

Surgical Technique of Intramedullary Tumor Surgery

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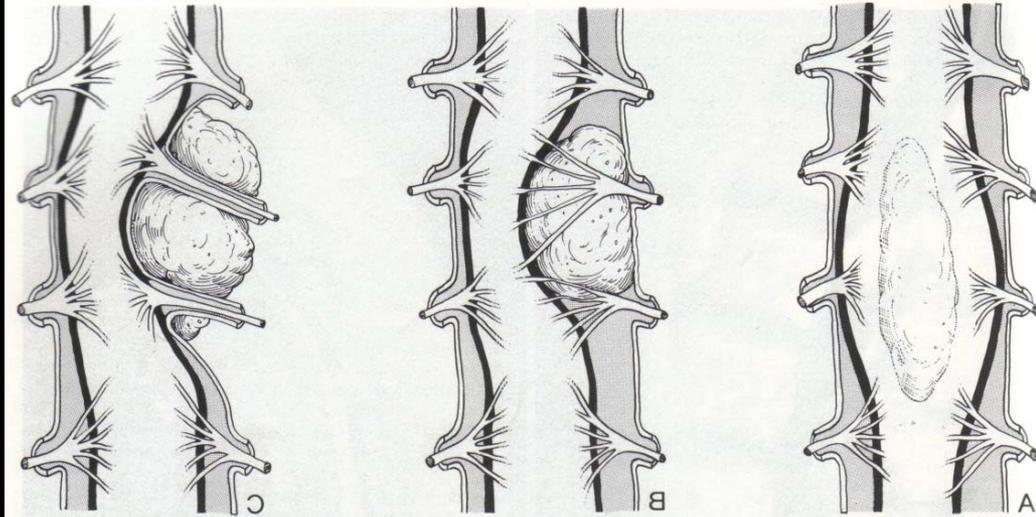
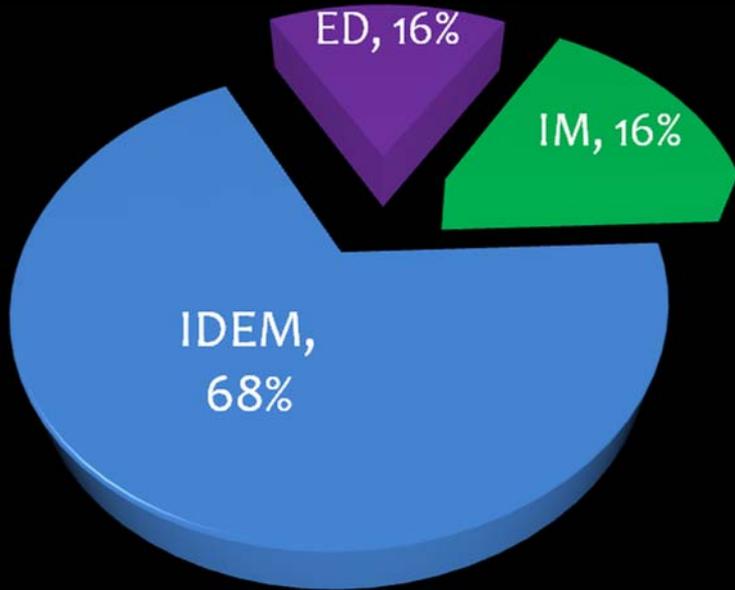
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7th AINC

Spinal Tumor (N= 120)

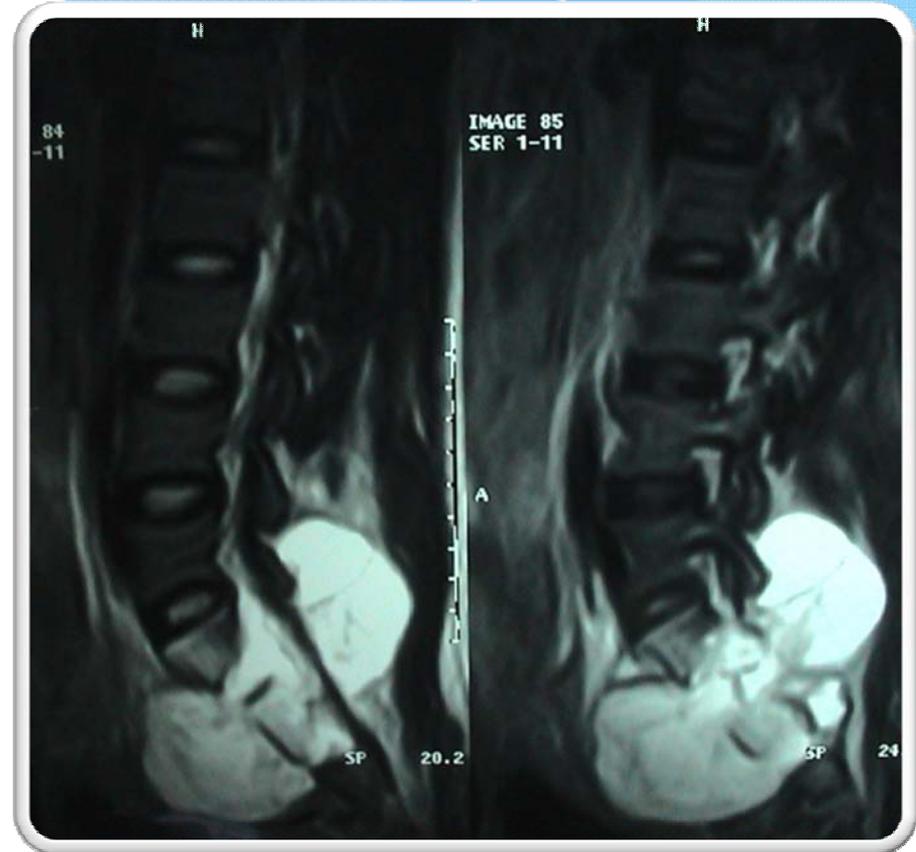


ED

IDEM

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Extra dural tumors were usually malignant or benign histologically but showed malignant character



