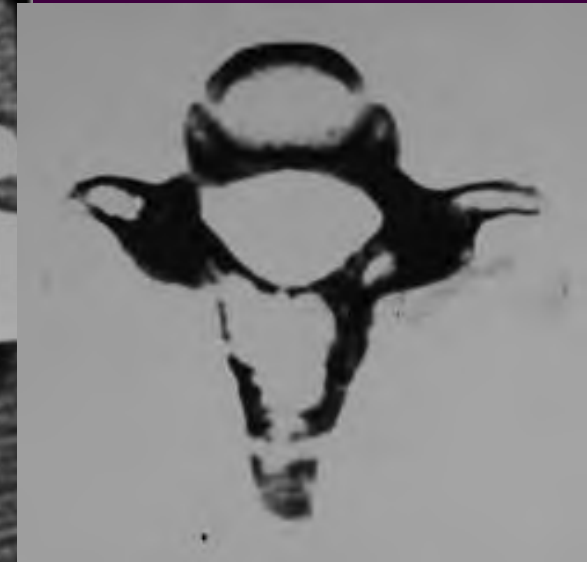
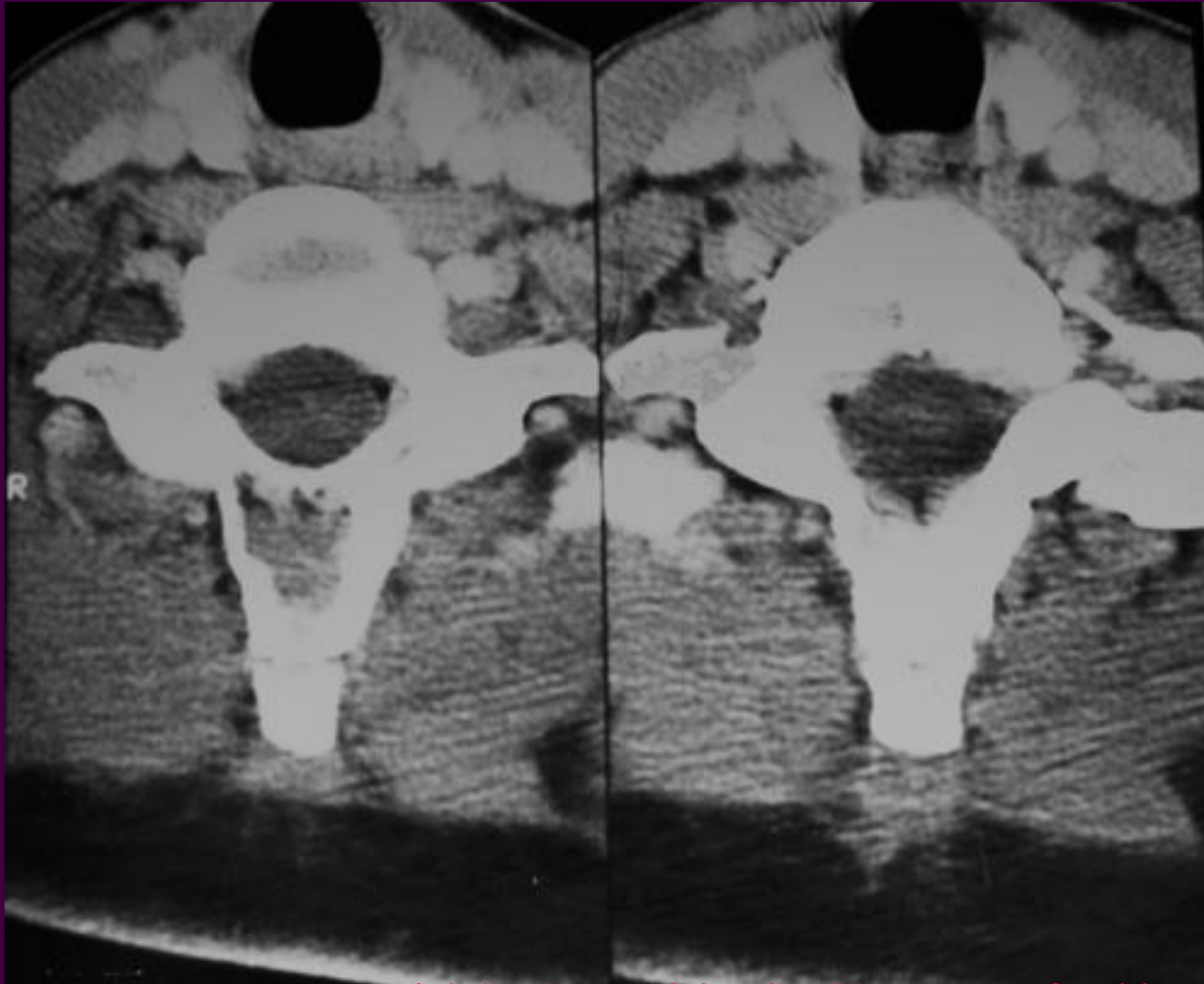
Aneurysmal bone cyst

- Usually patient under the age of 30
- Almost always expansive and usually painful
 - Advanced imaging shows multiple fluid levels within the lesion
 - Secondary ABC can occur in conjunction with another lesion or trauma

