12-year-old male with palpable neck mass and 6-week history of right shoulder pain and ipsilateral numbness

Katherine Phillips, MS3

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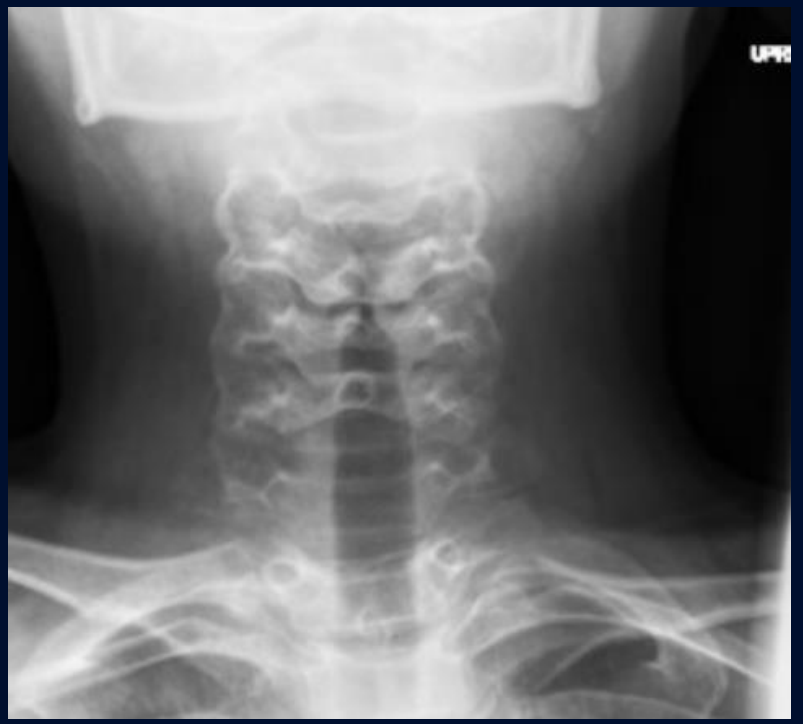
Radiographs



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CT

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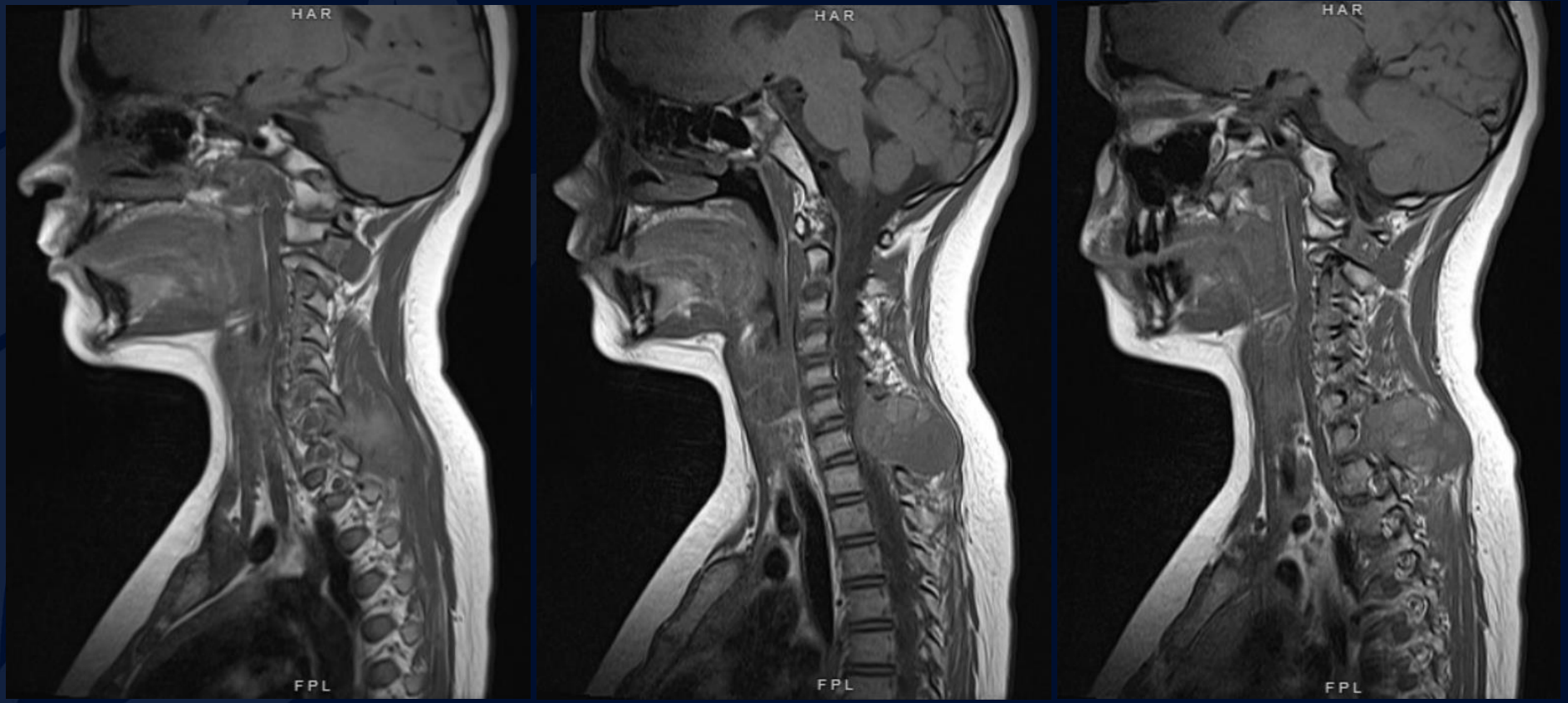
RADIOLOGY

