

# Migrating Extramedullary Intradural Schwannoma of Cervico-Thoracic Junction

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## Introduction

Mobile intradural tumors are very rare. In most cases, mobile tumors such as nerve sheath tumors or ependymomas are located in the cauda equina [1]. Only few cases of mobile neurinoma have been reported in the cervical and thoracic region [2]. Here we report a rare case of a mobile intradural schwannoma initially located at lower cervical region that had caudal migration on subsequent scan.

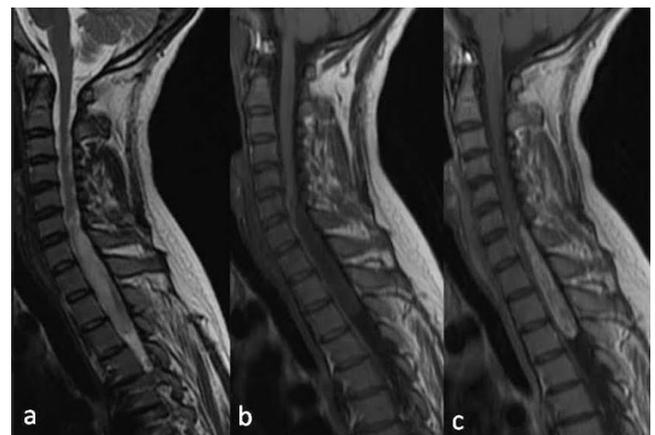
## Case Report

A 28 year-old lady presented in OPD with complaints of progressive spastic quadriparesis. Bowel and bladder involvement was present. MRI of the cervical spine done outside revealed a well-defined oval heterogeneous T2 hyperintense and T1 hypointense intradural extramedullary mass lesion extending from upper border of C5 to lower border of D1 spinal level. Patient was planned for surgery; however deferred due to financial constraints. Patient was thus managed conservatively (Figure 1).



**Figure 1:** A well-defined T2 hyperintense and T1 hypointense extramedullary tumor is seen extending from upper border of C5 to lower border of T1 vertebra.

After 18 months, the patient presented again with complaints of weakness in bilateral lower limbs. Power in both upper limbs was normal. She also complained of pain in the chest and the upper back region. MRI was done at our institute on a 3T scanner (GE, SIGNA, Wisconsin, USA). Findings revealed a well-defined oval heterogeneous mass lesion noted in the intradural extramedullary compartment extending from C7 to D3 spinal levels. The adjacent spinal cord was displaced anteriorly and towards the left side by the lesion with mild widening of the subarachnoid space. Mild expansion of the spinal canal was also noted at the corresponding levels. The tumour size was almost the same compared to the previous study (extending 4 vertebral body lengths). However this time the lesion had migrated somewhat caudally (C7 to D3) as compared to the previous scan (C5 to D1). Meningiomas are relatively fixed to the dura and thus do not migrate. Ependymoma was ruled out as the lesion was extramedullary. Since the lesion showed heterogeneity, diagnosis of caudal migration of intradural extramedullary neurogenic tumor, possibly schwannoma was made. Patient underwent surgery. The intradural tumor was found extending from C7 to D3 level and was completely excised. Histological diagnosis was schwannoma (Figure 2).



**Figure 2:** Repeat MRI after 18 months shows the same lesion extending from upper border of C7 to lower border of T3 vertebra. The lesion is hyperintense on T2 (a), hypointense on T1 (b) and is showing intense post contrast enhancement (c).

## Discussion

Mobile intraspinal tumors are rare. Schwannomas are common mobile spinal tumours among the group, rest being ependymoma and

neuroenteric cysts [3]. On imaging, they appear as well defined T2 hyperintense and T1 hypointense lesions showing intense post contrast enhancement. Clinical presentation varies with the location of the tumor. Most patients present with symptoms due to compressive myelopathy.

Mostly mobile spinal tumors are located in the cauda equina region and get displaced because of the redundant nerve roots. A redundant nerve root would allow more mobility of an attached tumor. Schwannomas are nerve sheath tumors that are relatively well marginated with little attachment to the adjacent tissues. In most of the cases, there are no attachments to dura and the lesion is held by the nerve root at its two ends. In the lumbar region, tumours that are attached to redundant nerve roots of the cauda equina have more chances of mobility. In cervico-thoracic region, presence of the spinal cord itself allows less space for mobility. So, mobile spinal tumours are rare at cervico-thoracic location as compared to lumbar region [4].

Although mobile intraspinal tumors are extremely rare at cervical and thoracic levels, MRI should be repeated for patients with changes in neurological signs after postural change or fluctuation of symptoms over the clinical course. Our patient initially presented with progressive quadriparesis but in due course of time upper limb symptoms improved.

In a study and literature review by Kim SB, more mobile tumors were found in cauda equina region and rostral migration was more common than the caudal migration. Migration was most commonly within one vertebral level distance, however migration upto five level vertebral distances have also been reported in thoracic region [2,3]. In our case, the tumor was initially located at the lower cervical region (upper border of C5 vertebral body to lower border of D1) on first MRI and migrated caudally to lie at the level of C7 to D3 as was seen on the second MRI. Possible aetiology for tumor mobility in this location appears to be elongation of nerve roots by tumor weight. Also the spinal cord deformity and enlargement of subarachnoid space by the intradural extramedullary lesion may account for the mobility of the tumor.

Changes in the level of a schwannoma may be related to differences in the patient's body position during MRI or surgery. It may also be related to postural change, straining and thrust of contrast injection during myelography and laminectomy during surgery. Possibility of migrating spinal tumor should be kept in mind to avoid unnecessary additional laminectomy or a second surgery. It can be prevented by pre-operative repeated MRI or myelography. Intraoperative myelography, intra operative USG or MRI are also useful. Intraoperative myelography should be done before dural incision. Again tumor might get displaced because of the force exerted during contrast injection. Still it is a preferred modality to determine the precise level of laminectomy. Intraoperative MRI can be done only in well-equipped hospital. Intra operative USG appears to be most convenient method to find out the migrated tumor if the tumor is missing at the expected site. It is an easy and useful method and can be performed even after dural incision [3,5].

## Conclusion

Purpose of this report is to remind the surgeon about the possibility of migration of intradural extramedullary tumor when there is negative exploration in the expected area.

## References

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