Spinal lesion - Benign



Spinal lesion - Benign



Special thanks to Richard Arkless, M.D. for this case

Osteoblastoma

- 2 different radiographic presentations
 - In long bone can present as large osteoid osteoma
 - Central lucency surrounding sclerosis
 - In spine expansile lesion usually in posterior elements
 - Can simulate Aneurysmal bone cysts in spine
 - Should be considered when ABC is considered

ABC vs Osteoblastoma



56 y.o. Male

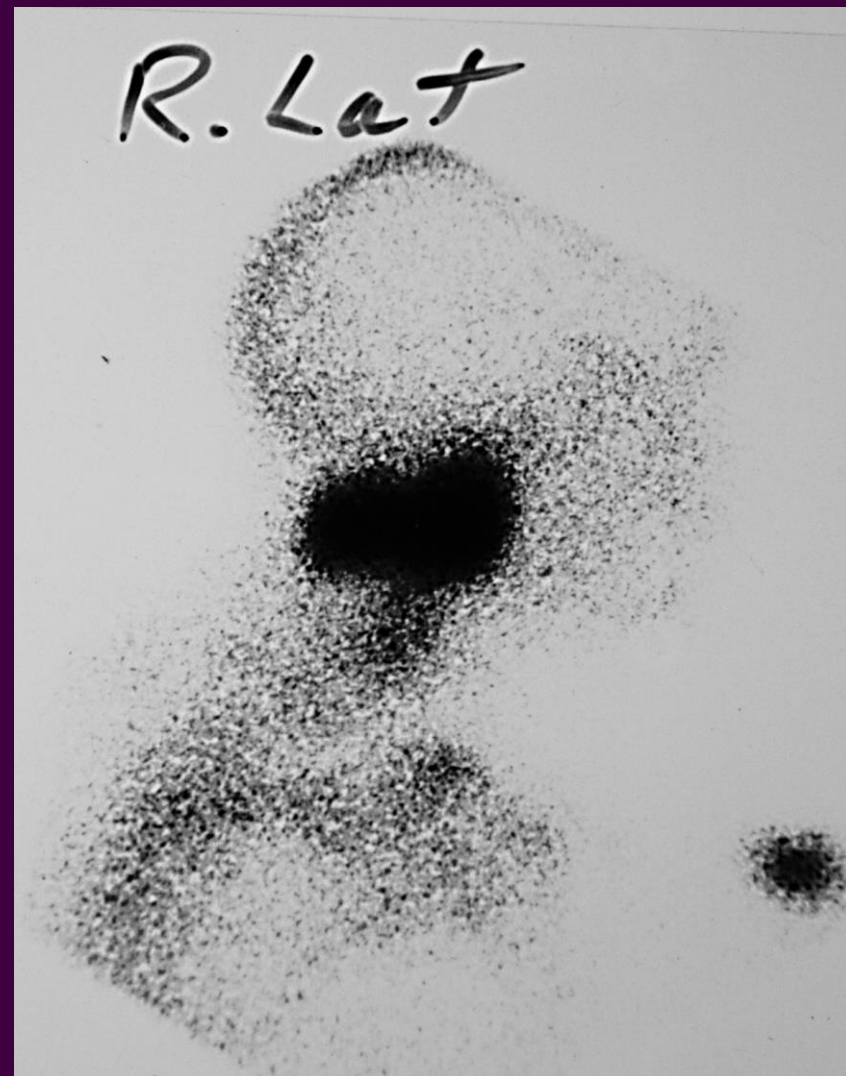
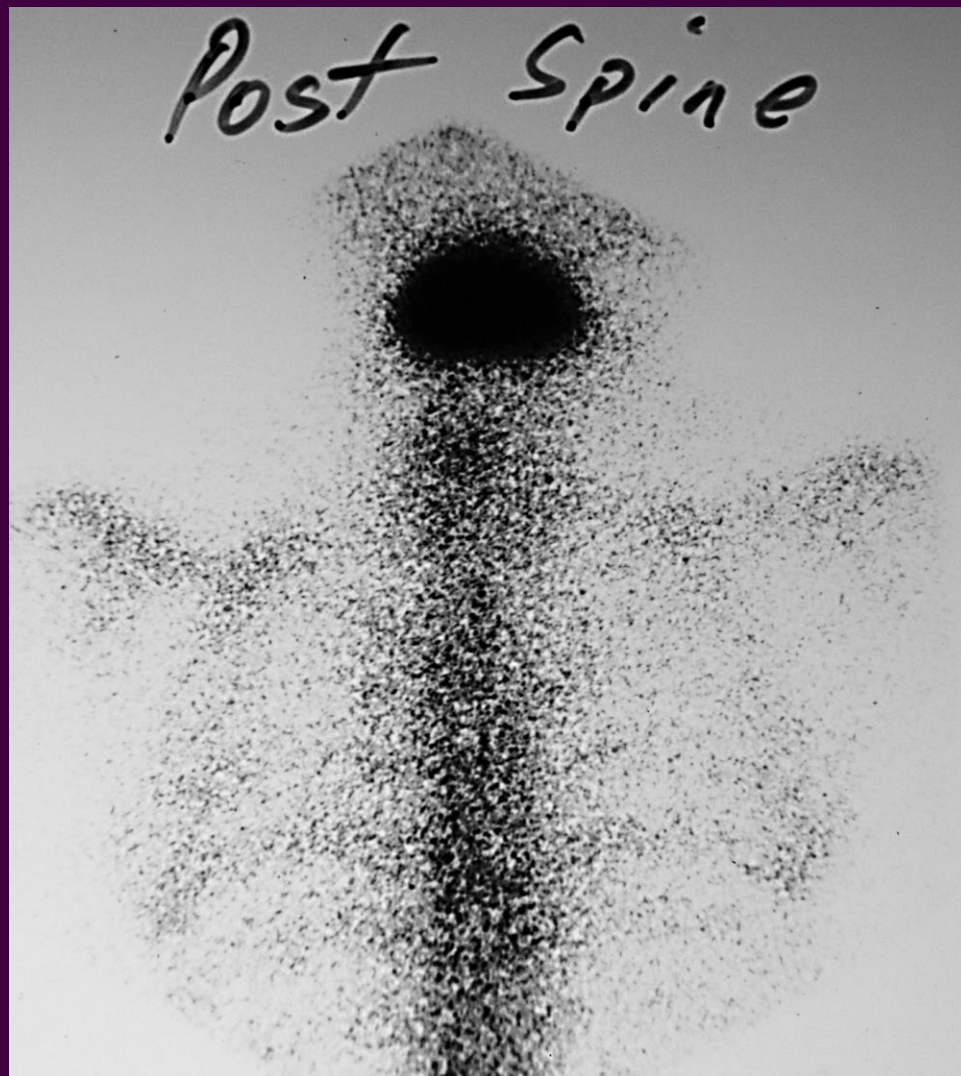
- Neck pain of long duration
 - Dull ache seems to be getting worse over time
- No history of significant trauma
- No history of primary lesions