MRI T1



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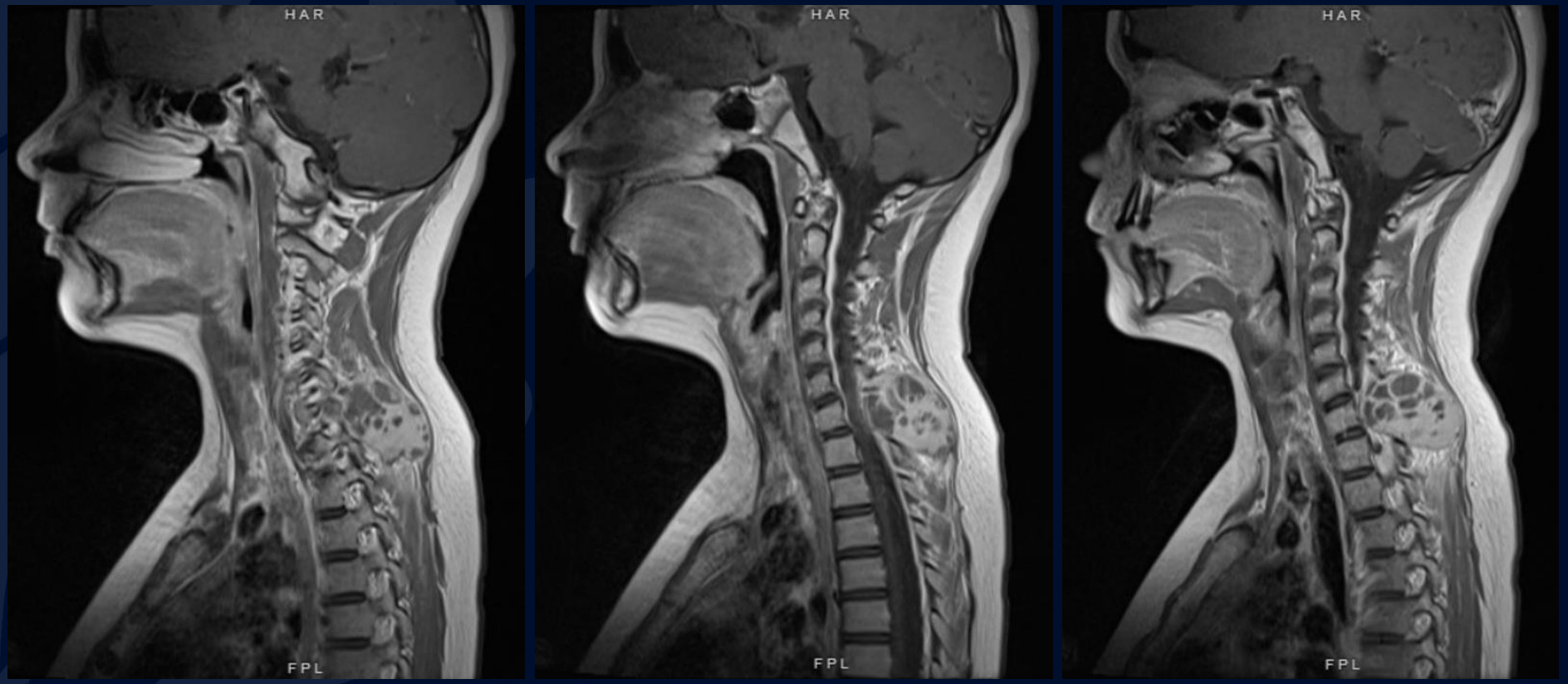
MRI T1 + Gad



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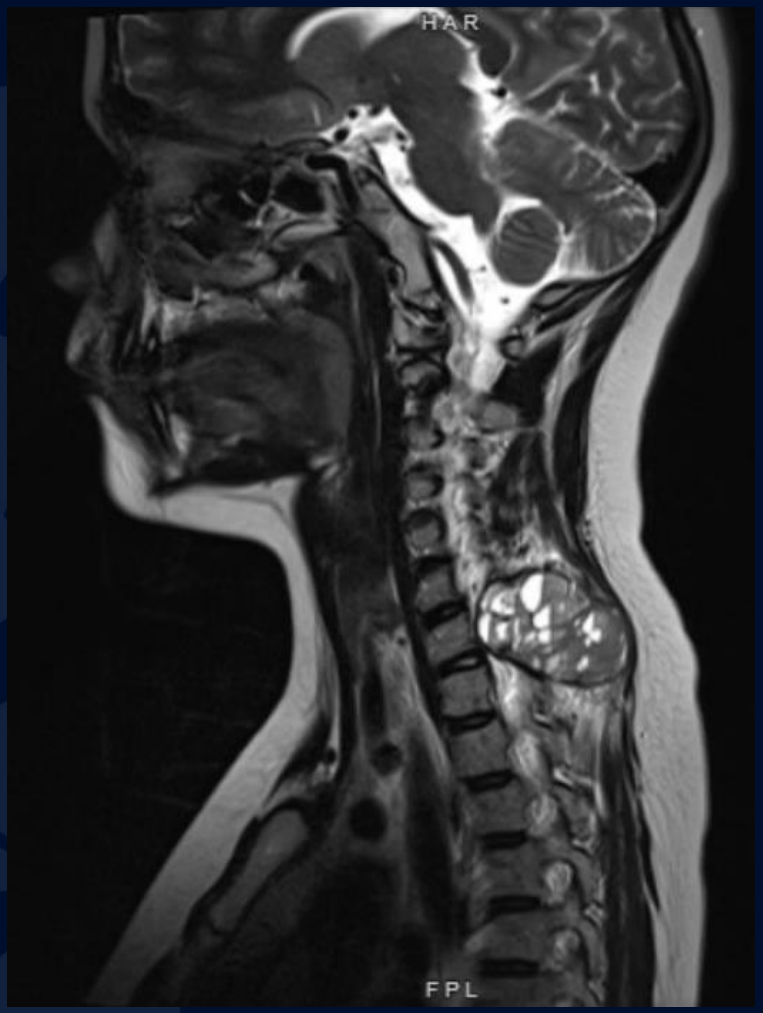
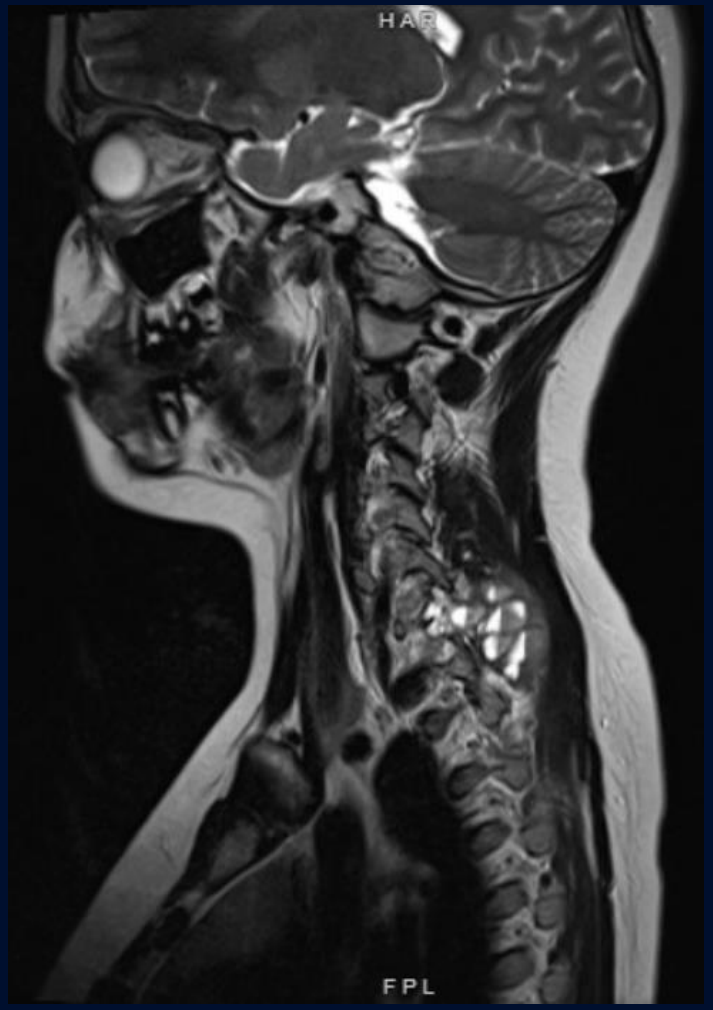
MRI T2