For proper surgical planning we should know

Location of the tumor

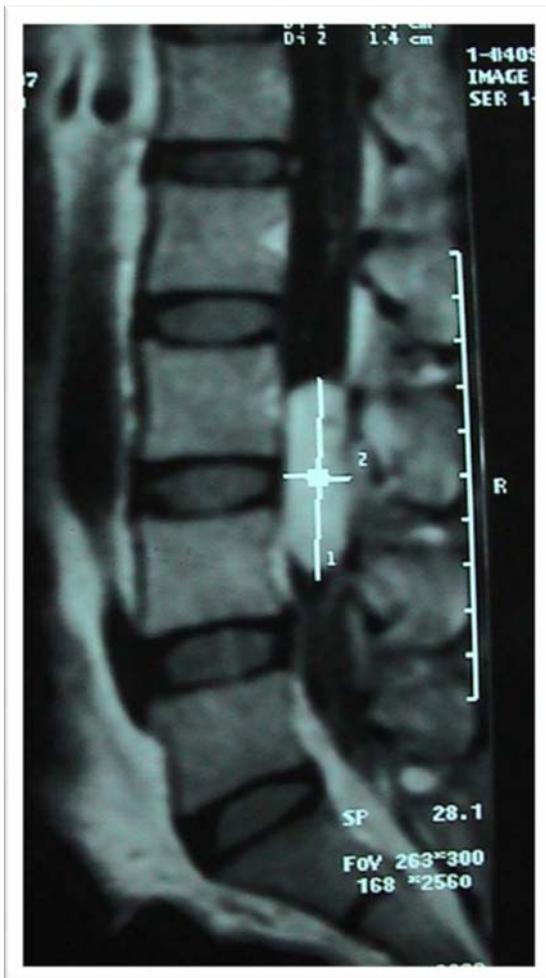
In relation to the dura, cord, nerves

Nature of the tumor

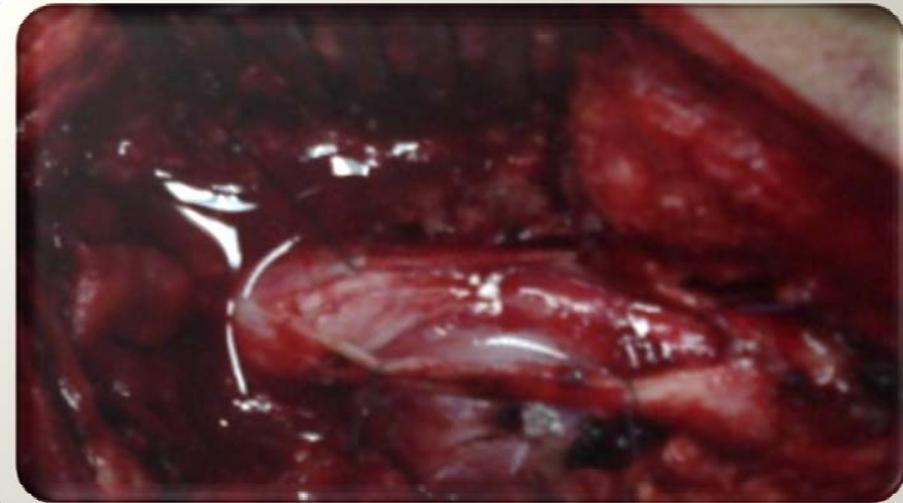
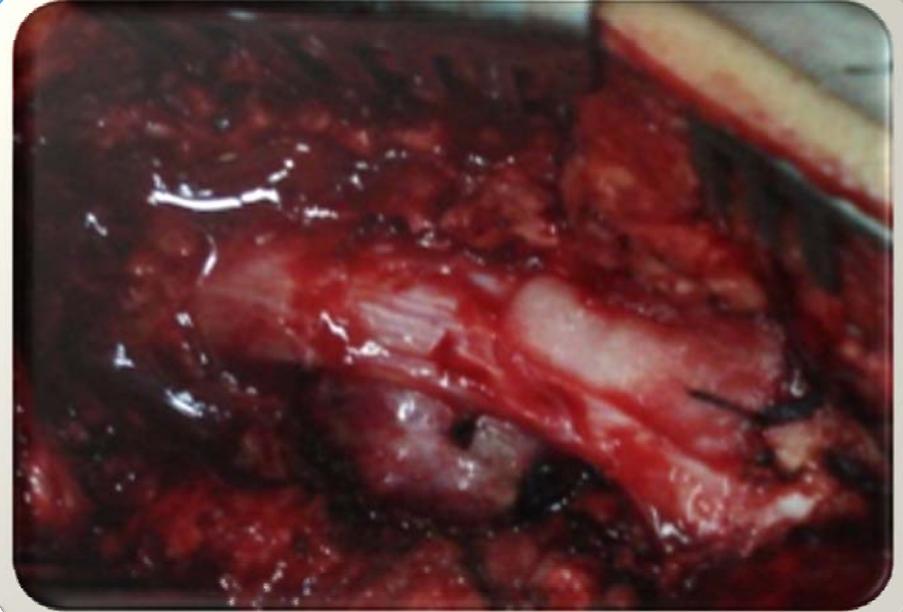
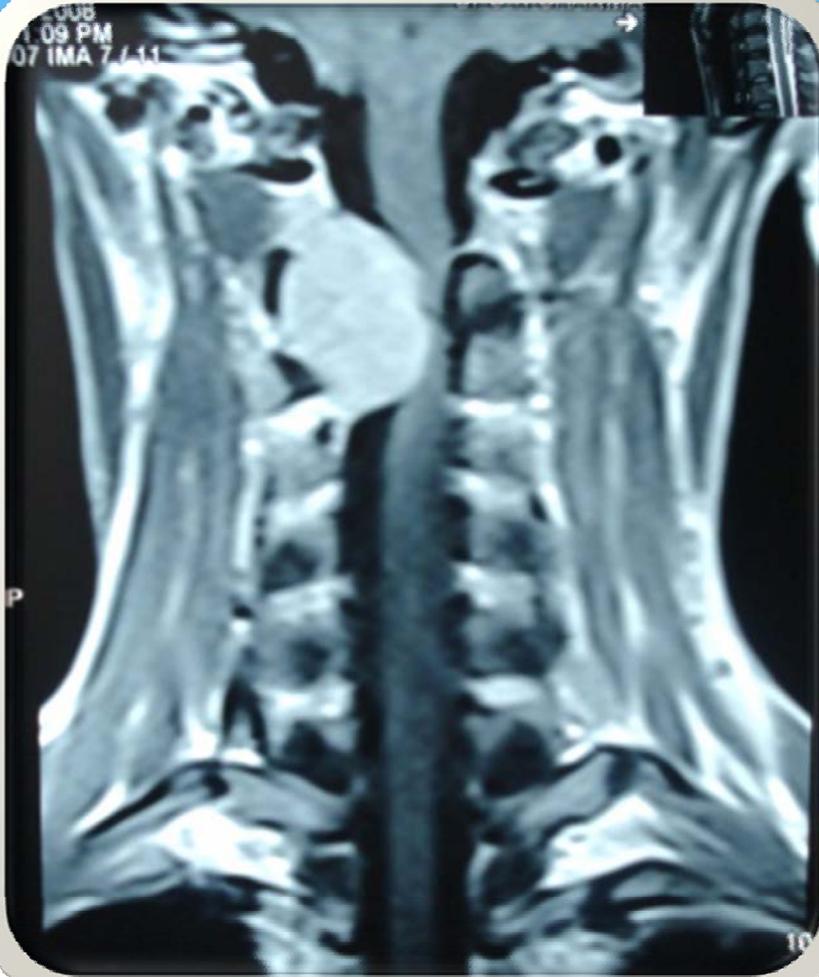
vascularity, hardness, possible histology

In relation to dura

Totally intradural neurinoma



Intra & extradural neurinoma



Total extradural neurinoma



Approached from both side simultaneously & look at the nerve origin & cut it before manipulation.