Paget's disease



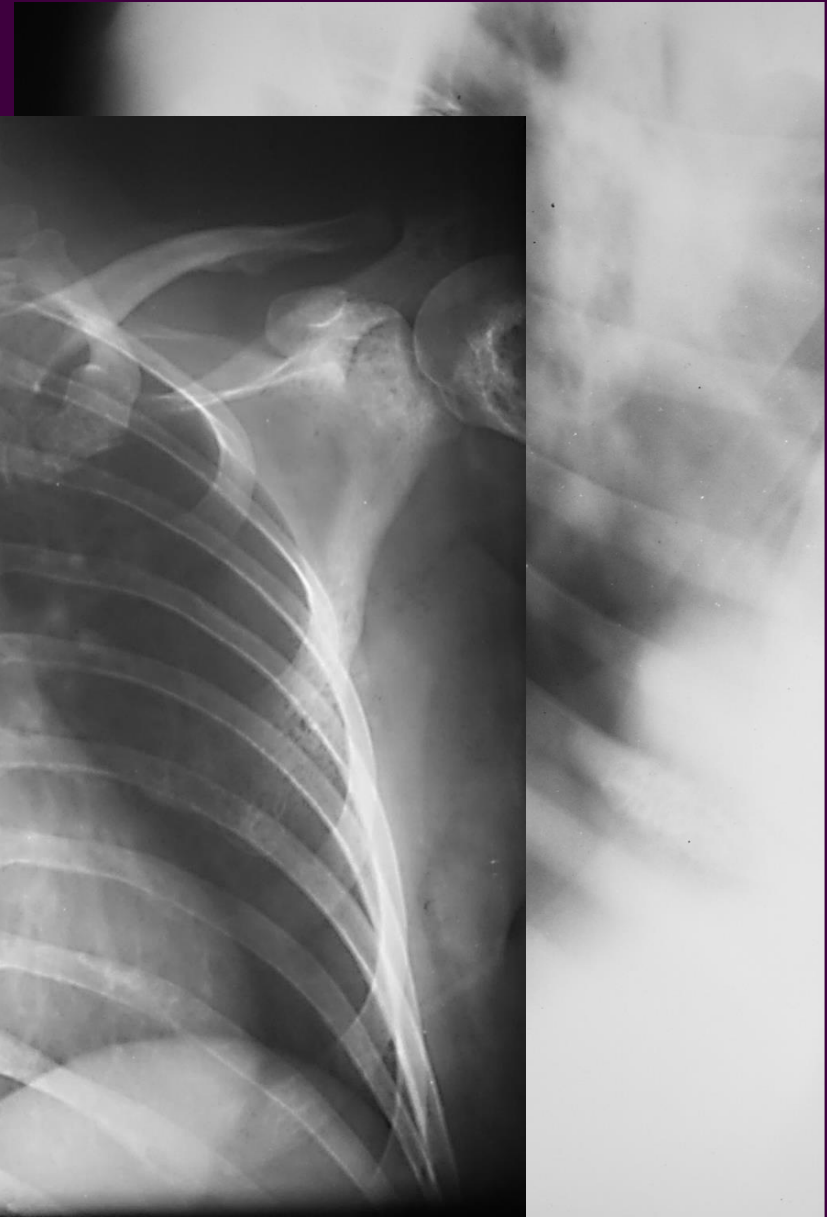
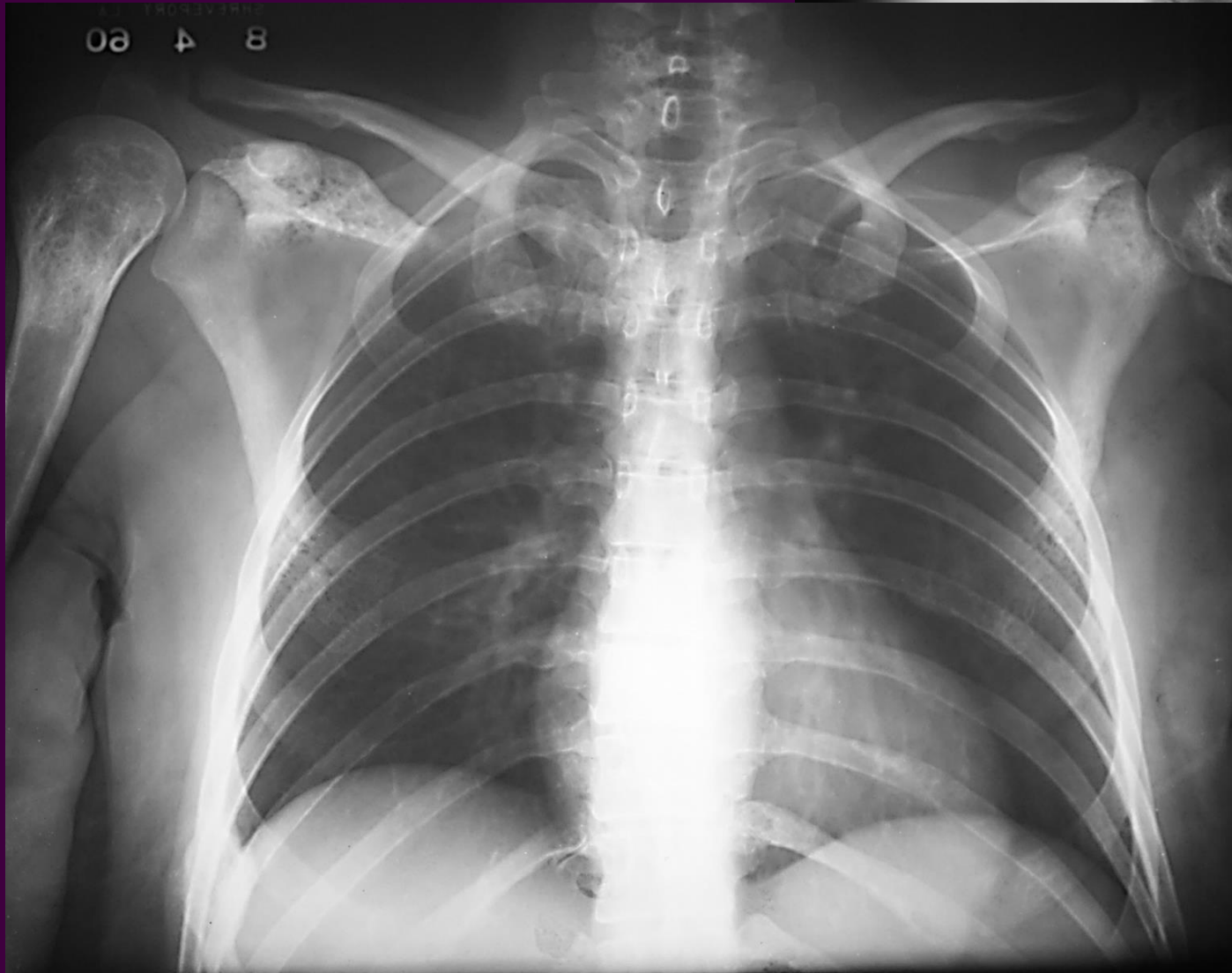
Scintigraphy – Bone scan



Paget's disease



Fibrous dysplasia



Fibrous dysplasia

- Congenital benign process
 - Seen in any age
 - Radiographically looks like anything
- Usually presents:
 - No periosteal response
 - Not symptomatic (unless fractured, which is often in long bone).
 - M/C monostotic but can be polyostotic (pelvis/femur).
 - Café au lait spots





173746R

Malignancies

Chordoma



Multiple Myeloma

- Patterns in order of increasing frequency:
 - Normal appearance (low tumor population)
 - Focal lesion(s) - *Plasmacytoma*
 - Variegated (heterogeneous)
 - Diffuse (homogeneous)