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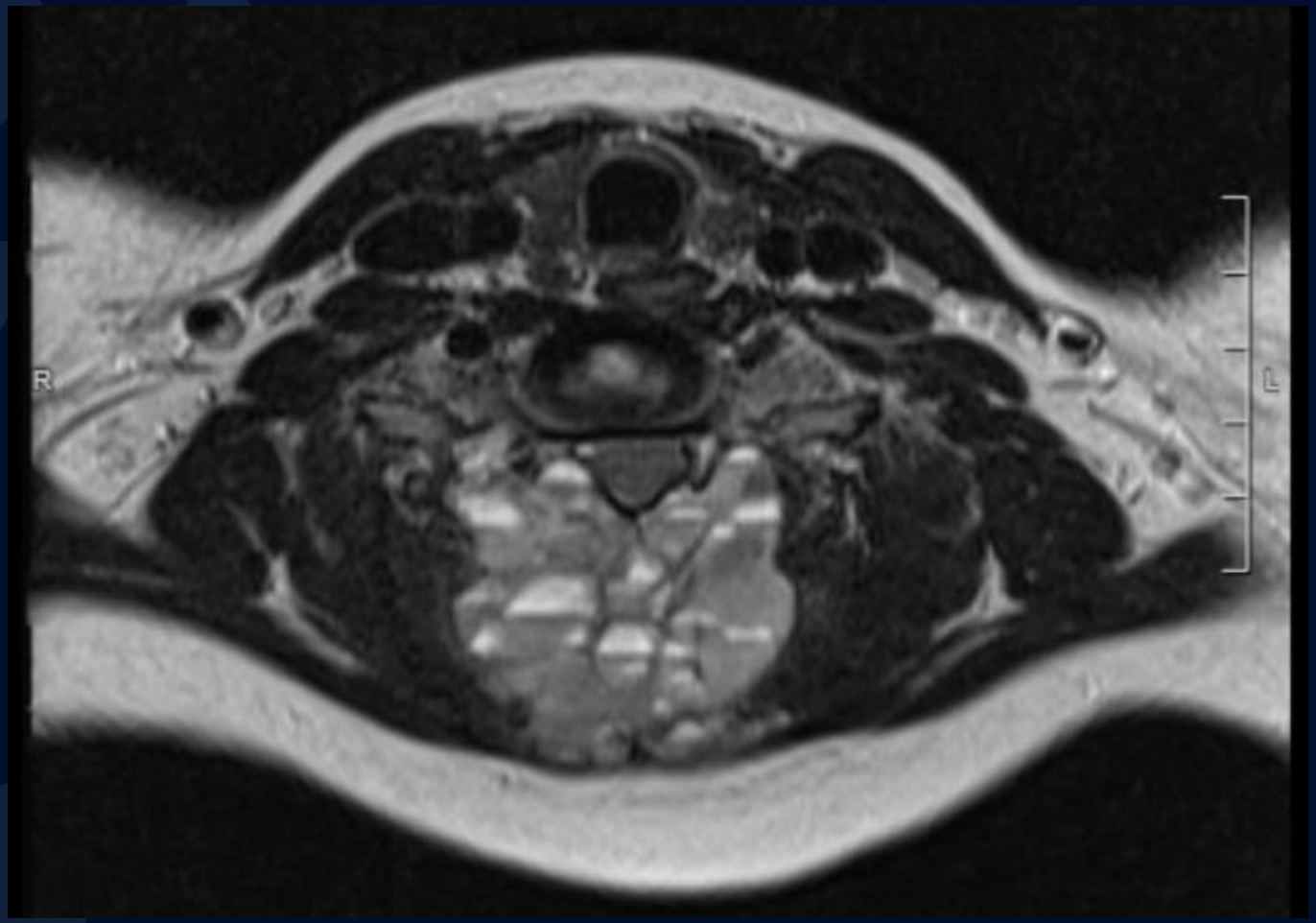
MRI T1