Location of tumor in relation to cord



Posterior to cord



Anterior to cord

Hardness of the tumor



Calcified meningioma

Vascularity of tumour



Intramedullary hemangioblastoma

Essential Equipments



Good quality
Operating microscope



USG to localize



Flat tip dissector 5 mm



Nerve stimulator



Monitoring

Positioning

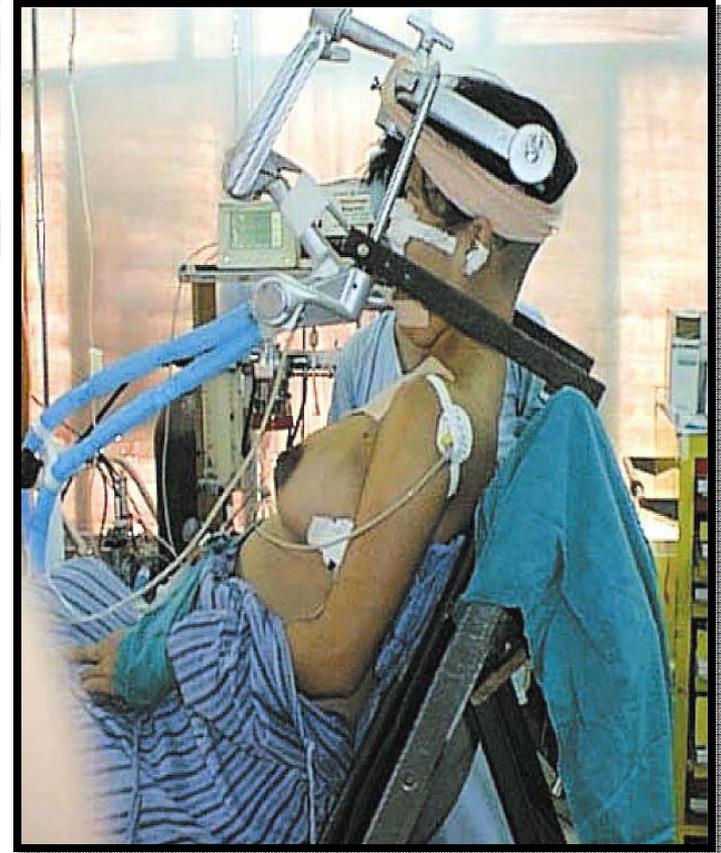
Very Important



Cervical & upper thoracic



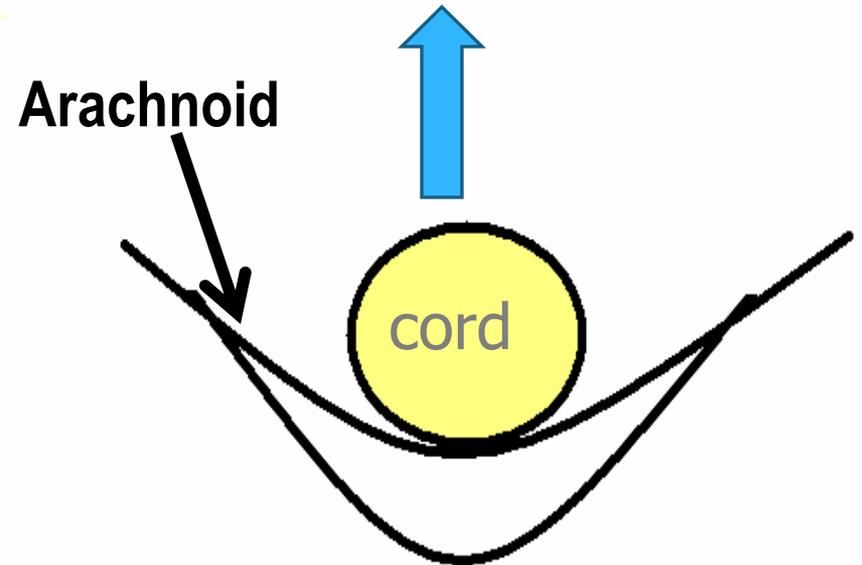
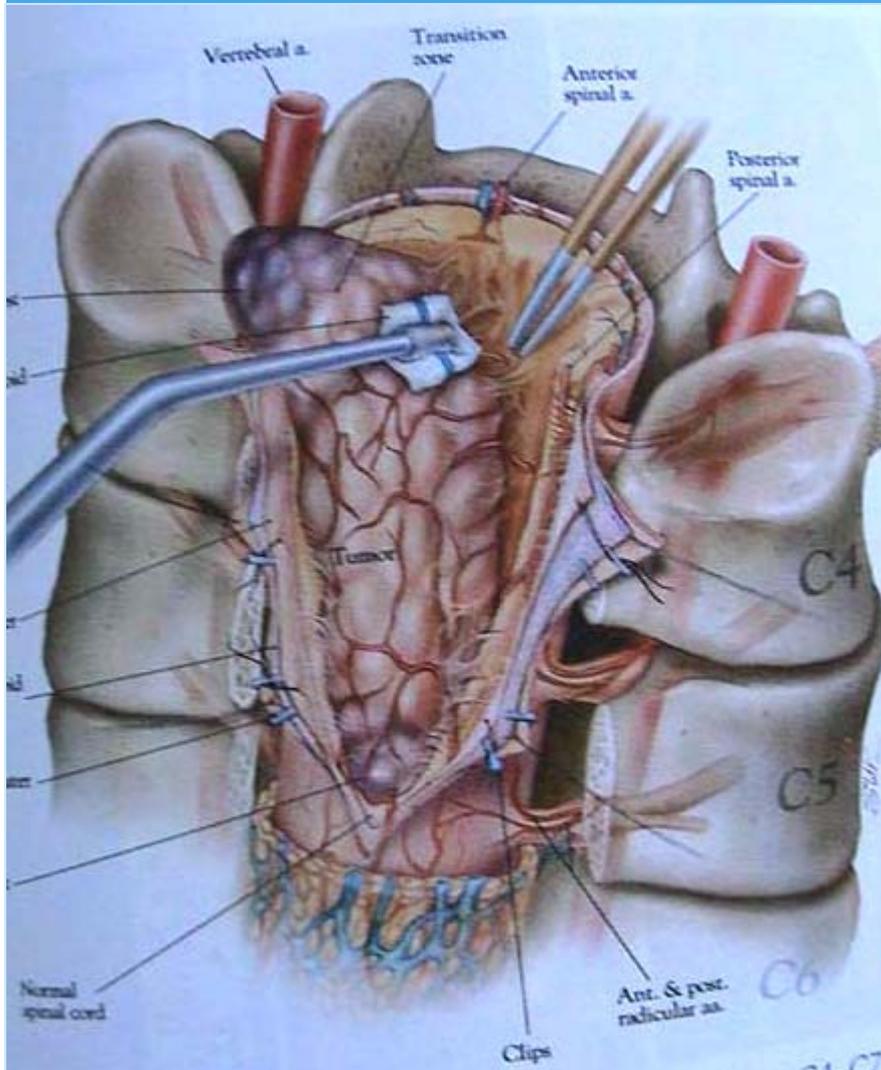
Lower thoracic and Lumbar



Special cases

Surgical techniques

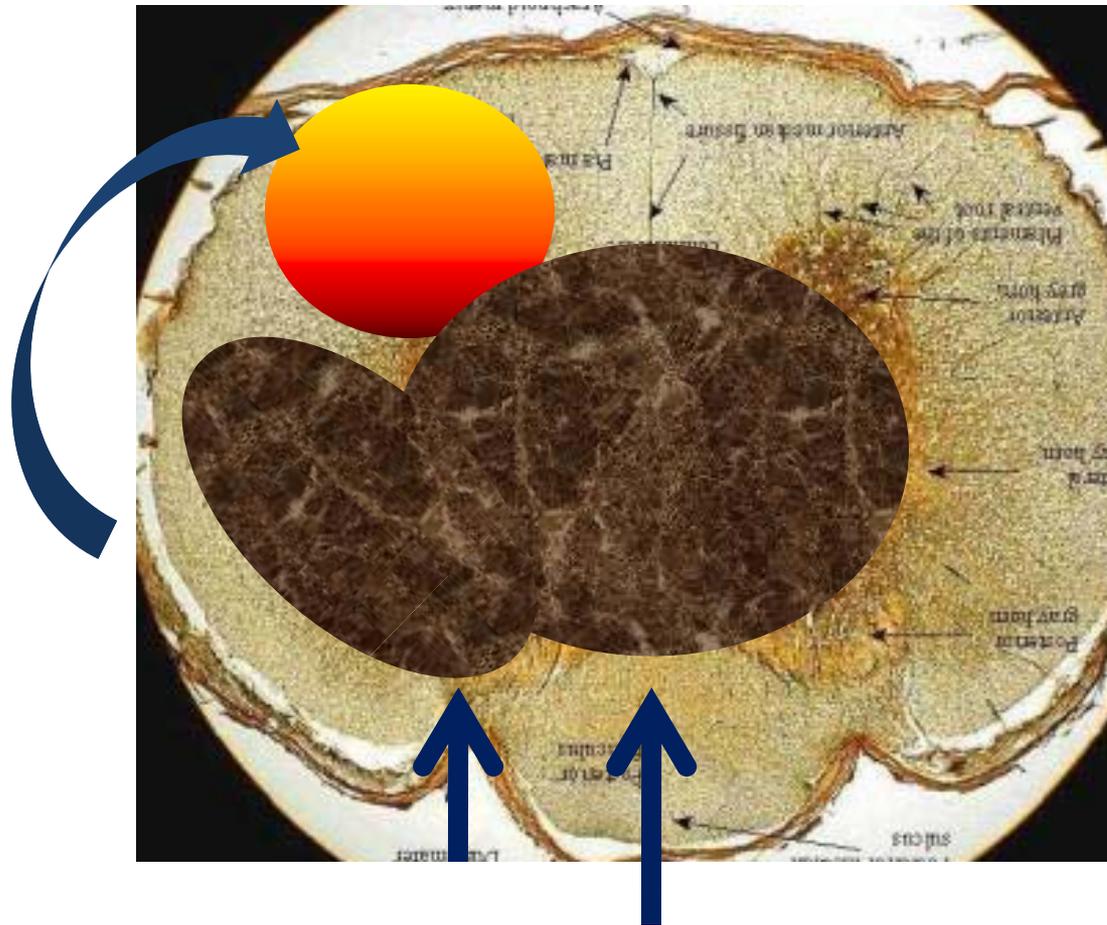
- * Dural incision & splitting**
- * Separate arachnoid dissection & hitching**
- * Dentate ligament resection when needed**
- * Pial stitch & cord rotation**
- * Nerve stimulation to identify dorsal & ventral nerve roots when required**
- * Dorsal nerve sectioning when unavoidable**