Multiple Myeloma



Variegated or heterogenous pattern

Multiple Myeloma



Multiple myeloma



Low back pain





Plasmacytoma

L
SUPINE

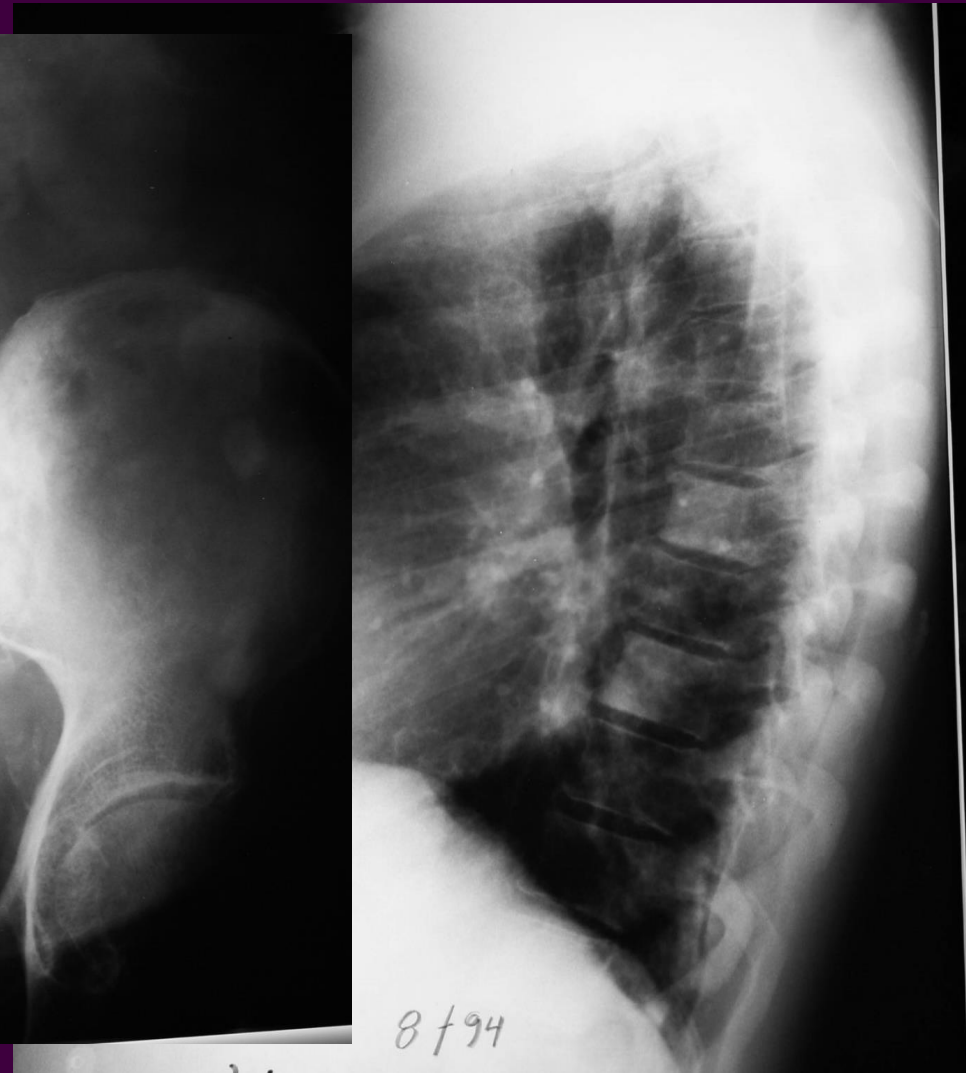
Metastatic disease

- Spread via Batson Venous plexus to axial skeleton
 - Rare to have METS below elbow or knees
 - M/C 1°: Breast, Lung, Colon