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Aneurysmal Bone Cyst

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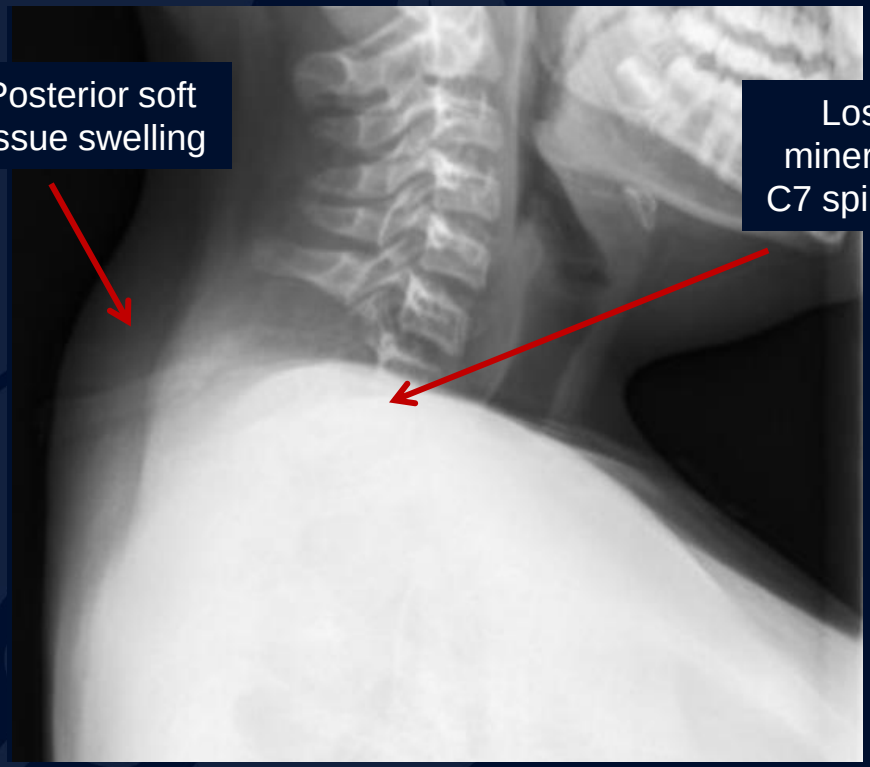
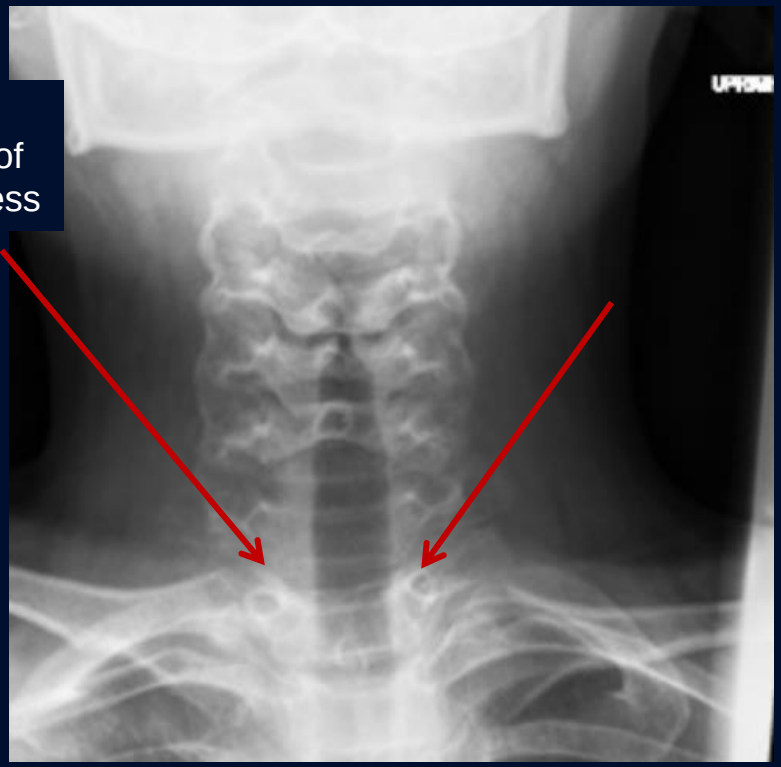
Radiographs





