Multiple Spinal Intradural Extramedullary Metastases by Squamous Cell Lung Cancer
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Patient: 59 years, male

Clinical History:
A 59 year old patient with an 18 months history of lung cancer in the left upper pulmonary lobe presented with pain, radiculopathy, sensory changes and weakness in the extremities. MRI of the thoracic, lumbar and cervical spine was performed.

Imaging Findings:
The patient had a history of squamous cell carcinoma in the left upper pulmonary lobe with extension in the mediastinum and concomitant lymphadenitis, in stage IIIB (fig. 1). He had been treated with chemotherapy and radiotherapy.
CT scan, one year after the first diagnosis, showed brain (fig. 2) and adrenal metastases.
Six months later the patient reported recurring numbness, pain and weakness at the extremities. MRI of the whole spine was performed.
MR imaging showed multiple intradural extramedullary nodules of different size. The bigger nodules were localized at the level of T8 and L2 vertebra and caused pressure over the spinal cord. Intense enhancement was demonstrated after the intravenous administration of contrast medium on T1 weighted-images. There were no osseous metastases (fig. 3, 4, 5).
The patient passed away one month later.

Discussion:
Spinal tumours are generally classified as intramedullary or extramedullary (intradural and extradural) and account for only approximately 5-15% of the nervous system neoplasms.
Intradural extramedullary spinal cord tumours constitute approximately two thirds of these tumours and include a variety of lesions from meningiomas and nerve sheath tumours (neurofibromas, schwannomas and more rarely gangliioneuromas) to less common tumours (hemangiopericytoma), metastases, benign tumours (lipoma, dermoid, epidermoid), inflammatory disorders (arachnoid adhesions, sarcoidosis), vascular lesions (spinal-dural arteriovenous fistula), and cystic lesions (perineural or Tarlov cysts).
Spinal metastases, like all spinal tumours, are classified according to their anatomical distribution and 95% of them are extradural lesions. Intradural extramedullary lesions comprise the majority of the remaining lesions, whereas intramedullary metastases are rare.
The majority of patients with intradural extramedullary metastases of nonneurogenic origin, harbour intracranial metastatic foci and so drop metastases are the most common mechanism of spread following dissemination via the cerebrospinal fluid. Other mechanisms proposed for the spread of tumour cells include direct extension from the
extradural space, perineural lymphatic spread and hematogenous dissemination from tumour emboli. The most frequent nonneurogenic primary sources are breast and lung cancer and the most frequent histological subtype is adenocarcinoma. Intradural metastases from melanoma, lymphoma, ovarian carcinoma, oesophagus, muscle, nasopharynx and renal cell carcinoma have also been reported. Lung cancers more often metastasize to the vertebral bone and the epidural space of the spinal column and are responsible for 18% of epidural metastases. Intradural spinal cord metastases from primary lung cancer are rare and in the majority of the cases they are associated with small cell lung cancer and concomitant brain metastasis. The most frequently involved spinal segments are the cervicothoracic junction and the upper lumbar and midlumbar segments. Apparently discrete intradural metastatic tumours may in many instances represent a local accumulation of more widespread leptomeningeal carcinomatosis. There is also the type of the solitary intradural extramedullary metastasis which is located on a nerve root and makes differentiation from a nerve sheath tumour difficult. 

The method of choice for the diagnosis and the follow up of these lesions is MRI. Analysis of the CSF may be useful chiefly in the deciding among differential diagnoses with an inflammatory etiology. On MRI examination the metastatic nodules demonstrate an isointense to the spinal cord signal on T1-weighted sequences. On T2-weighted images, the lesions can be isointense or hyperintense to the cord. All lesions enhanced brightly, homogeneously or heterogeneously, after the administration of contrast medium. Survival time is worse in intradural metastases than in extradural metastases. Symptomatic intradural metastasis causes a virulent clinical syndrome with poor prognosis. Given the high incidence of associated cerebral metastatic involvement, total neuraxis radiation and/or chemotherapy should be considered.

**Differential Diagnosis List:** Multiple Spinal Intradural Extramedullary Metastases by Squamous Cell Lung Cancer

**Final Diagnosis:** Multiple Spinal Intradural Extramedullary Metastases by Squamous Cell Lung Cancer

**References:**


**Description:** Chest X-Ray is showing the left upper pulmonary lobe mass. **Origin:**
Description: On lung CT scan after the administration of contrast medium, the heterogeneous mass of the left upper pulmonary lobe is demonstrated. Origin:
Description: On CT scan after the administration of contrast medium, brain metastasis with perifocal edema is demonstrated on the right frontal lobe. Origin:
Description: T1WI before the administration of contrast medium showing the isointense to the spinal cord nodules Origin:
Description: Intense enhancement of the intradural extramedullary metastatic nodules are demonstrated, after the administration of contrast medium. Origin:
Description: Intense enhancement of the intradural extramedullary metastatic nodules are demonstrated, after the administration of contrast medium. Origin:
Description: On T2WI, nodules with signal similar to that of the spinal cord are demonstrated. Origin: