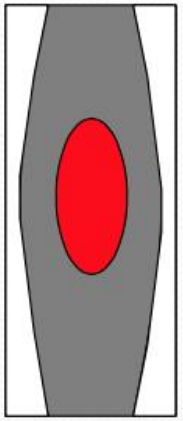
Intramedullary Tumors

- Primary tumors – much more common
  - Ependymoma
  - Astrocytoma

  } ~ 90-95% of all intramedullary tumors
  - Hemangioblastoma
  - Subependymoma, Oligodendroglioma, Ganglioglioma (rare)
- Secondary tumors – metastases
  - Lung, breast, renal, gastric
  - Lymphoma, leukemia
  - Melanoma



Ependymoma

- Neoplasm arising from ependyma lining spinal cord central canal.
- Arises from ependymal cells of central cord canal
  - Most intramedullary
  - Rarely can be intradural extramedullary
  - Origin is ectopic ependymal cells
- Most WHO grade II
- Rarely WHO grade III
  - Anaplastic ependymoma
- Association with NF2
- Spinal cord neoplasm with associated peripheral hemorrhage suggestive of cellular ependymoma

Ependymoma

- DDX:
  - Astrocytoma
  - Hemangioblastoma
  - metastatic disease
  - parasitic infection (cysticercosis)
  - Myelitis
- Most common 60% in adults
- Often cystic with Hemorrhage

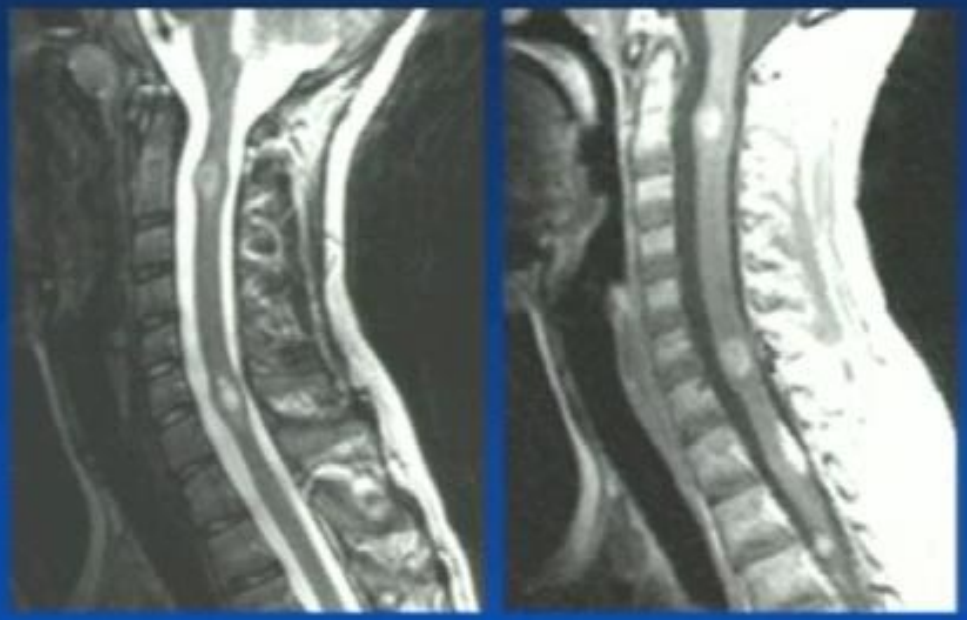
Imaging

- Circumscribed, enhancing hemorrhagic cord mass with surrounding edema
- Associated cysts common
- Cervical > thoracic > conus
- T1WI: Isointense or slightly hypointense to spinal cord
- T2WI: Hyperintense relative to spinal cord
- Cap sign: Hemosiderin at cranial or caudal margin
- Most tumors enhance

Ependymoma

- Approximately 50-60% of cord tumors
  - Most common adult intramedullary tumor
  - May be associated with NF-2
  - Presents in 3rd to 5th decade of life
- Arises from central canal ependyma (cellular) or from conus/filum terminale (myxopapillary)
  - May hemorrhage (look for dark signal T2WI or T2*GRE)
  - Often have associated syrinx/cysts (~ 50-80%)
- Slow-growing, well-circumscribed, often resectable

Sagittal T2WI MR demonstrates a heterogeneous lesion expanding the midthoracic spine with cystic areas (white solid arrow) and edema (white curved arrow). The contrast-enhanced MR shows a nodular enhancing focus (white open arrow) within the superior aspect of the mass.