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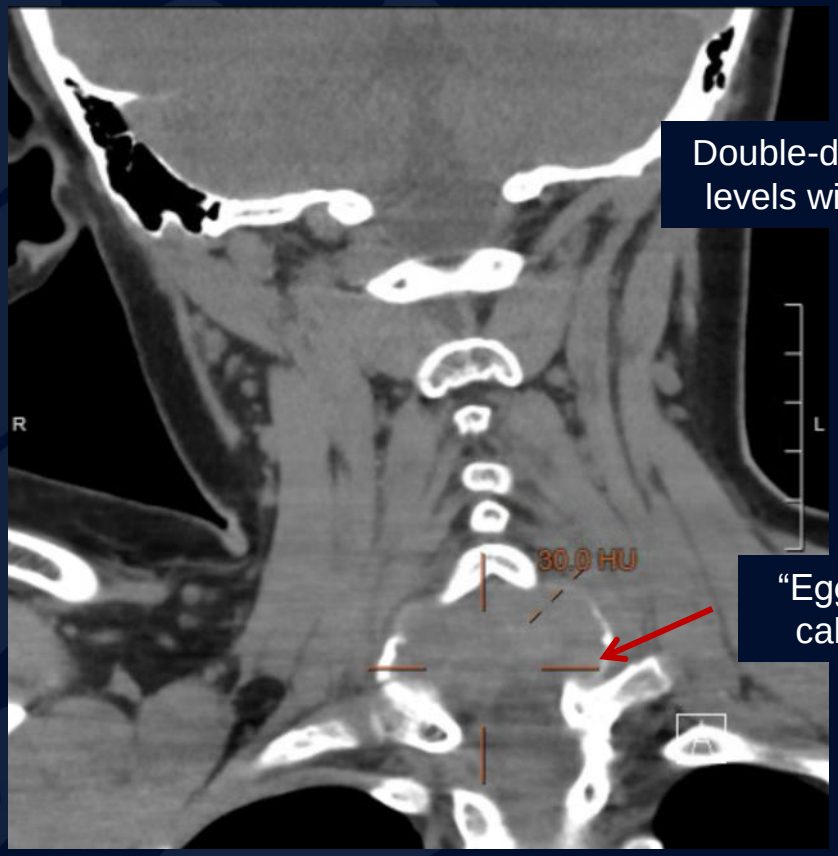
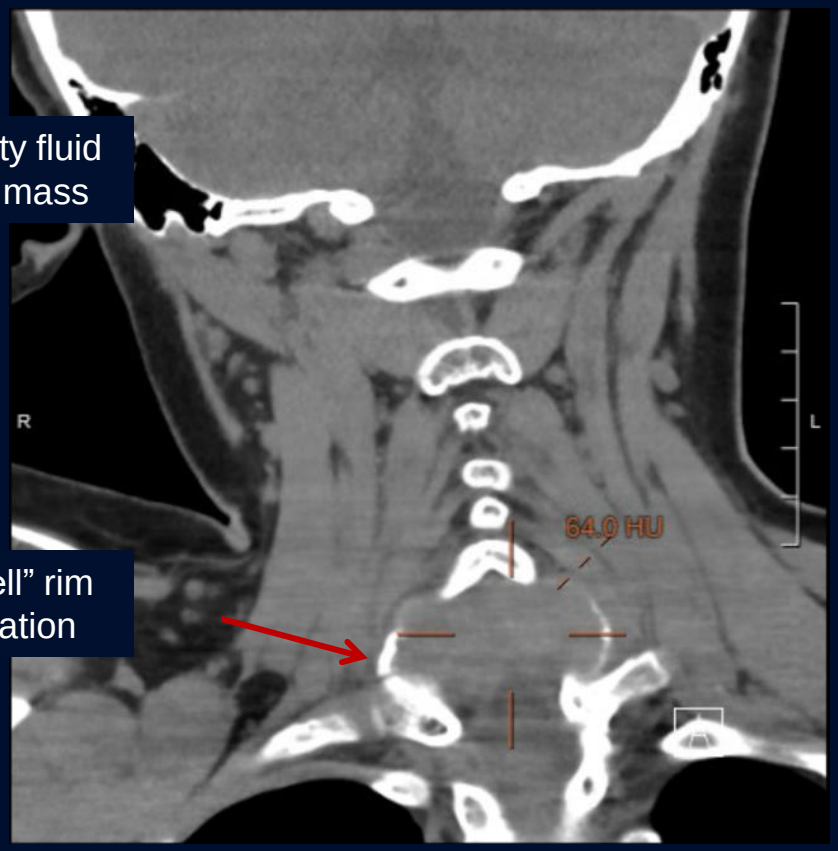
CT



Double-density fluid levels within mass

“Eggshell” rim calcification



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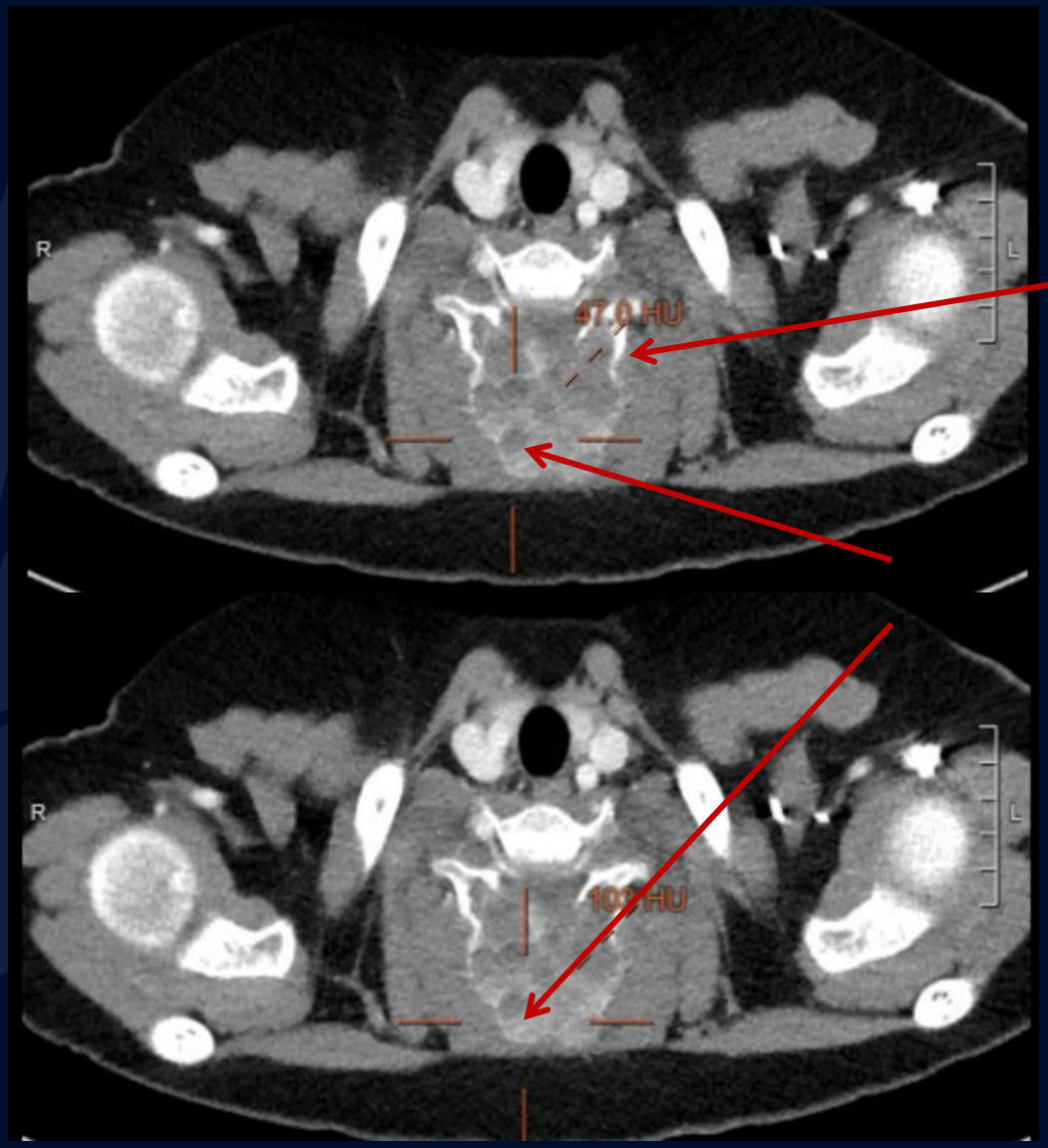
CT



