

Spinal Neurosurgery

INTRADURAL TERATOMA OF THE CAUDA EQUINA IN AN ADOLESCENT GIRL:

A Rare Case Report and Review of the Literature

BELGACEM Ibrahim, DJOUADI Yasmina, ABOUDJABEL Mohamed, IZIROUEL Karim
and AIT BACHIR Mustapha

Neurosurgery Department, University Hospital Nadir Mohamed, TiziOuzou, Algeria

***Corresponding Author:** BELGACEM Ibrahim, *Neurosurgery Department, University Hospital Nadir Mohamed, TiziOuzou, Algeria*

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ABSTRACT

Introduction: Intradural teratomas of the cauda equina are exceptionally rare, particularly in adolescents. Case report: We report the case of a 17-year-old female high school student with a one-year history of poorly localized lumbosciatic pain refractory to appropriate medical treatment. Lumbosacral MRI revealed an intradural mass at the L3-L4 level, displacing the cauda equina roots. Complete excision was performed through a posterior approach. Histopathological examination confirmed a mature teratoma. The postoperative course was favorable, with complete resolution of symptoms. Conclusion: This case highlights the importance of considering a neoplastic etiology in the presence of atypical chronic low back pain in an adolescent girl and demonstrates the effectiveness of neurosurgical management.

Keywords: Spinal teratoma, Cauda equina, Adolescent girl, Intradural tumor, Chronic lumbosciatica

INTRODUCTION

Teratomas are rare germ cell tumors derived from pluripotent cells capable of forming tissues originating from the three embryonic germ layers (ectoderm, mesoderm, and endoderm). Their location within the spinal canal is exceptional, accounting for less than 0.5% of all spinal tumors [1]. When they arise in the cauda equina or conus medullaris region, they are even rarer, particularly in adolescent girls. The literature reports only 11 cases to date, 9 of which were mature teratomas [2]. This tumor was first described in 1863 by Virchow and later, in 1888, by Horsley and Gowers [3].

The pathogenesis of spinal teratoma remains controversial. Several embryogenic hypotheses have been proposed, particularly involving abnormal migration of germ cells during neural tube development. The extreme rarity of these tumors makes them difficult to study, and the available clinical data are derived mainly from isolated case reports.

The objective of our study is to report a new case of a teratoma of the conus medullaris (or cauda equina), presenting with atypical low back pain refractory to treatment, and to discuss its diagnostic, therapeutic, and prognostic aspects in light of the available literature.

CASE PRESENTATION

We report the case of a 17-year-old female high school student with no significant medical history who presented with right-sided lumbosciatic pain that had been evolving for approximately one year. The pain was poorly localized and fluctuating, without typical radicular radiation or a clear neurological deficit, and had failed to respond to medical treatment comprising analgesics, nonsteroidal anti-inflammatory drugs, and physiotherapy sessions. Because the symptoms persisted, an imaging workup was performed. Lumbosacral CT revealed an intraspinal mass at the L3-L4 level (Fig. 01).