Multiple ependymomas in NF-2

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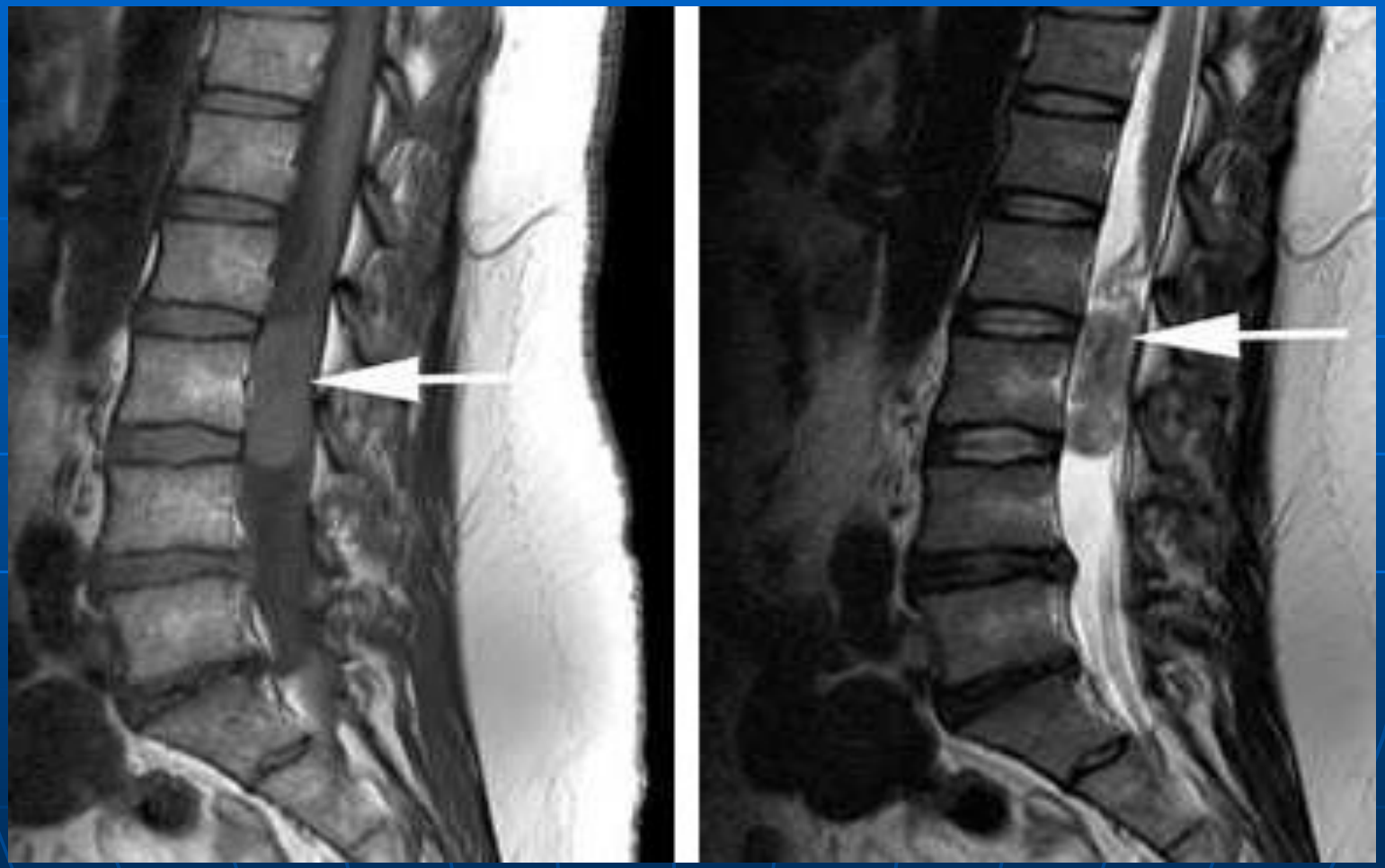
Cellular Ependymoma

Myxopapillary ependymoma



Tends to occur in the conus medullaris or filum terminale. It is the most common tumor in this region.

Subtypes

- Cellular
  - most common intramedullary tumor subtype
- Papillary
- Clear-cell
- Tanycytic
  - Precursors of astrocytes and ependymal cells