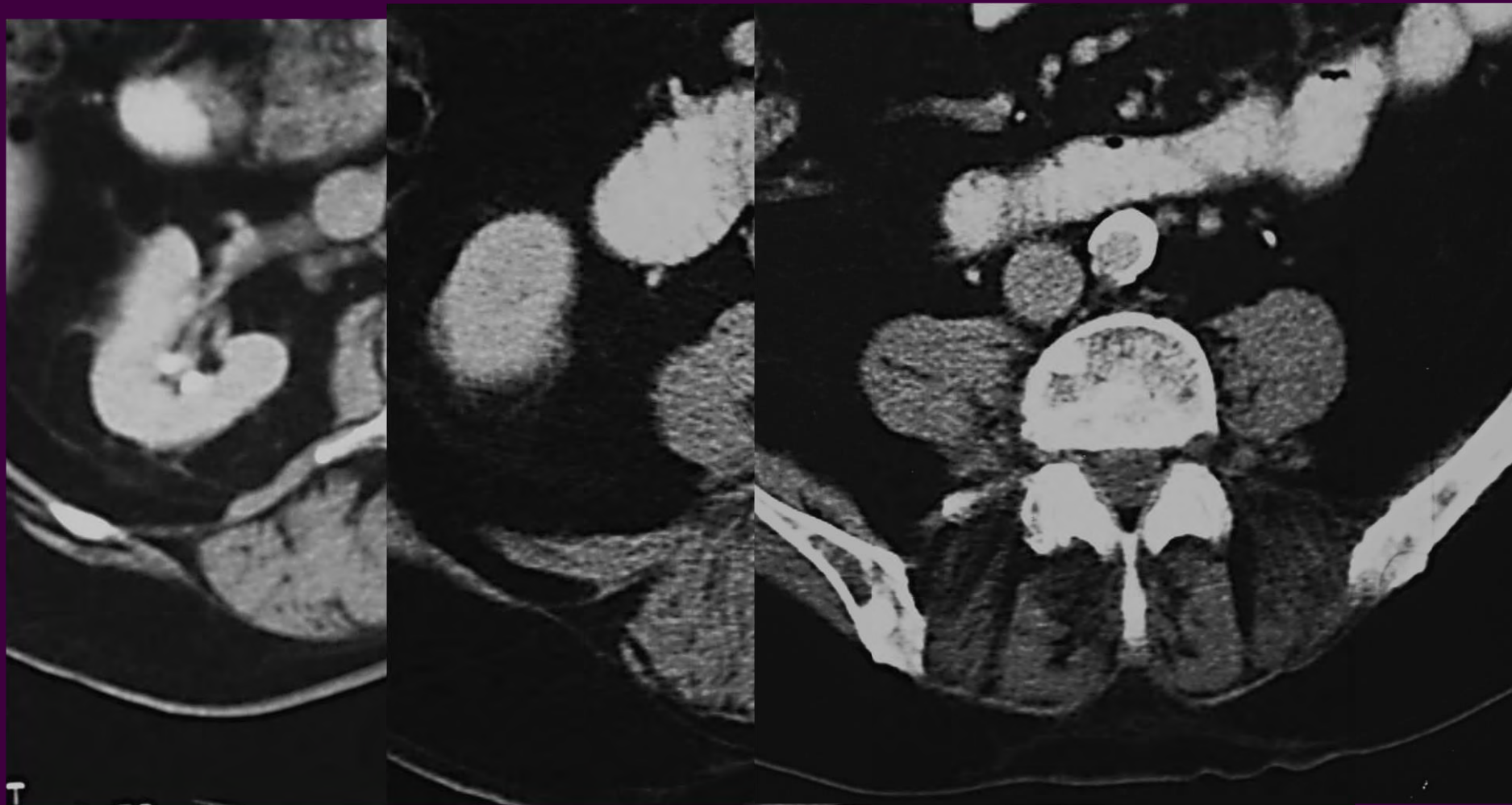
Metastasis from lung primary



Blastic Metastasis - Prostate



