

## INTRAMEDULLARY LIPOMA OF THE CERVICO-THORACIC SPINAL CORD

M. Çavuşoğlu, D. Sözmen Cılız, S. Duran, E. Elverici<sup>1</sup>

**Most of the spinal cord lipomas reported in the literature are intradural extramedullary, and true intramedullary lipomas are very rare. We present a case of intramedullary spinal cord lipoma of the cervico-thoracic region with extensions over many spinal segments. Magnetic resonance (MR) examination showed an intramedullary lipoma of the cervico-thoracic spinal cord of both high T1 and T2-weighted signal intensity and suppression on fat saturation sequence. MR imaging assessment is critical in the detection of intramedullary lipomas which may present without any neurological deficit at an early stage. Early diagnosis may lead to prevention of the irreversible deterioration of neurological functions.**

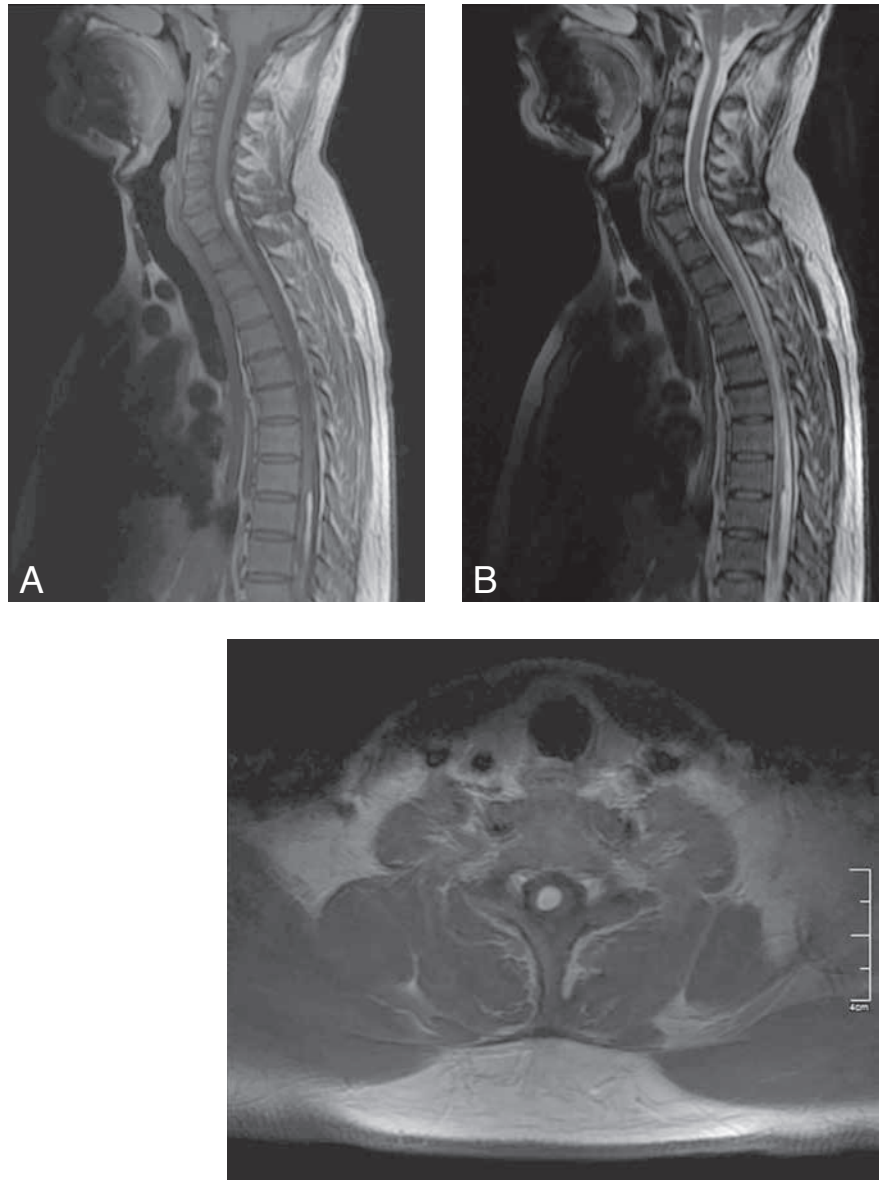
**Key-words:** Spinal cord, MR – Lipoma and lipomatosis.