"Eggshell" rim calcifications

Fluid-fluid levels

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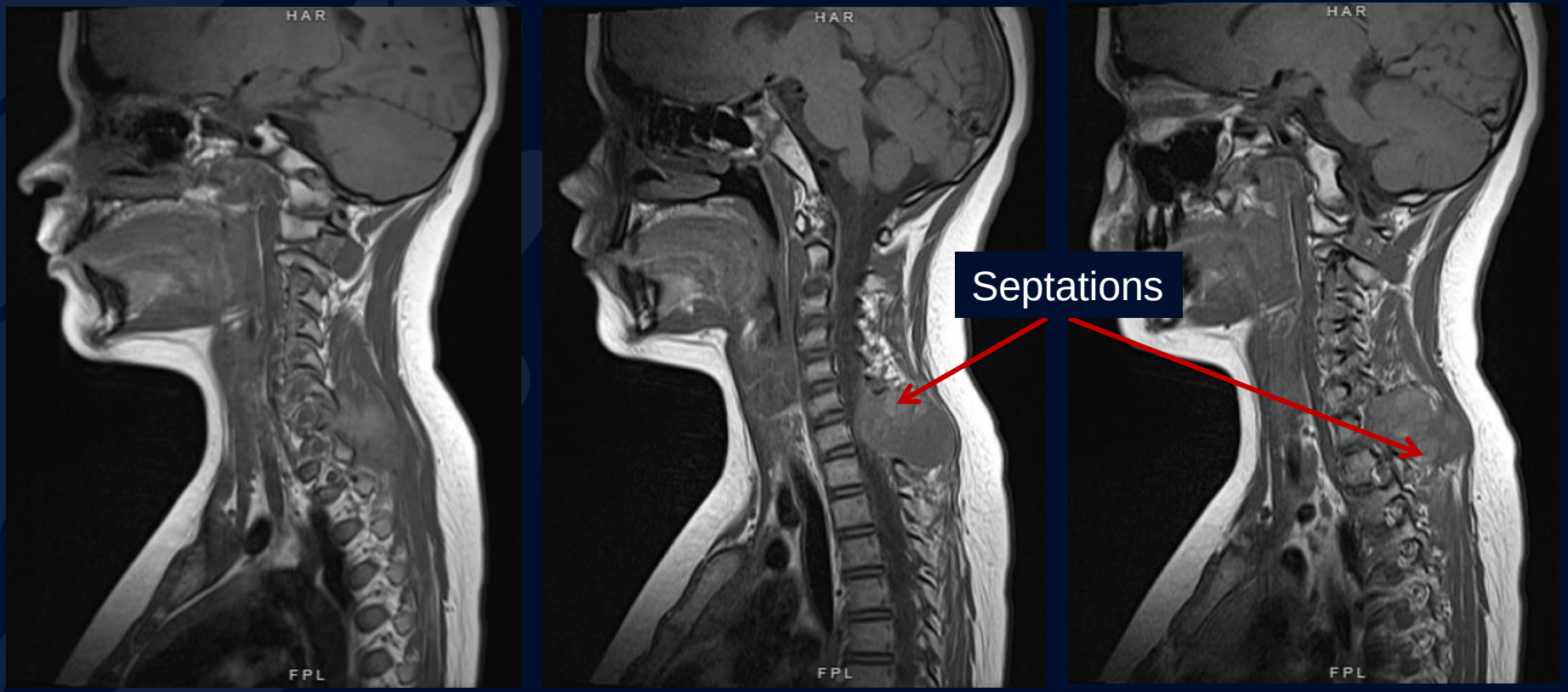
MRI T1



