# Non-Dysraphic Cervico-Dorsal Intramedullary Lipoma, A Case-Report

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## ABSTRACT

### Background

Intramedullary lipomas are benign tumors most often associated with spinal cord dysraphism. Our work focuses on non-dysraphic intramedullary lipomas, which are very rare and reported in the literature as isolated clinical cases.

## INTRODUCTION

Intramedullary lipomas are benign tumors most often associated with spinal dysraphism. Our work focuses on non-dysraphic intramedullary lipomas, which are very rare and reported in the literature as isolated clinical cases. Their preferential location is cervicodorsal (1). The average age of discovery is between 20 and 30 years with extremes in the literature of 2 months (2) and 60 years (3).

We report the case of a patient in whom a non-dysraphic intramedullary lipoma was discovered in the presence of neurological signs and who was surgically treated in our center.

### Case-report:

It is about a female patient who presented a dorsal spinal cord compression syndrome revealing a non-dysraphic intramedullary lipoma. MRI showed an expansive process with intra and extra-medullary development extending from C7 to D5, hyperintense in T1 and T2 weighting. The patient underwent a posterior approach with laminectomy extended from C7 to D5 and a tumor resection limited by its adhesions to the spinal cord, without cleavage plane, concluding to a mature lipoma.

Postoperatively, the patient presented with a transient worsening of her motor deficit and a posterior cord syndrome that disappeared 7 months after motor and proprioceptive rehabilitation.

### Conclusion

Intramedullary lipomas are rare benign tumors of young adults, most frequently located in the cervico-dorsal region. Early diagnosis, before the stage of advanced myelopathy, along with a wide tumor resection respecting the lipoma-marrow interface are essential to aspire to good results.

### Case-report:

It is about a 21-year-old female patient with no previous medical history, admitted to our center for walking difficulties requiring the use of a cane, evolving for 3 years, to which was associated urinary urgency 2 weeks before her admission. On examination, the patient presented a dorsal spinal cord compression syndrome with pain on palpation of the dorsal spinous processes, dorsal intercostal neuralgia and a pyramidal syndrome with femoral monoparesis, brisk reflexes in all limbs and a Babinski sign. MRI showed a hyperintense in T1 and T2 intradural expansive process with intra and extra-medullary development extending from C7 to D5 (Figure 1).

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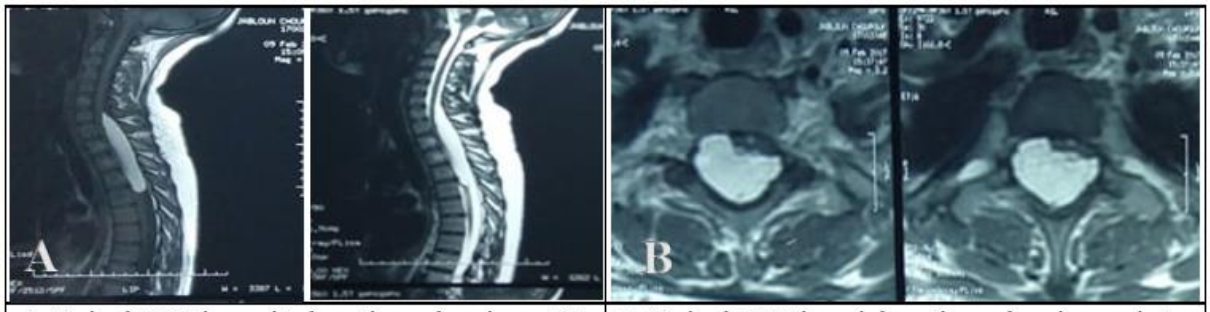
The patient underwent a posterior approach with extended laminectomy from C7 to D5. We found a yellowish intramedullary lesion with extramedullary extension. We performed a resection of the tumor through morcellation. It was macroscopically complete extramedullary but partial intramedullary, limited by the tumor adhesions to the spinal cord without a cleavage plane.

The anatomopathological study concluded that it was a mature lipoma.

Postoperatively, the patient presented a transient worsening of her motor deficit with a posterior cord syndrome. After 7 months of motor and proprioceptive rehabilitation, the patient recovered with an improvement in motricity and deep sensitivity allowing a stable gait along with the disappearance of vesico-sphincteric disorders.




| A: Spinal MRI in sagittal sections showing a T1 and T2-hyperintense intra and extramedullary lesion extending from C7 to D5 | B: Spinal MRI in axial sections showing an intra and extramedullary T2-hyperintense lesion extending from C7 to D5 evoking a lipoma |
|---|---|

Figure 1

## DISCUSSION

Non-dysraphic intramedullary lipoma is a rare tumor representing less than 1% of all intramedullary tumors (4), mainly affecting young adults with a male predominance. The most common location is the dorsal spinal cord (5).

Clinically, patients present with slow and insidious spinal cord compression, revealed by low back pain which site depends on the tumor location, with a progressive deficit of the limbs associated with sensory disorders and vesico-sphincteric disorders. This symptomatology was attested in our patient.

CT scan can reveal an intramedullary hypodense lesion but MRI remains the gold-standard for diagnosis. It shows a T1 and T2 hyper-intense lesion without contrast enhancement after gadolinium injection (6). Plain radiography, as performed initially to exclude any segmentation or fusion anomaly can also guide the diagnosis showing spinal canal enlargement or notching (scalloping) images (7).

Most authors emphasize the difficulty of excision of intramedullary lipomas. The proximity of the lipoma to the nerve roots as well as the absence of a clear cleavage plane between the tumor and the marrow tissue hinder the achievement of a complete tumor resection. There is a consensus in literature defining the objectives of surgery not as complete removal of the lipoma but rather as spinal cord decompression with a wide tumor resection (6,8).

Most authors believe that patients with non-dysraphic intramedullary lipoma are at high risk of developing irreversible neurological disorders.(7–9) In accordance with the literature findings, we believe that since post-surgical improvement is generally not observed, the role of surgery would rather be to stabilize and delay clinical progression. An operation should therefore be performed before neurological disorders become too severe. It has been reported that weight gain, pregnancy or the use of corticosteroids can worsen neurological signs in a patient with incomplete lipoma resection. In fact, endogenous or exogenous corticosteroids are involved in the growth of lipomatous tumors at different anatomical sites, including those of the spinal cord (10,11).

In our observation, the patient did not present weight gain, pregnancy or use of corticosteroids. Although she had a post-operative worsening of the motor deficit and a posterior cord syndrome, all symptoms regressed after

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7 months of motor and proprioceptive rehabilitation. We even witnessed her improvement with a recovery of a normal gait.

## CONCLUSION

Intramedullary lipomas are rare benign tumors of young adults, most often located in the cervico-dorsal region. Their development is slowly progressive. Treatment relies on decompressive surgery. Our case is an additional proof supporting the treatment strategy of an early diagnosis, before the stage of advanced myelopathy, along with a wide tumor resection respecting the lipoma-marrow interface, demonstrating how it leaded to satisfying results.

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