Metastatic leiomyosarcoma of the thoracic spine: case report

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Leiomyosarcoma is a rare malignant mesenchymal tumor arising from smooth muscle cells. Metastatic spreading is possible, which even rarely metastasize to the bone being the latter localization a delayed manifestation of its natural progression. Spinal metastases represent the most common bone localizations with prevalence in the thoracic and lumbar spine.

We present a 55-year-old female, operated there’s 2 years for a hysterectomy of uterine leiomyosarcoma, admitted in our department with a flaccid paraplegia. Spine magnetic resonance imaging showed an extradural mass, iso-intense on T2, enhancing after gadolinium administration; placed at T5-T6 level with a severe cord compression. The patient underwent a decompressive laminectomy T5 and a total removal of the tumor. The histological examination revealed a metastatic leiomyosarcoma.

The prognosis of patients with leiomyosarcoma is variable depending on the resectability and existence of metastasis. The essential treatment is surgery but an additional therapy, such as radiotherapy and/or chemotherapy, may be required to improve local control.

Key words: leiomyosarcoma; metastasis; thoracic spine.

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**Introduction:** Leiomyosarcoma is a rare mesenchymal malignant tumor arising from smooth muscle cells [1]. The most common localization of this neoplasm, which accounts from 7% of soft tissue sarcomas [2; 3]. Metastatic spreading is possible, the most commonly reported sites of metastasis from leiomyosarcoma are the lungs, liver, kidney, brain and skin. Spinal metastases of leiomyosarcoma have rarely been reported [4]. We report a case of leiomyosarcoma metastasizing to the thoracic spine.

**Case report:** A 55-year-old female, operated there's 2 years for a hysterectomy for uterine leiomyosarcoma and chemotherapy, admitted in our department with a 01 month history of gradually worsening back pain and weakness in the lower limbs with urinary leakage and constipation. Neurological examination revealed a flaccid paraplegia, sensitive level T5-T6 with signs of pyramidal irritation. Spine magnetic resonance imaging (figure A; B) showed an extradural mass, hypo-intense on T1-weighted and iso-intense on T2-weighted, enhancing after gadolinium administration; placed at T5-T6 level with a severe cord compression. The patient underwent a decompressive laminectomy T5 and a total removal of the tumor (figure C). The histological examination revealed a clear evidence of a metastatic leiomyosarcoma.

After surgery, the patient did not present any neurological improvement and she benefited from a functional reeducation with chemo-radiotherapy.

**Discussion:** Leiomyosarcoma is a rare malignant tumor; but it has a strong potential for metastasis to distant sites due to propensity for hematogenous spread [5]. Osseous metastases are rare and spinal metastases represent the most common bone localizations [6; 7] with prevalence in the thoracic and lumbar spine [5]. Histological examination is a reliable and important method for the confirmation of the diagnosis. Leiomyosarcoma present a wide range of atypia extending from a well differentiated pattern to an extremely anaplastic one, the latter typical of the most aggressive sarcomas. Cell morphology is quite similar to the benign leiomyoma, consisting in bundles of spindle- shaped, smooth cells with oval nucleus and long, slender bipolar cytoplasmic processes. Nuclear atypia, high mitotic index and zonal necrosis confirm the malignant nature of the neoplasm [8; 9]. Usually, leiomyosarcoma cells are positive for smooth muscle actin, weakly positive for desmin and negative for S100 protein [10].

From a review of the literature, we found that primary leiomyosarcoma arising from the spine and paravertebral muscles are very rare entities with only 14 cases reported according to the best of our knowledge [5; 11; 12]. Similarly, metastatic Leiomyosarcoma with spinal localization represent very uncommon findings with just few cases described in literature as either first presentation or secondary recurrence [13; 14]. In our case, the diagnosis was easy, because the patient had a history of hysterectomy for uterine leiomyosarcoma.

On magnetic resonance imaging, it presents as a hypo-iso-intense homogeneous signal on T1-weighted whereas a hyper-intense signal is generally evident in T2-weighted [15]. Differential diagnosis includes neu-
rinomas, neurofibromas, meningiomas, lymphomas, fibrous tumors, ependymomas and other metastatic tumors [11].

The prognosis of patients with leiomyosarcoma is variable depending on the resectability and existence of metastasis. Survival times range from weeks to 13 years [15]. Radiotherapy and/or chemotherapy after surgery may be required to improve local control, despite its relative resistance to this therapy.

**Conclusion:** Metastatic leiomyosarcoma represents an exceptionally rare finding among the metastatic spinal lesions. Surgery (decompression; spinal fixation) is recommended to reduce pain symptomatology and prevent from worsening of myelopathy.

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