Blastic METS: Prostate



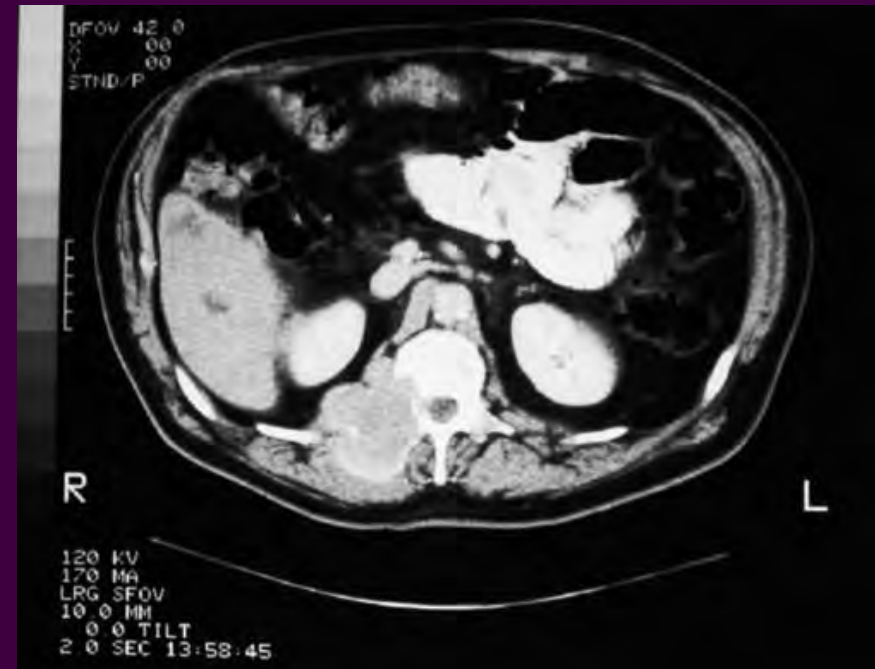
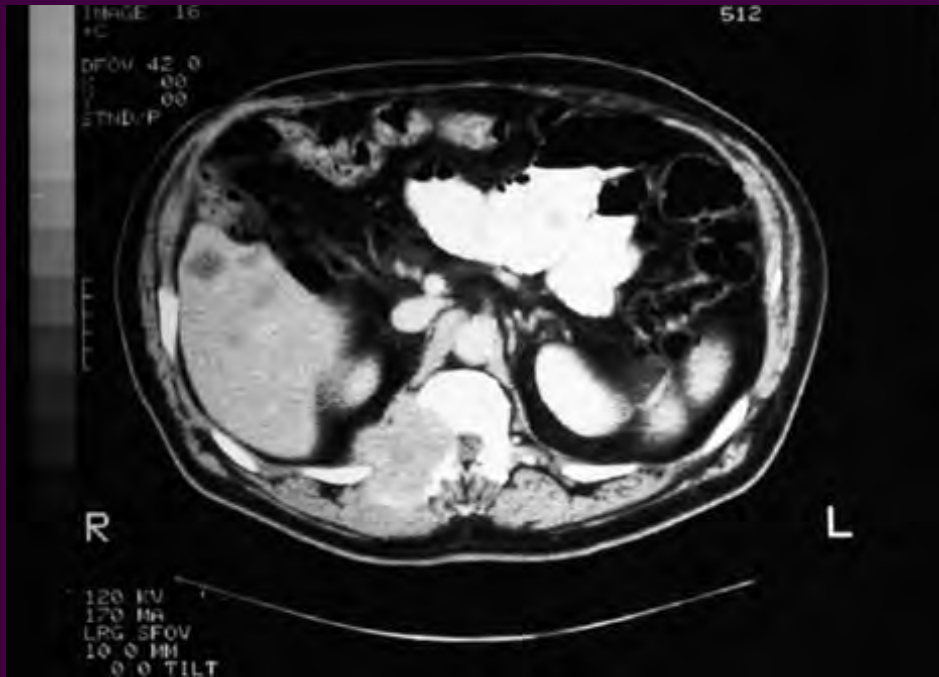
Metastatic disease