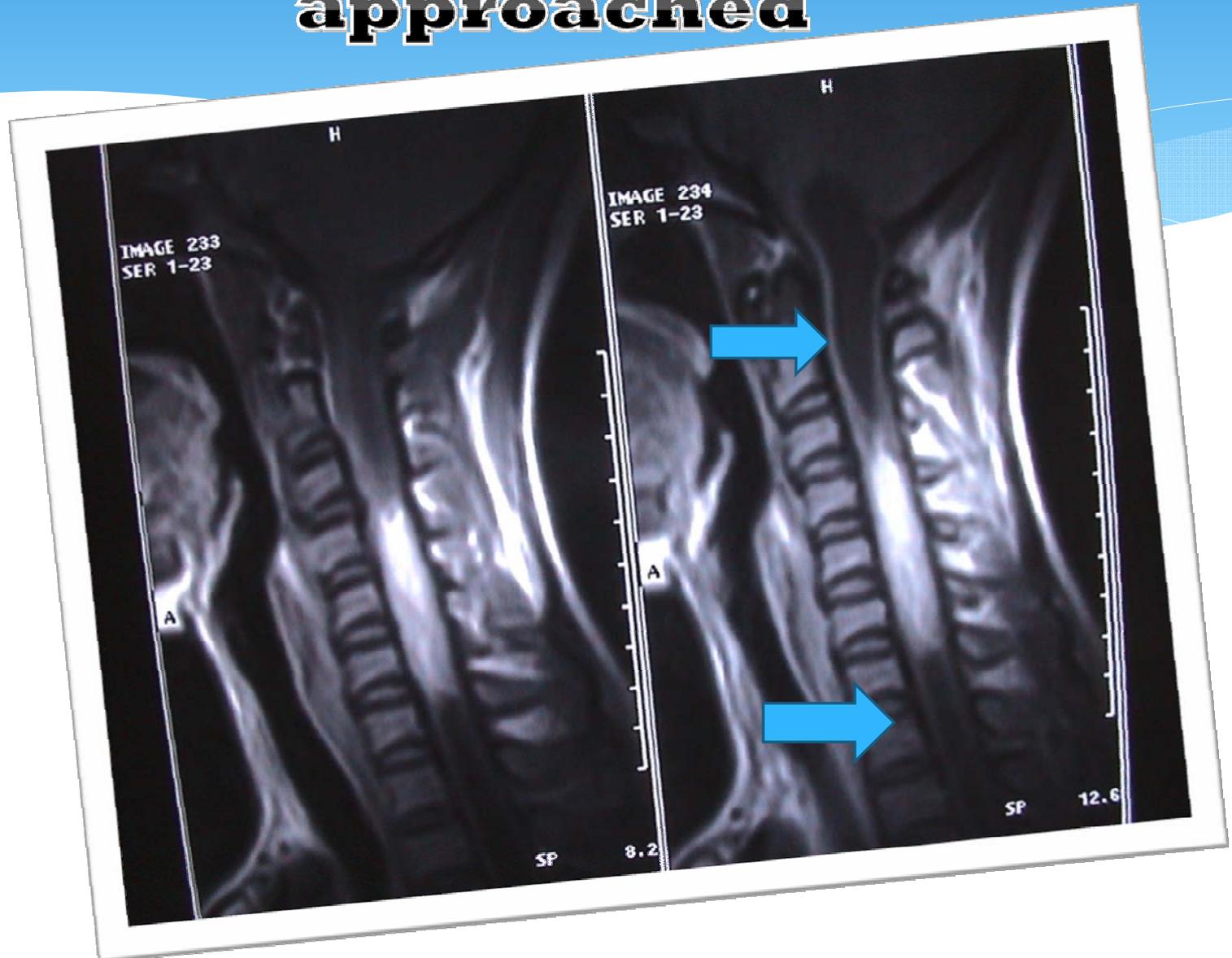
Tumor Dissection

Myelotomy

Posterior midline/ DREZ/
location of the tumor



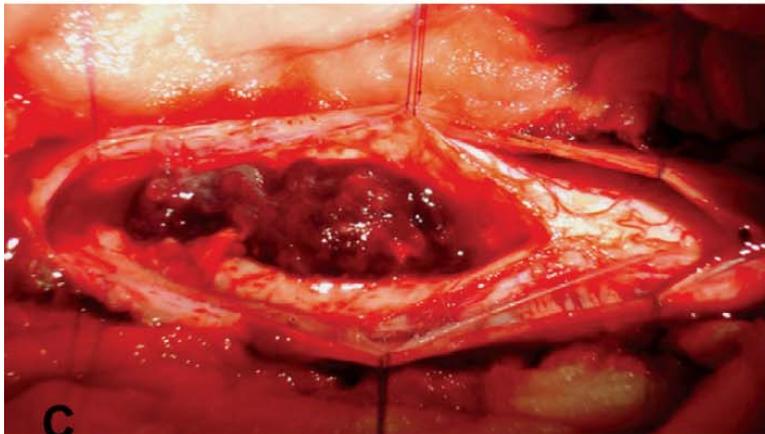
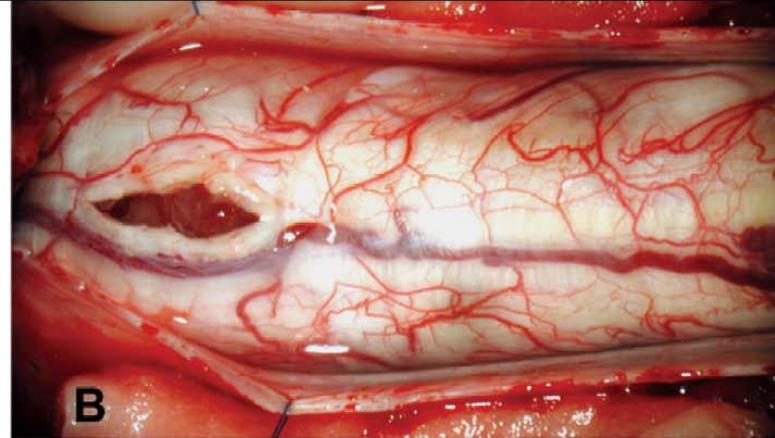
Syrinx in 2 ends should be approached



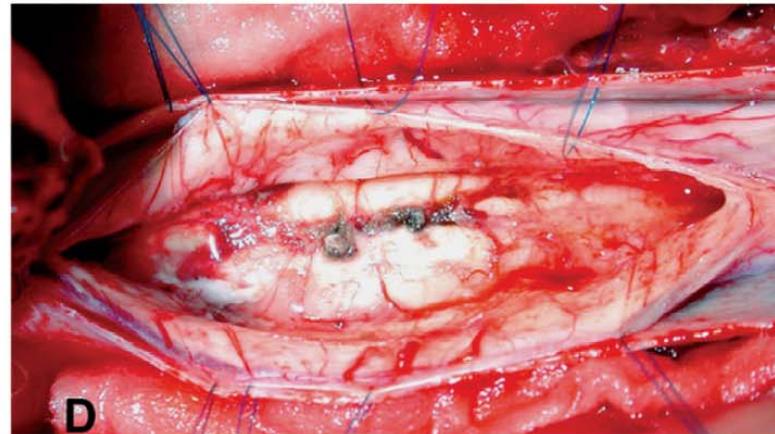
Dural stay



Cordotomy



Dissection of tumour



At the end

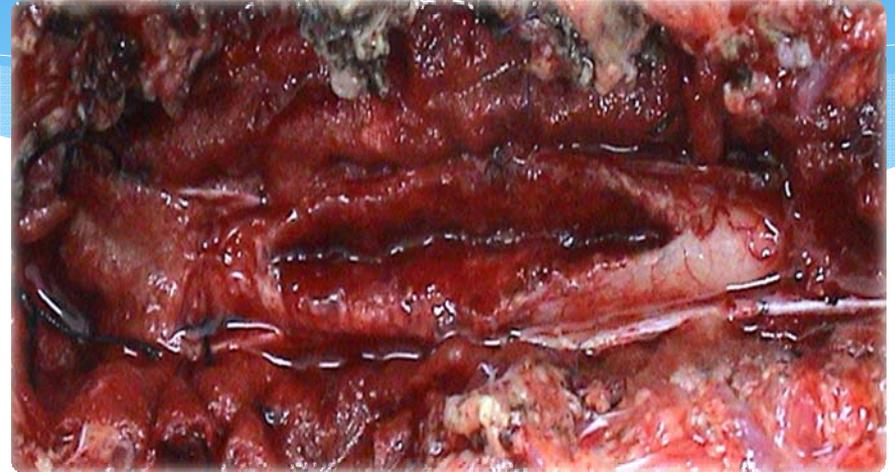
Cleavage is important

13 yrs boy with spastic paraparesis

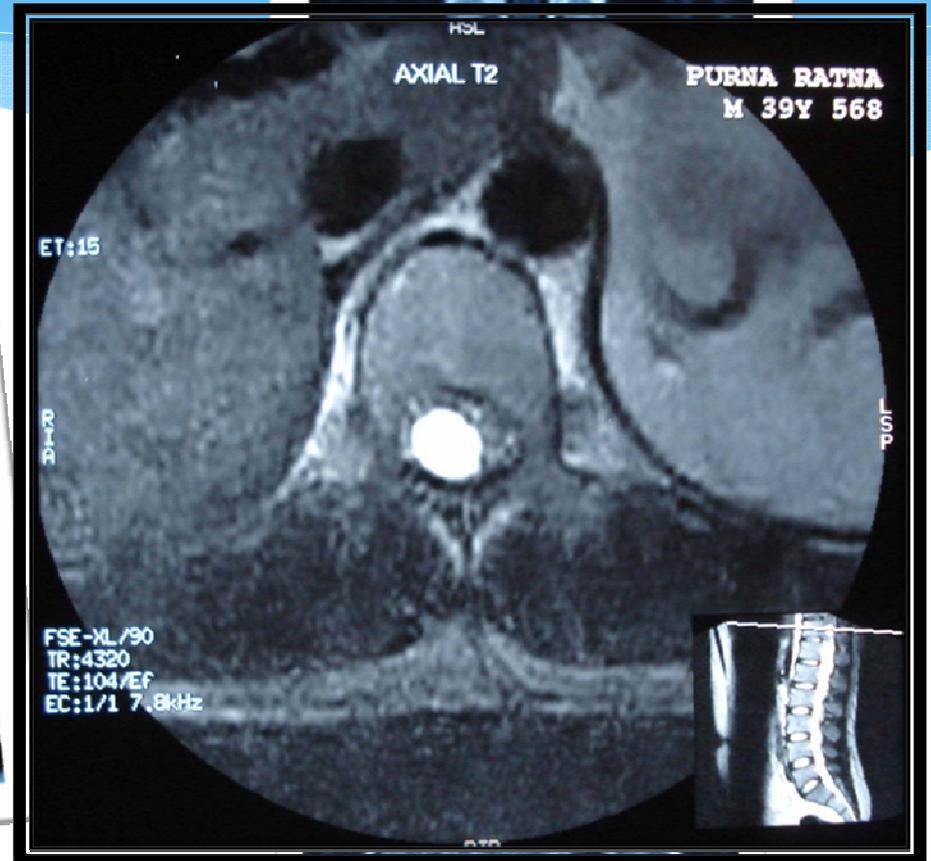


Astrocytoma

Indistinct cleavage

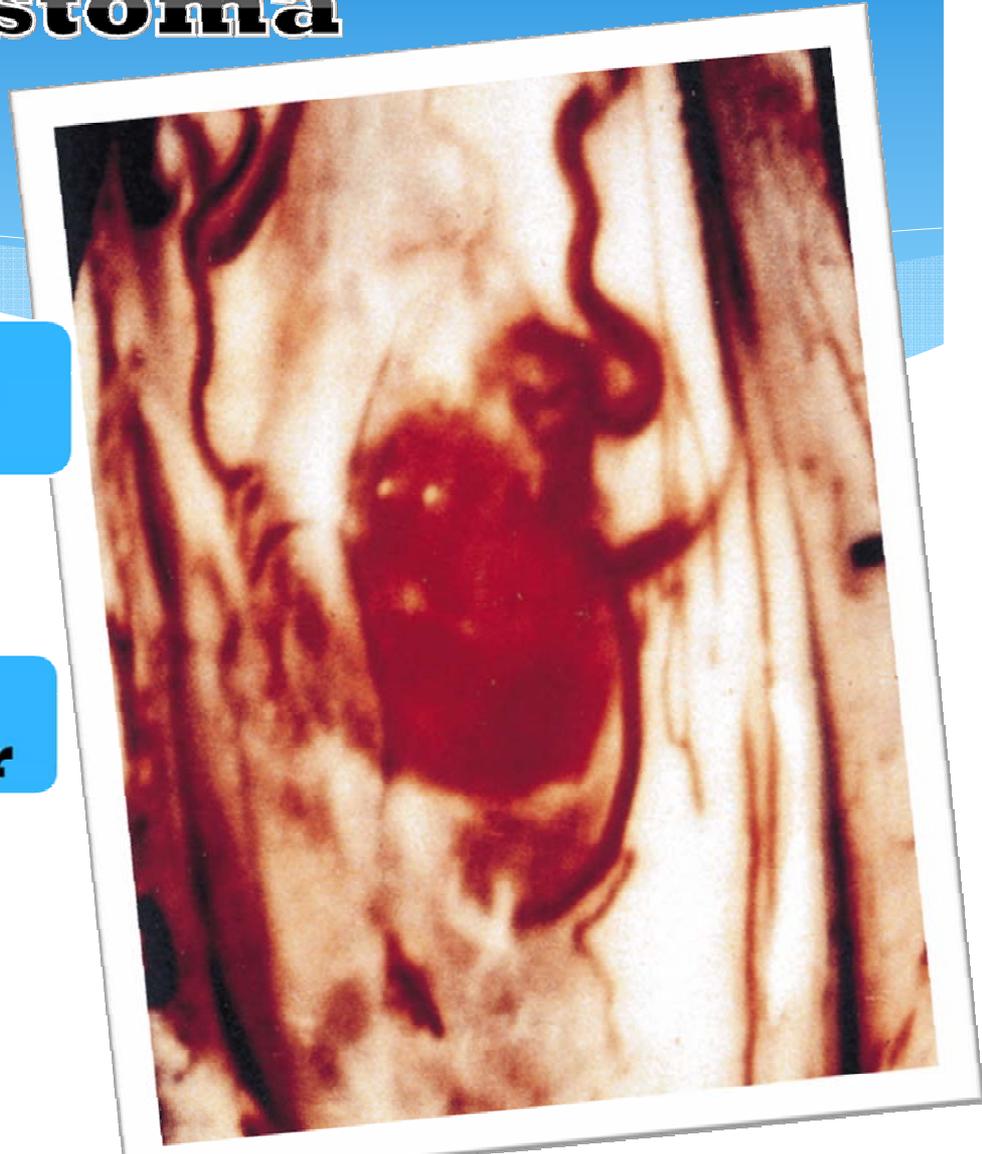


Hemangioblastoma



This is always subpial

Hemangioblastoma



Temporary clipping



**Observe for congestion
& enlargement of tumor**



If not cut

Always remove Enbloc