Spinal intradural lipomas are histologically benign tumours of the spinal cord and account for less than 1% of all spinal cord tumours (1). Most of these tumours are found in the lumbosacral region as components of a spinal dysraphic state (2-4). Intradural spinal lipomas of the cervical and thoracic region are very uncommon (5). The majority of intradural spinal lipomas reported in the literature were subpial and true intramedullary lipomas are uncommon (1). In this case report, we present a patient who has an intramedullary lipoma of the cervico-thoracic spinal cord in the absence of any spinal anomaly.

### Case report

A 32-year-old man presented for assessment of a 2 year- history of right arm and neck pain.

Physical and neurological examinations were normal and plain X-ray films of the spine revealed no pathology. On magnetic resonance (MR) imaging, an intramedullary lipoma which was located along C6-T12 spinal cord levels, and showed high signal on both T1-weighted and T2-weighted images was demonstrated. (Fig. 1A-C, E-G). On administration of gadolinium, there was no enhancement and signal intensity was diminished with fat saturation techniques (Fig. 1D, H). These MR imaging findings were typical for lipoma. The spinal MR imaging also revealed an intradural tumor of the cauda equina, in lumbar region which had cystic components and fat containing solid components, consistent with a dermoid cyst (Fig. 1E, F, H).

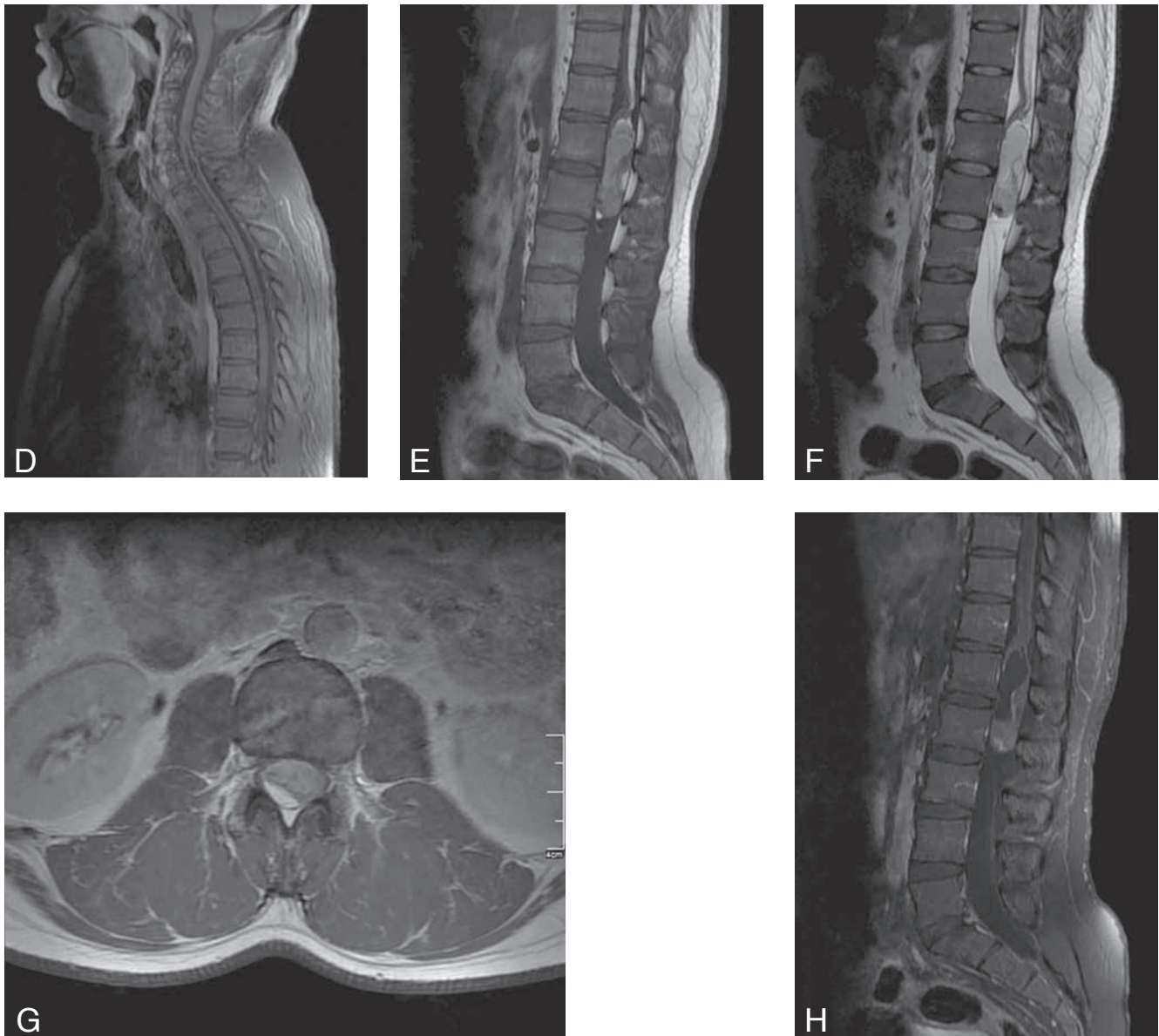


**Fig. 1.** — (A)T1-weighted sagittal; (B)T2-weighted sagittal; (C)T1-weighted axial cervicothoracic images show the high signal intensity intramedullary lesion. The high signal intensity is consistent with fat.

*From:* 1. Clinic of Radiology, Ankara Numune Education and Research Hospital, Ankara, Turkey.

*Address for correspondence:* Dr M. Çavuşoğlu, MD, Radiology Department, Ankara Numune Education and Research Hospital, Samanpazari, Ankara, Turkey.

*E-mail:* mehtapcavusoglu2@gmail.com



*Fig. 1.* — (D) Postcontrast fat-suppressed T1-weighted sagittal cervicothoracic image shows reduced signal intensity from the lesion. This sequence demonstrates the tissue to be composed of fat. (E) T1-weighted sagittal (F) T2-weighted sagittal (G) T1-weighted axial images show the high signal intensity intramedullary lesion. (H) Postcontrast fat-suppressed T1-weighted sagittal lumbar image shows reduced signal intensity from the lesion. This sequence demonstrates the tissue to be composed of fat. Intradural tumor of the cauda equina with cystic components and fat containing solid components is also seen.

In view of lack of neurological deficits, neurosurgeons prescribed clinical and MR imaging follow-up for this patient.

### Discussion

Lipomas of the spinal cord in the absence of spinal dysraphism are rare and account for less than 1% of all spinal tumours. Most of the cases reported in the literature were subpial and true intramedullary lipomas are quite rare (1). Intradural intramedullary lipomas are mostly located in the lower thoracic and