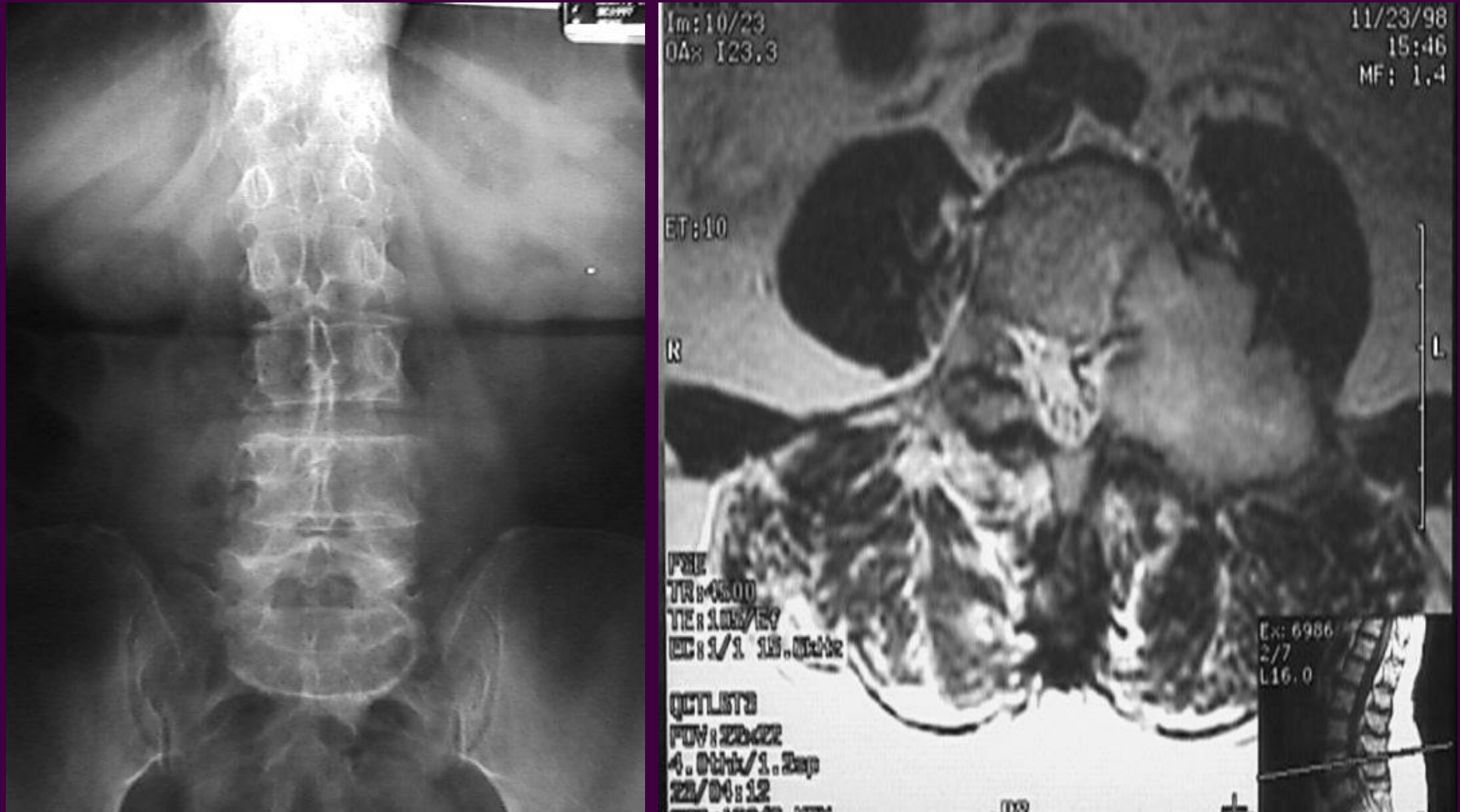
Metastatic Disease



Metastatic Disease



Magnetic resonance imaging



Patient 4

Osteoporotic vs. Pathologic Compression fractures

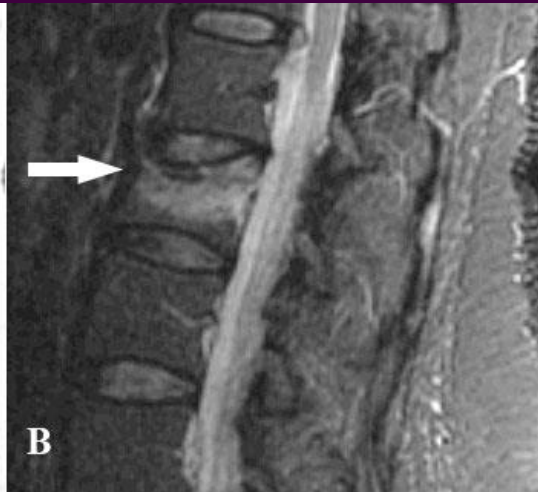
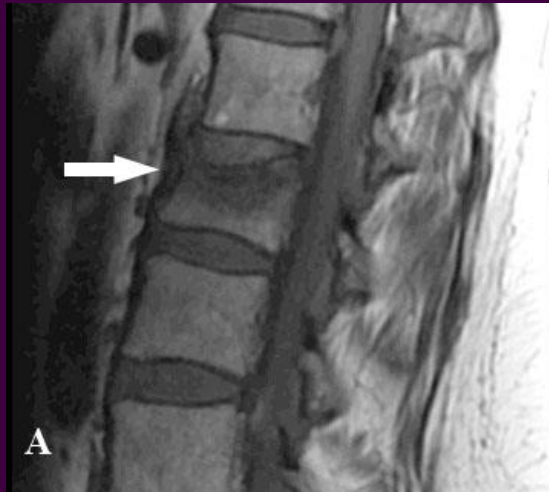
- Osteoporotic