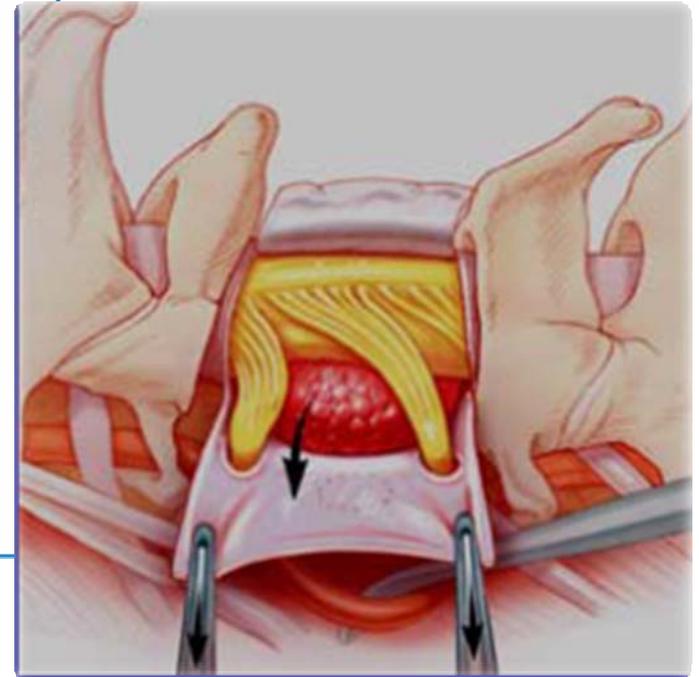
Intradural Extramedullary Meningioma

* **Posteriorly located**

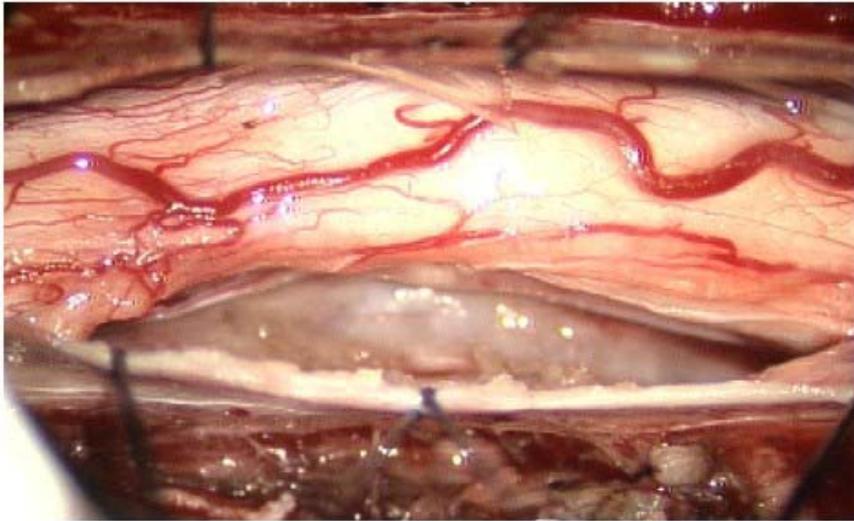
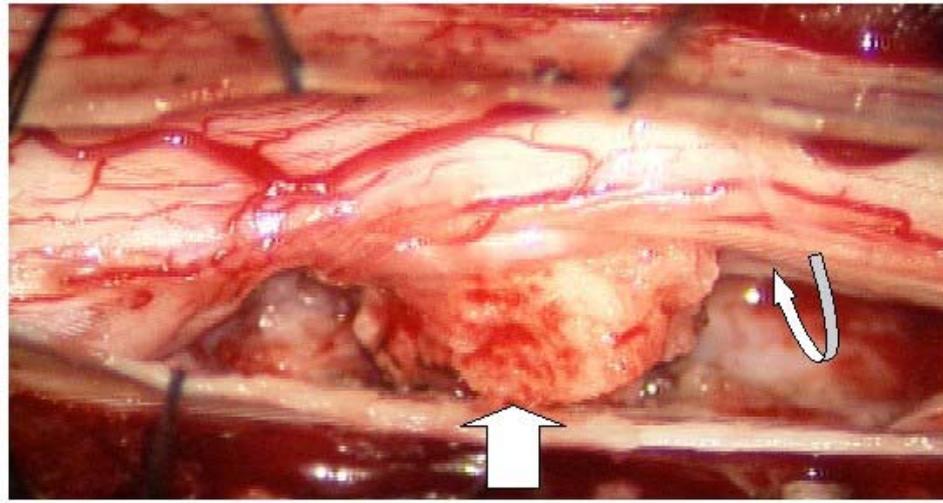
- * Excision of tumour with dura
- * Dural patch

* **Anteriorly located**

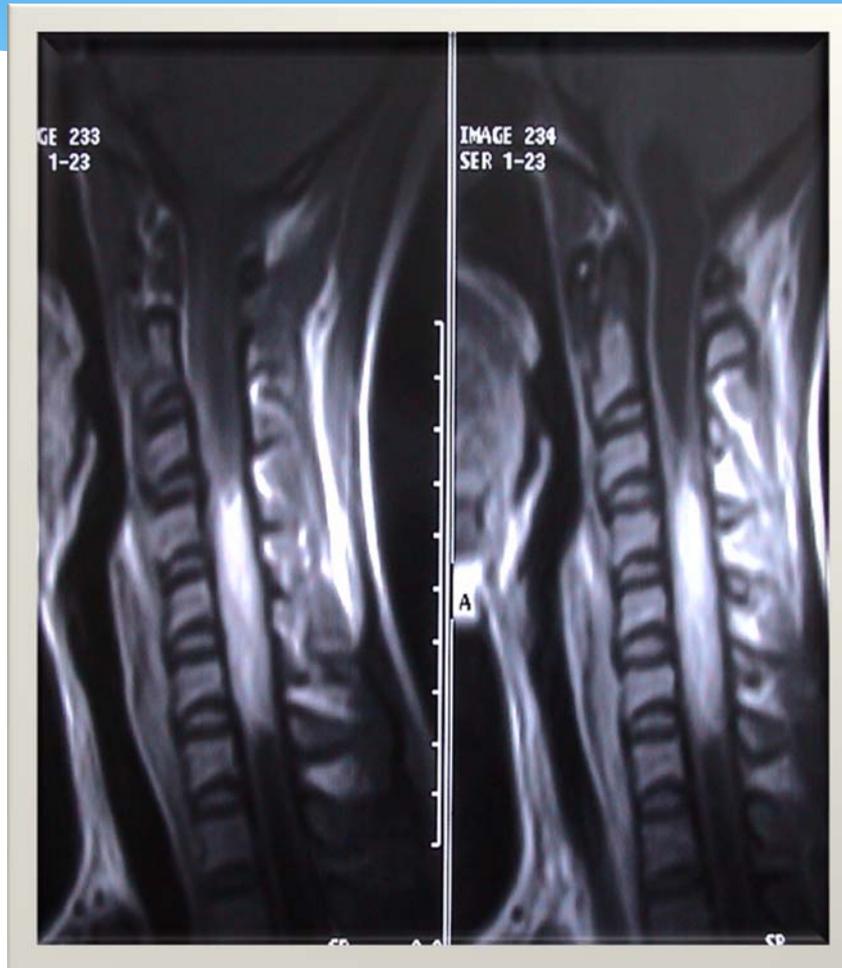
- * Excision of tumour without dura
- * Dentate ligament resection
- * Nerve root resection
- * Dural reconstruction technically problematic
- * So extensive coagulation of dural attachment



