Subpial lipoma of the spinal cord
Published on 30.08.2018

DOI: 10.1594/EURORAD/CASE.16065
ISSN: 1563-4086
Section: Neuroradiology
Area of Interest: Neuroradiology spine
Procedure: Diagnostic procedure
Imaging Technique: MR
Special Focus: Neoplasia Case Type: Clinical Cases
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Patient: 19 years, female

Clinical History:

We report the case of a 19-year-old woman with an ascending spastic paraparesis and sensory disturbance of both legs which have progressed in recent months with numbness and weakness of the upper limbs. There were no bowel or bladder complaints.

Imaging Findings:

MRI examination revealed a well-circumscribed intradural mass on the posterior aspect of the spinal cord extending between C5 and T5. The lesion was hyperintense on both T1 and T2-weighted images and showed suppression on fat saturation sequence (Fig. 1 and 2). The cord was severely compressed, distorted and displaced anteriorly. No clear cleavage plane was seen between the mass and the cord (Fig. 3).

Discussion:

Spinal cord lipomas not associated with dysraphism are rare and account for only 1% of all spinal cord tumors [1]. Most of them are intradural and subpial thus they are located beneath the pia mater [1]. These usually affect the posterior surface of the medulla, hence dorsal column deficits are first to appear, leading to gait disturbances and loss of sensibility. They have a peak incidence in the 2nd or 3rd decade of life and the thoracic spine is the most common location followed by the cervicothoracic junction [2].

Subpial lipomas are inclusion tumours that arise from a disorder in embryogenesis [3, 4]. Histologically the fat content is composed of mature fat cells with no atypia, which lie in a compactly fibrous connective tissue stroma. They are not true neoplasms but they can increase in size because they behave metabolically identical to normal body fat pool and thus they may enlarge during periods of fat deposition [1-3].

Magnetic resonance imaging allows an accurate anatomical delineation of the tumour and its relationship to surrounding structures. These lesions show high signal on T1-weighted and T2-weighted images and no enhancement after administration of gadolinium. The high T1 and T2-weighted signal intensity decreases on the fat saturation sequences. Exophytic extension of the lipoma is seen in 45% of cases and when present, tends to be at the rostral end of the lesion [3]. Segmental anomalies of vertebra, like hemivertebra, or widening of spinal canal or neural foramina may also be associated [3, 5].
Total removal is usually not feasible because the margins are undefined and tightly attached to the neural parenchyma. Therefore, treatment usually consists in partial resection rather than gross total excision. Long-lasting resolution of any existing neurological deficits occurs in less than 50% of patients [2]. As in our case, in most patients, conservative decompression provides clinical stabilisation [3].

Written informed patient consent for publication has been obtained.

**Differential Diagnosis List:** Cervicothoracic subpial lipoma, Spinal dermoid cyst, Spinal teratoma

**Final Diagnosis:** Cervicothoracic subpial lipoma

**References:**


Description: Sagittal T1-weighted image showing a high signal intensity intradural lesion at the dorsal surface of the cervicothoracic cord. Origin: L. Koren, Department of Radiology, Hospital Universitario 12 de Octubre, Madrid (Spain)
Description: Sagittal T2-weighted image showing a high signal intensity intradural lesion at the dorsal surface of the cervicothoracic cord. The cord is thinned, distorted and displaced anteriorly. **Origin:**
L. Koren, Department of Radiology, Hospital Universitario 12 de Octubre, Madrid (Spain)
Description: Sagittal T1-weighted image without and with fat saturation. Note that the high signal intensity of the lesion decreases when the fat suppression sequence is used. Origin: L. Koren, Department of Radiology, Hospital Universitario 12 de Octubre, Madrid (Spain)
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Description: 3D FIESTA sequence image showing a high signal intensity lesion located along C5-T5 spinal cord levels. Note that the margins of the tumour are embedded within the spinal cord. Origin: L. Koren, Department of Radiology, Hospital Universitario 12 de Octubre, Madrid (Spain)