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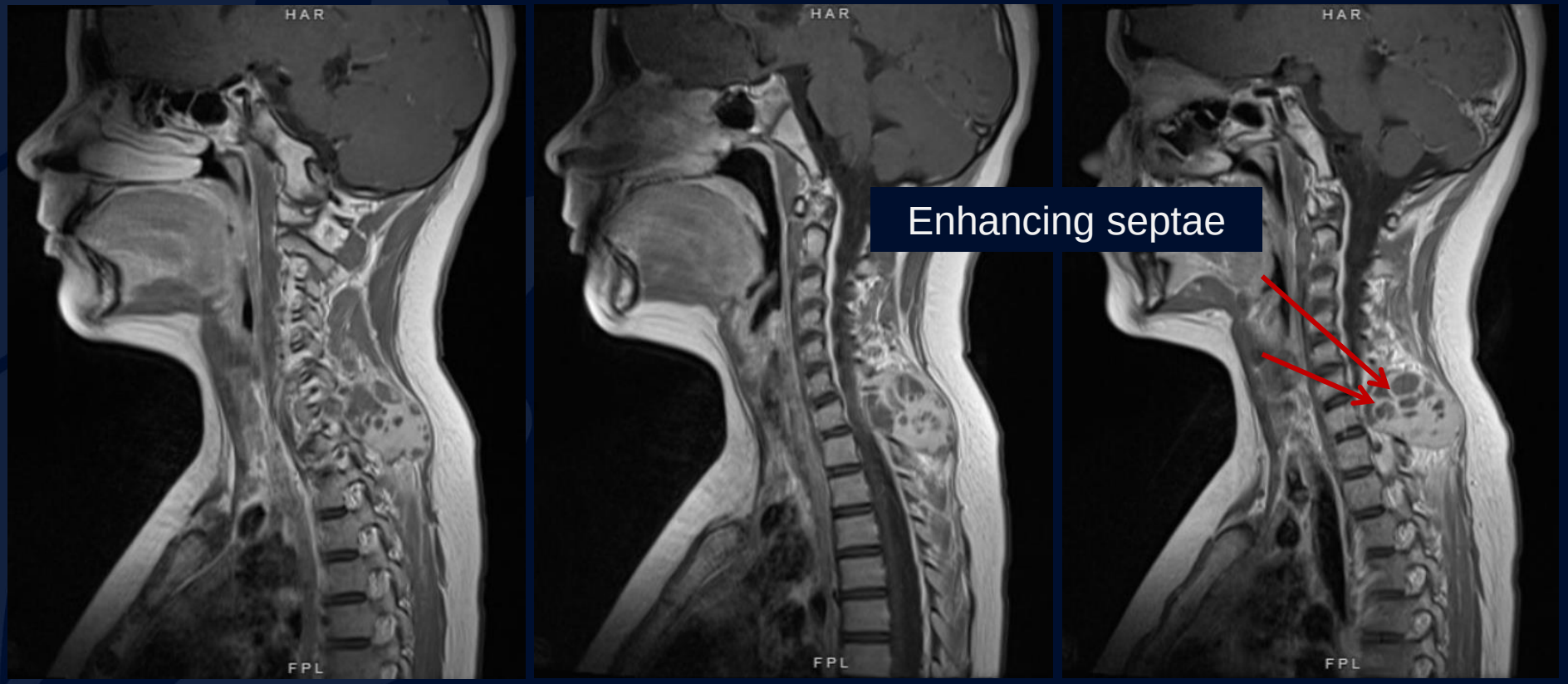
MRI T1 + Gad



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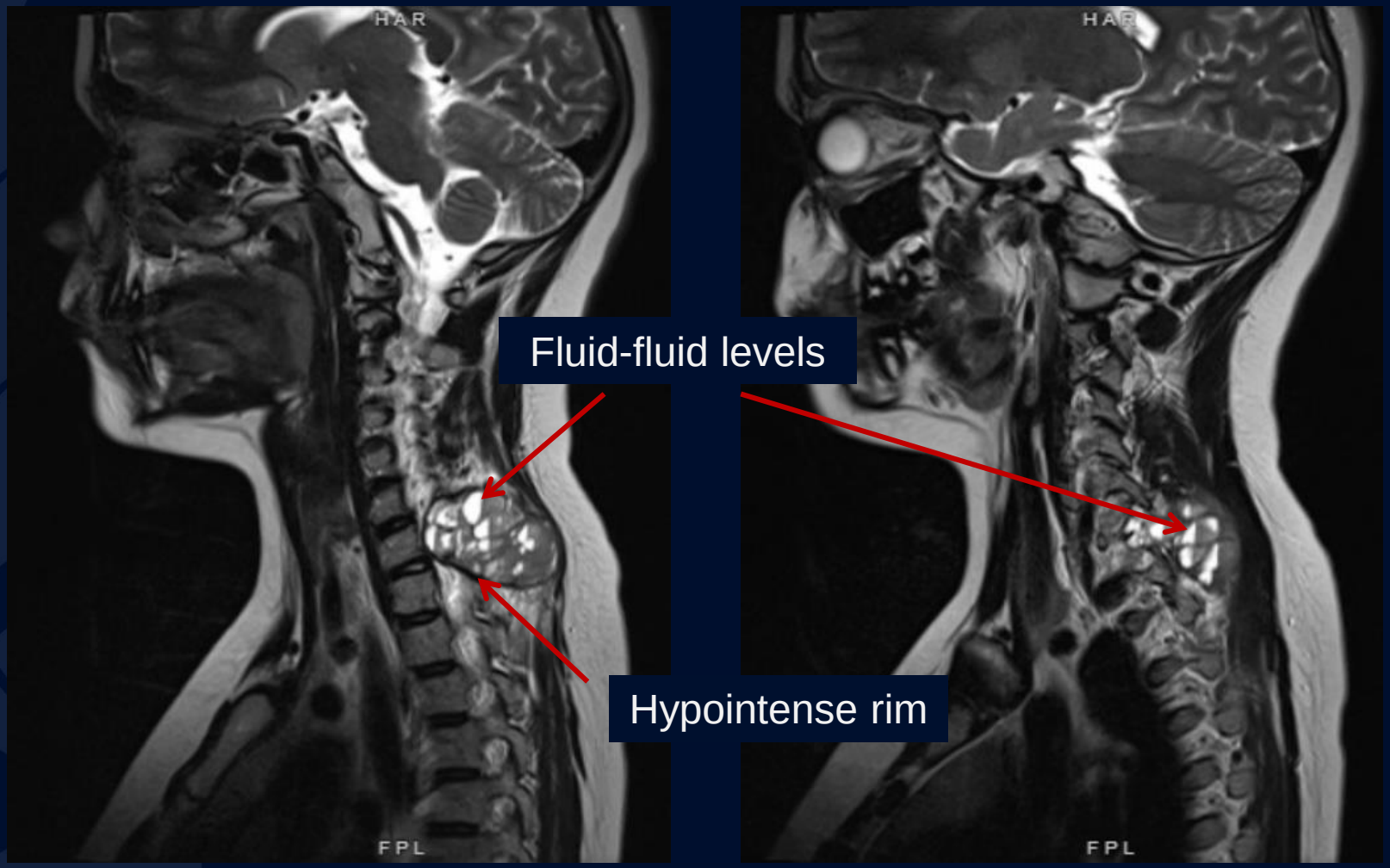
MRI T2