Intradural Extramedullary Meningioma



IP 37/F presented with quadriparesis/ bowel & bladder dysfunction

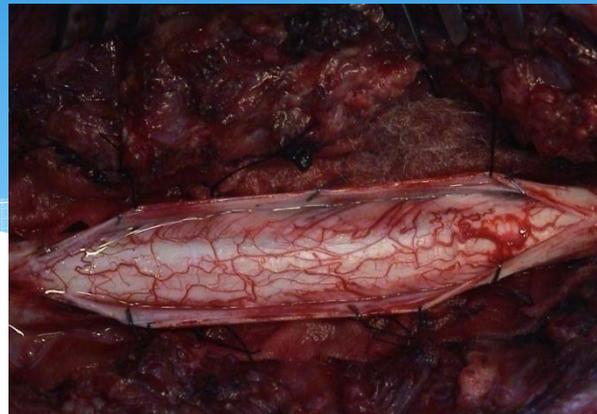


Ependymoma WHO II

Operative Procedure in Intramedullary Tumors



Lamina exposure



Dural incision



Cordotomy



Tumor excision



Hemostasis



Cord approximation

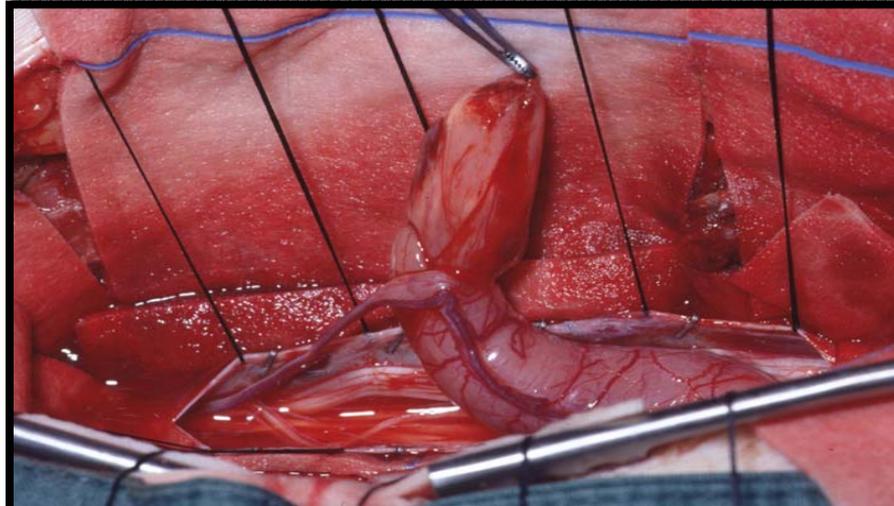
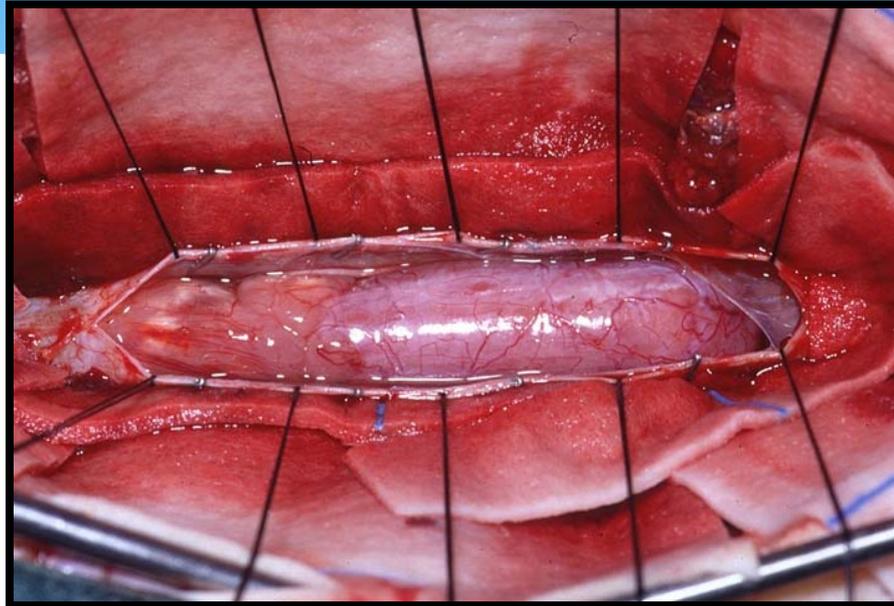


Dural repair

- **Post op 6 months**
- **No neurological deficit**
- **Bowel and bladder normal**

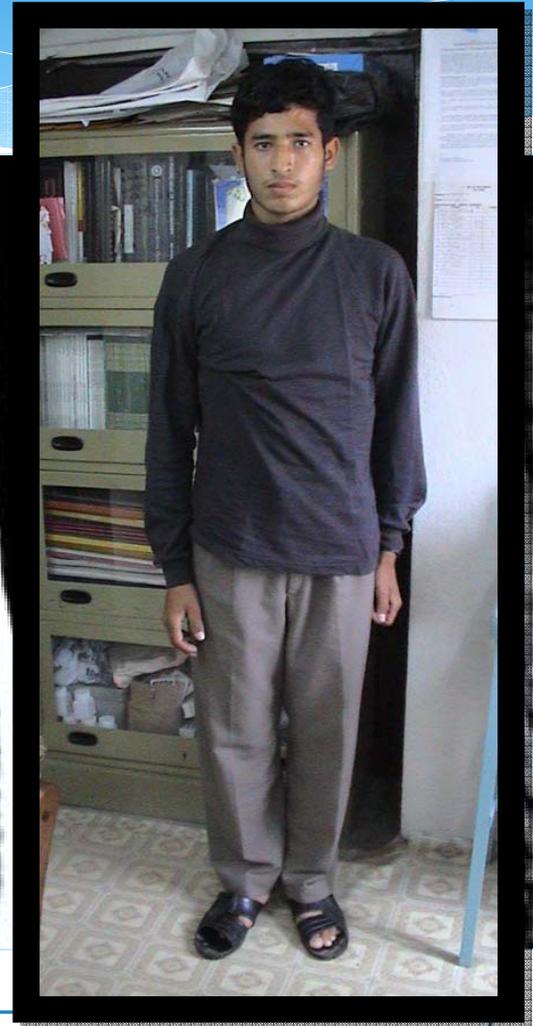


35 yrs man presented with low back pain & tingling numbness of both lower limbs



Intramedullary lipoma

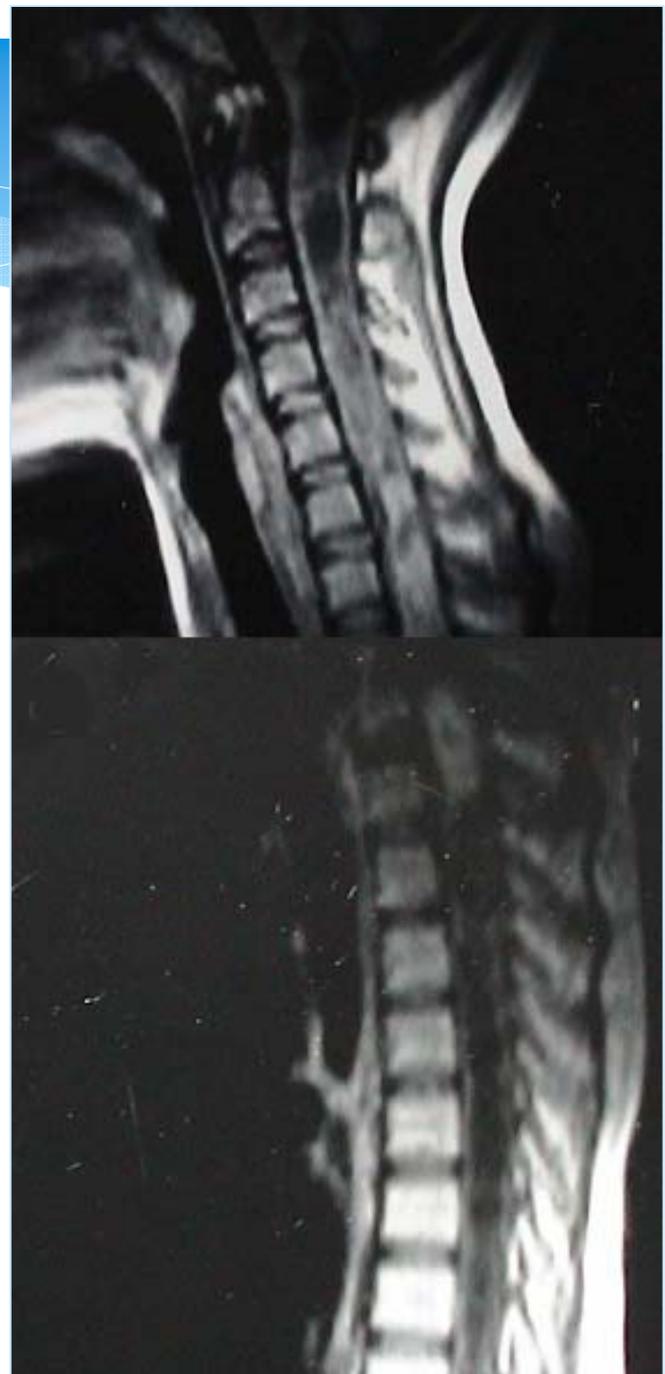
J T 25 / M



Subtotal excision planned which is acceptable in lipoma
Transient quadriplegia for 6 wks Working in police force now

- Presented with rapidly progressing quadriparesis, 5 months pregnant
- Desire of child was very strong.
- Operated in sitting position to prevent venous congestion of the abdomen leading to abortion

