

A Case Report

Intradural Extramedullary Meningioma at Upper Cervical Level: A Case Report

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Introduction:

Intradural extramedullary tumors constitute two thirds of all spinal neoplasms. Schwannoma and meningiomas make up approximately 90% of the total and occur in equal numbers¹. Epidemiological study suggests that spinal tumors occur with an approximate annual incidence of ² per 100000 populations. However with the increasing availability of newer radiological tools such as MRI (Magnetic resonance imaging) spinal cord tumors are being diagnosed more frequently². Approximately 20% of all central nervous system tumors lie within the spinal canal. incidence of location suggests that 25% are extradural, 50% are intradural extramedullary, and 25% are intramedullary³. Clinical presentation includes radicular pain, definite sensory level, weakness of the limbs often associated with hyperreflexia and spasticity, bowel & bladder involvement. Clinical presentation is useful in determining the exact location and level of the spinal lesion⁴. MRI has become the primary diagnostic modality in the assessment of intradural extramedullary lesion⁵⁻⁷. Sometimes plain x-ray and CT myelogram may be helpful.

A young female patient of 34 years was presented with the complaints of upper neck pain, hyperaesthesia and difficulty to walk. MRI of cervical region reveals intradural extramedullary mass extending from C1 to upper border of C3 with moderate enhancement in gadolinium. It was a transition zone between a mobile cranium & relatively rigid spinal column and is also at the site of the craniospinal junction. Removal of posterior arch of C1 and laminectomy of C2 with total removal of the SOL (space occupying lesion) was performed without damaging important structures & without any support from posterior site. Peroperative impression and histopathological findings confirm psammomatous type meningioma. After operation there was improvement of signs and symptoms and patient could walk without any support during discharge from the hospital and the postoperative period was uneventful.

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Case Report:

Mrs. Protima Rani Vowmik, a 34 years female presented with neck pain, progressive weakness of both upper and lower limbs leading to difficulty in walking for 16 months. Muscle power was of grade 4 in all groups of both upper and lower limbs, DTR (Deep tendon reflex) of ankle and knee joints were slightly exaggerated with bilateral planter extensor. The sensory deficit was at C3 level bilaterally. There was no history of trauma, fever, urinary or fecal incontinence. Her x-ray cervical spine was normal, ESR was 20 mm in the first hour, Hb% was 12gm/dl. MRI of cervical spines revealed intradural extramedullary lesion with moderate enhancement of the mass after injecting gadolinium extending from C1 to upper border C3 level.



Figure-1: MRI scan showing SOL at C1-C2.

Removal of posterior arch of C1 and laminectomy of C2 was done by posterior approach. The dura and arachnoid membrane was found normal. The

lesion caused compression of the cord from the right posterolateral to left. The lesion was attached with the root of the dura mater. It was reddish in colour and vascular in appearance. The arachnoid over the tumour was divided sharply with an arachnoid knife. The attachment was coagulated and cut. The tumour was thus devascularised. The tumour was removed totally after durotomy. Watertight closer of dura was done and the wound was closed in layers leaving a drain in situ. Histopathological examination reveals a psammomatous type of meningioma. After operation signs and symptoms improved gradually. Physiotherapy was started and the patient discharged on the tenth post operative day. During discharge the patient could walk without any support. She was discharged with the advice to continue physiotherapy with the neck support by using semirigid Philadelphia cervical collar.

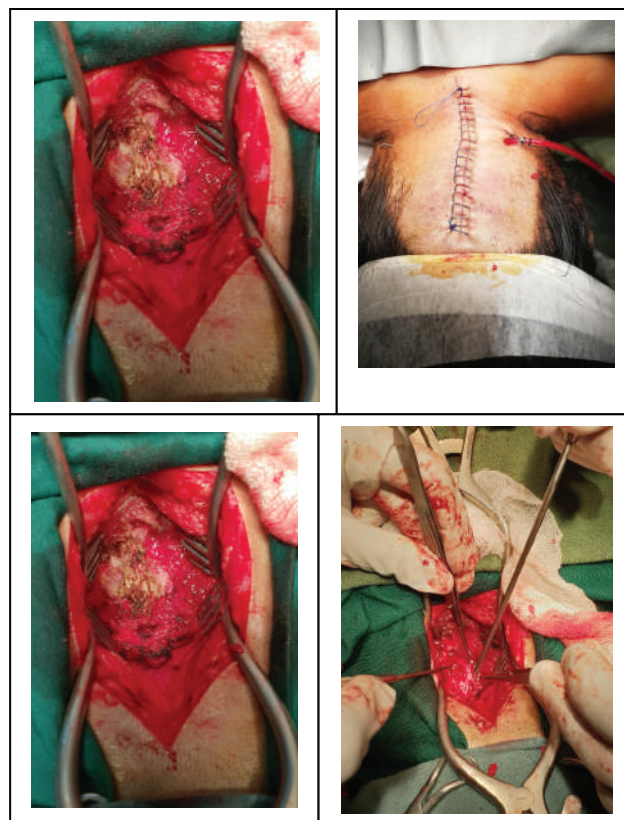


Figure-2: Per operative pictures

Discussion:

Intradural extramedullary spinal tumour at craniovertebral junction is important because it is a transition zone between a mobile cranium and relatively rigid spinal column, where a number of bony and neuronal anomalies may occur, which can result in neuronal compression, vascular compromise and alteration in the CSF flow. Advances in diagnosis and surgical techniques have resulted in a drastic reduction of the morbidity and mortality associated with these tumours. Schwannoma and meningiomas constitute 90% of all intradural extramedullary spinal tumours. Complications in relation to surgical intervention of intradural extramedullary tumors include haemorrhage, infection, CSF leakage and newer significant neurological deficits. But in our case the postoperative period was uneventful. The surgical management of spinal intradural extramedullary meningiomas has become much simplified in the past 10 years by using per operative neuromicroscope and microsurgical techniques. The excellent surgical outcome obtained today are primarily related to the early diagnosis achieved with newer neuroradiological diagnostic studies (MRI) and improved surgical techniques and modern tools. In addition, intraoperative electrophysiologic monitoring has been exceedingly valuable per operative detecting and preventing neurologic injury. In summary neurosurgeons today can anticipate a very satisfying surgical result in the treatment of intradural extramedullary neoplasms. Psammomatous meningioma is a histological subtype of meningiomas usually present as a heavily calcified intracranial or spinal mass lesion. The meningothelial and psammomatous types most commonly involve the spines.

Conclusion:

Outcome of intradural extramedullary spinal tumours depends on radiological diagnosis and good microsurgical techniques. Radiological diagnosis by MRI scan which clearly delineate the tumour, its location, its extension and signal changes in the cord. MRI also provides information about the relation of the tumour to the vertebral artery. Contrast scans highlight the tumour as well as the dural tail in meningiomas. Neurological deterioration can be minimized by using neuromicroscope and good microsurgical techniques. Per operative dissection at the tumour–cord interface and vascular compromise of cord due to coagulation of a feeding or draining vessels is important to prevent neurological deterioration. Further protection of neck by using Philadelphia cervical collar is important.

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