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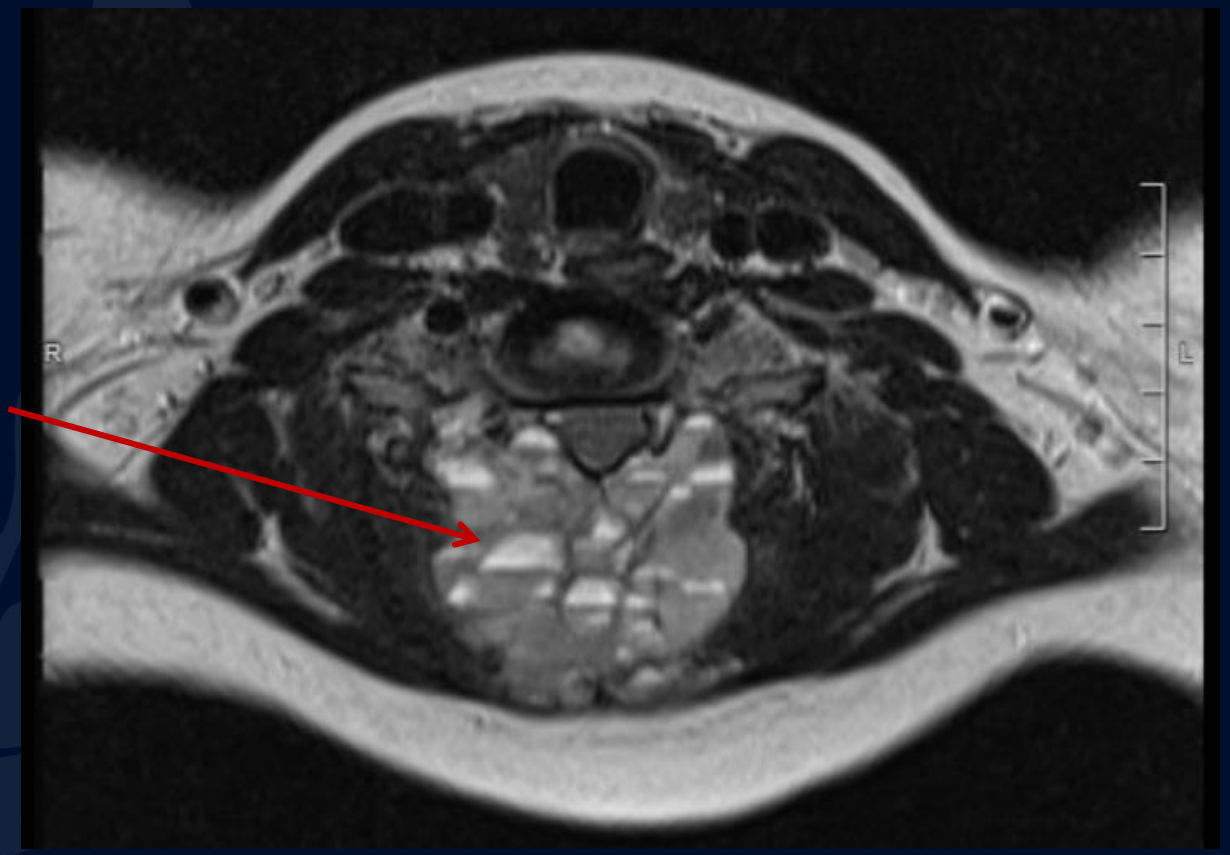
MRI T2

Fluid-fluid levels



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Differential Diagnosis

- Telangiectatic osteosarcoma
- Unicameral bone cyst
- Giant cell tumor

- Mnemonic for lytic bone lesions: FENGOMASHIC
  - Fibrous dysplasia
  - Eosinophilic granuloma & Enchondroma
  - Non-ossifying fibroma
  - Giant cell tumor
  - Osteoblastoma
  - Metastasis & Myeloma
  - Aneurysmal bone cyst
  - Solitary bone cyst (= unicameral bone cyst)
  - Hyperparathyroidism (Brown tumor)
  - Infection
  - Chondroblastoma

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Discussion

Aneurysmal bone cysts (ABCs) are benign, expansile, vascular lesions that occur within bone

- Can occur in any bone, though most commonly occur in the metaphases of long bones (67%), pelvis (9%) and vertebrae (15%)
- Thought to be due to vascular malformations resulting in increased pressure and subsequent dilation of vasculature

Epidemiology

- Majority occur within the first 20 years of life,
- Slightly higher prevalence in females

Presentation

- Gradual onset of pain resulting from the mass effect of the expanding lesion
- Vertebral ABCs may cause neurological symptoms due to compression of nerves
- Acute pain due to associated fracture

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Discussion

Imaging findings

- Radiographs
  - Lytic, expansile, usually eccentric lesion
  - Thin sclerotic margin
  - May have trabeculation
  - Periosteal reaction variable, usually related to associated fracture
- CT
  - Thin cortical rim, septa, fluid-fluid levels
- MRI
  - Thin peripheral and septal enhancement
  - Fluid-fluid levels visible on all sequences but more obvious on fluid-sensitive sequences

Fluid-fluid levels are suggestive but not pathognomonic for ABCs, as fluid-fluid levels may also be seen in telangiectatic osteosarcomas and giant cell tumors

Biopsy is necessary for diagnosis of ABC and ruling out malignant causes

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Treatment

Treatment

- Curettage or intralesional excision
  - After evacuation of cavity, can be filled with bone graft or cement or adjuvant therapies
- Selective arterial embolization
- En bloc excision
- Radiotherapy can be used in cases of recurrence or for lesions that are non-operable

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References

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