- Abnorm. signal limited to vertebral body
- Usually no S.T. mass
- Fatty marrow persists in body
- Usually solitary
- Concave posterior wall

- Pathologic

- Abnorm signal in pedicles/post. elements
- Soft tissue mass assoc.
- Entire vert. body involved
 - Post body margins important
- Convex post. Body wall
- No fracture line

Osteoporotic vs Pathologic Compression fracture

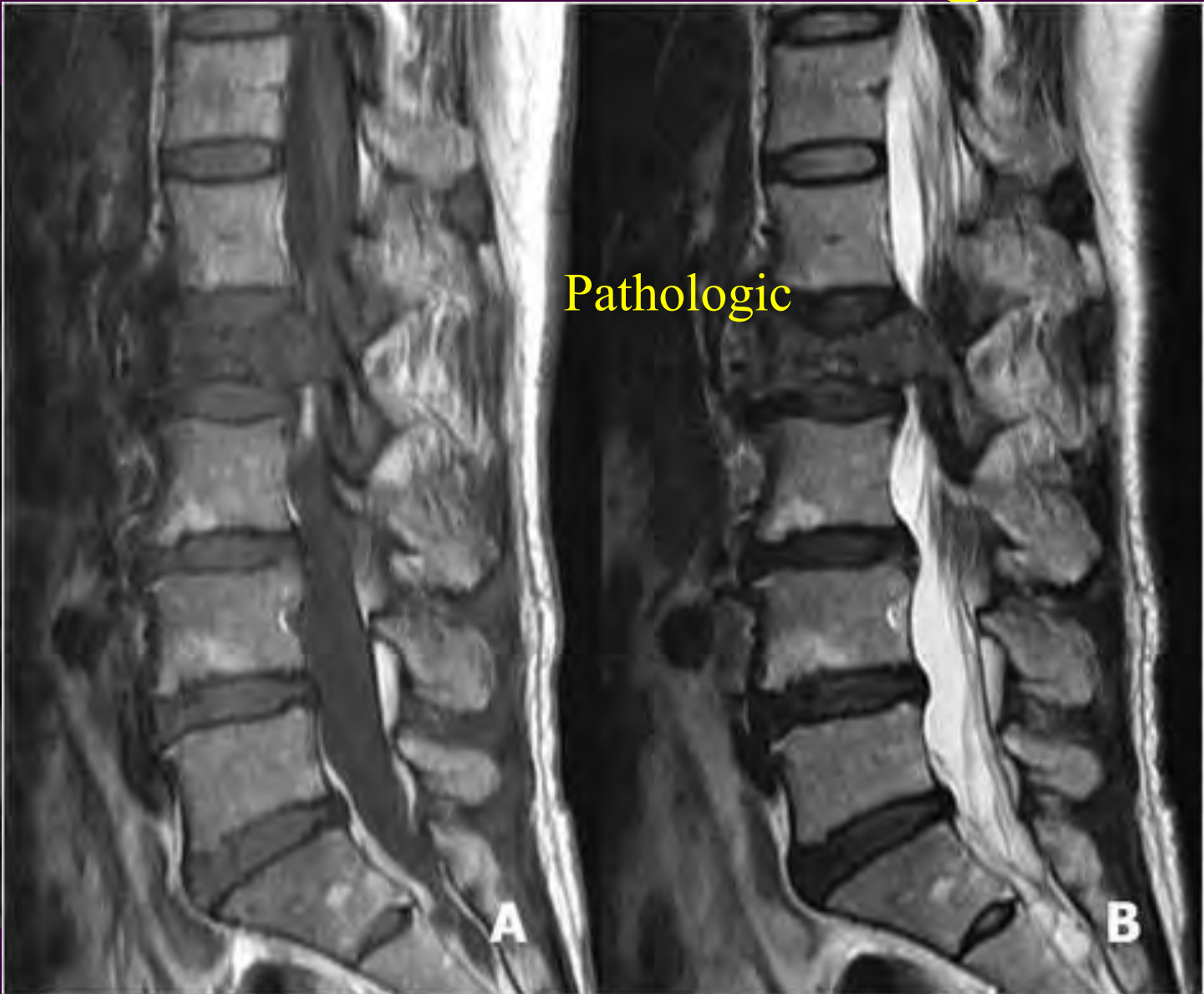


Benign compression fracture
Radiology Round MGH; JC Miller et al.
Vol. 7, Issue 7, 2009

Metastatic disease
Thanks to Richard Arkless, M.D.



Traumatic or Pathologic?



Thank You for your Attention