lumbosacral regions (2-4). Those located in the cervico-thoracic region are very uncommon. In our opinion, the presented patient is a rare case because the intramedullary lipoma extends over many spinal segments in the cervicothoracic spinal cord.

Spinal cord lipomas have a peak incidence between 10 and 50 years (6). The symptoms depend on the location of the tumour. Patients always present with local back pain in the region of the tumour. They may also describe sensory disturbance, paraparesis, gait difficulties, incontinence and weakness (6, 7). Our patient pre-

sented with only right arm and neck pain with no other neurological sign or symptom.

Plain X-rays may be normal, as seen in our case, or findings that may indicate a mass lesion such as widening of the spinal canal and scalloping of the vertebral bodies can be detected (2).

Computed tomography (CT) may reveal the fat component as a low-density lesion, but MR imaging is diagnostic for spinal cord lipomas (6). MR imaging also demonstrates the relationship with adjacent normal neural tissue. Lesions show high

signal on T1-weighted images and appear hypointense or hyperintense on T2-weighted images. The signal intensity of the lesion decreases when the fat suppression sequence is used. After administration of gadolinium, no enhancement is seen. In our case the lesion showed both high T1 and T2-weighted signal intensity, with suppression on the fat saturation sequence.

Spinal lipomas are considered as hamartomas (5, 7, 8). Histological examinations of lipomas of the spinal canal disclosed that they consist of mature fat cells. The fat of the lipoma behaves metabolically just like the body fat and may change size according to alterations in the body fat level (9). Lipomas may coexist with teratomas or dermoid cysts and treatment strategies may differ in these groups (10). Our patient who had both an intramedullary lipoma and dermoid cyst didn't have any clinical symptoms and neurological deficits therefore, the neurosurgeons prescribed clinical and MR imaging follow-up for this patient.

Intradural spinal cord lipomas are slow growing tumours. It is suggested that the slow growth of these lesions allows accommodation within the spinal canal without any change

in the function of the spinal cord until the point where further growth causes a rapid neurological deterioration (3, 6).

The neurosurgeons usually advise surgery if progressive neurological symptoms are present and the aim of the surgery is to perform a decompressive procedure. Unfortunately, after decompressive surgery, neurological function is usually unchanged and these lesions may have a poor prognosis (3, 8, 9).

This presented case shows the importance of MR imaging assessment in the detection of intramedullary lipomas which may present without any neurological deficit at an early stage. Early diagnosis may lead to prevention of the irreversible deterioration of neurological functions.

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