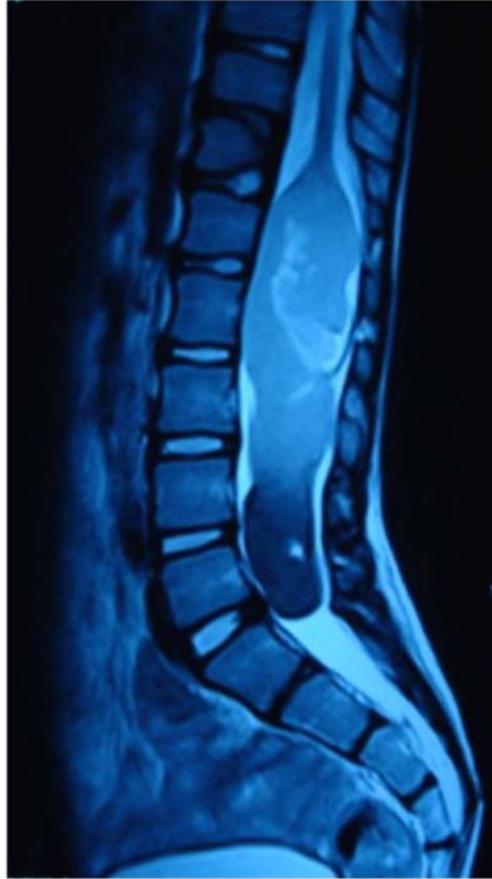
**Intramedullary
Hemangioma (T1)**

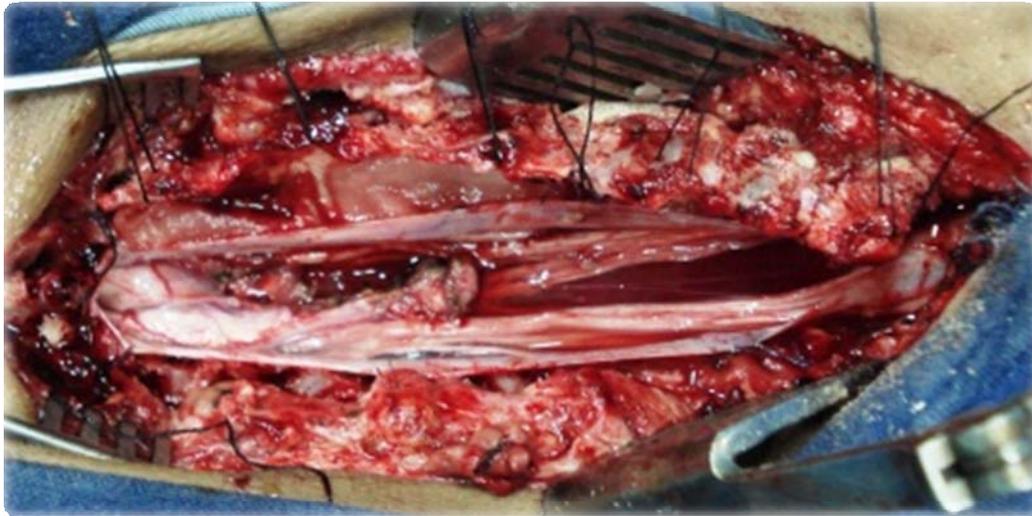
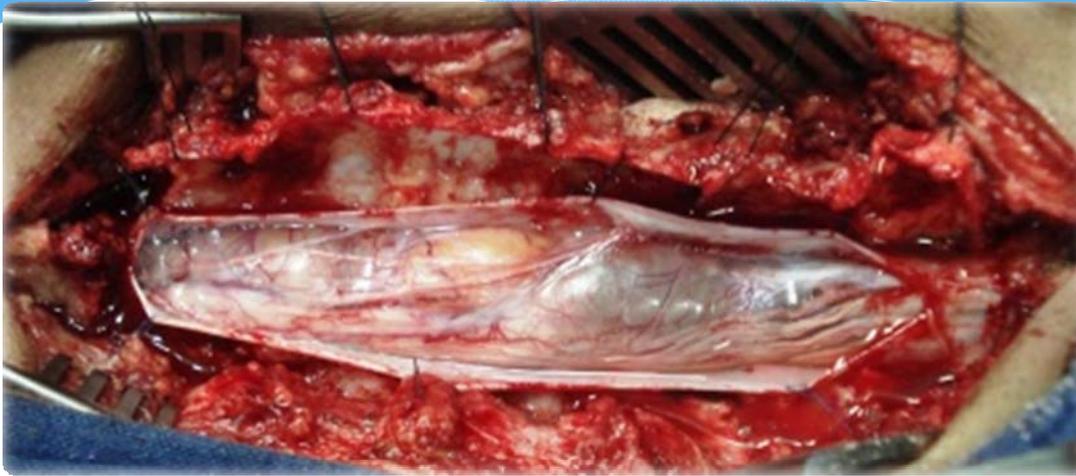


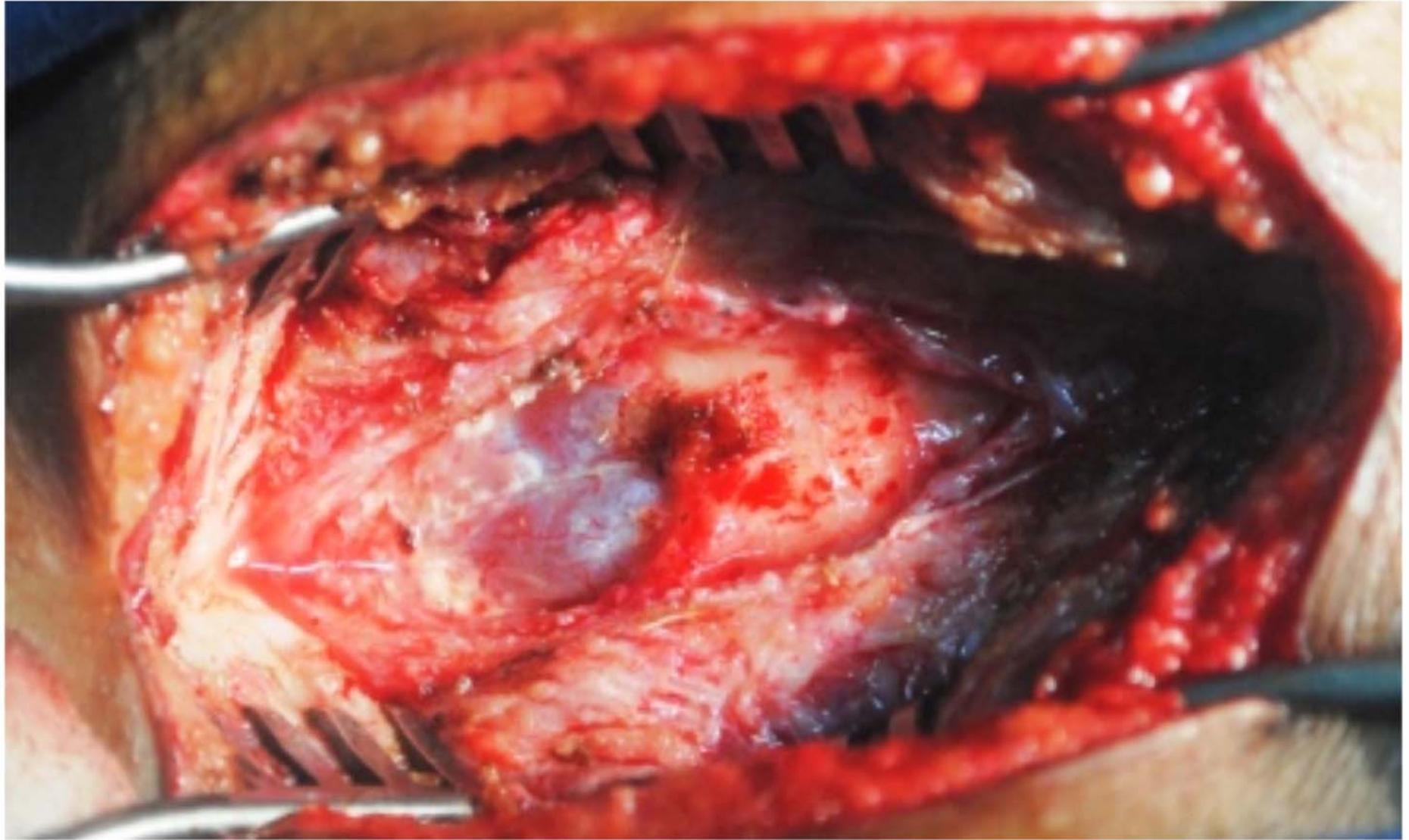
Total excision



Post op MRI







Discussion



- Extradural tumor have poorer prognosis due to its malignant nature.
- All of our cases of intradural extramedullary were either meningioma or neurinoma
- Intramedullary tumor although technically challenging have good result.



Conclusion

Spinal tumor surgery demand meticulous planning & high degree of surgical skill.

We hardly use radiotherapy & no chemotherapy.

The result of spinal tumor is promising. For benign lesion cure can be achieved in almost all cases.



5th South Asian Neurosurgical Congress
By NESON

MARCH 11-13, 2012

Neurosurgery: The South Asian Perspectives

Kathmandu, Nepal