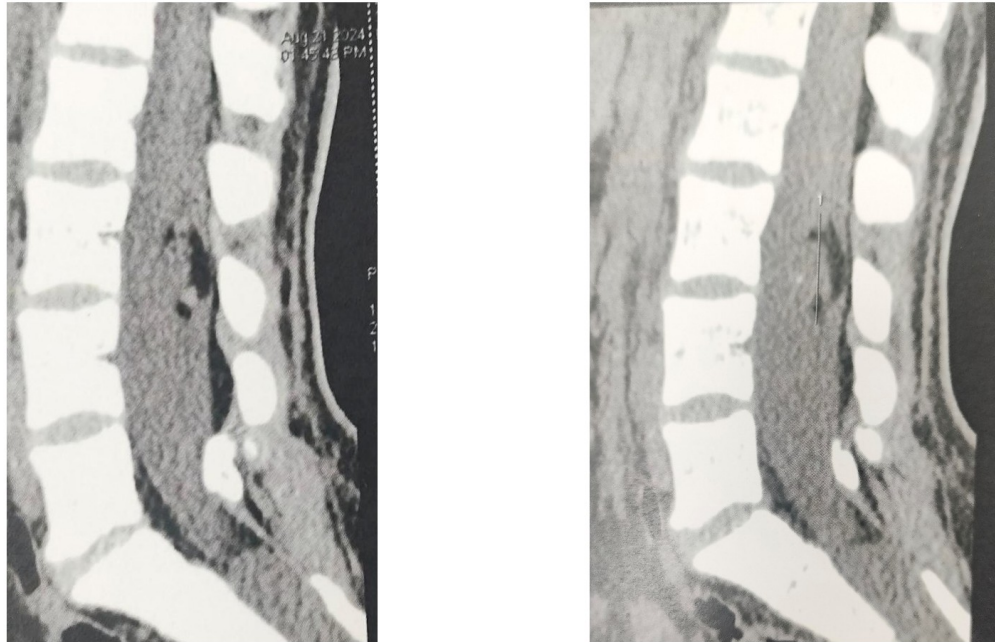


Fig. 01: Lumbosacral CT scan with and without contrast administration, demonstrating a lesion at the D3-D4 level.

Lumbosacral MRI further characterized an intradural lesion that was iso-hypointense on T1-weighted images and heterogeneous on T2-weighted images, displacing the cauda equina roots, without marked contrast enhancement or extradural extension (Fig. 02).

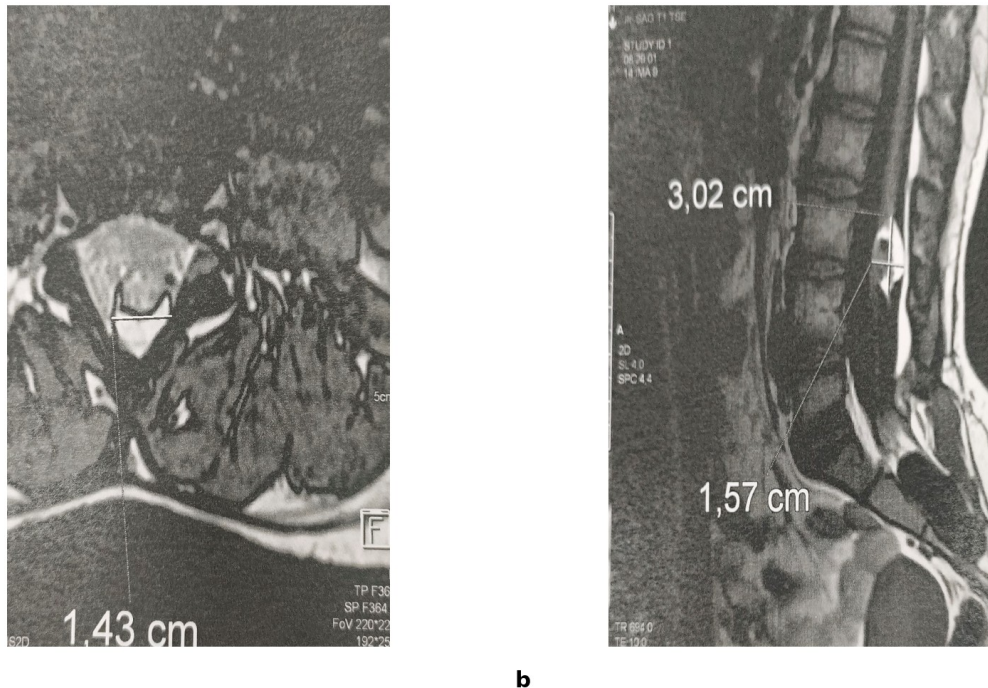


Fig. 02 : a - Axial T2-weighted MRI and b - sagittal contrast-enhanced T1-weighted MRI, showing an intradural lesion at the D3-D4 level, heterogeneous on T2-weighted images and showing slight contrast enhancement. It measures 3 cm in height and 1.6 cm in width and displaces the cauda equina roots.

The patient was admitted to the neurosurgery department and underwent surgery in the prone position, with the lower limbs flexed in a Z-shaped position. A laminectomy centered on L3-L4 was performed, followed by opening of the dura mater. Intraoperative exploration revealed a yellowish, fibrous-appearing mass that was highly adherent to the nerve roots of the cauda equina (Fig. 03). Meticulous excision was performed, allowing complete removal of the tumor without injury to the neural structures (Fig. 04).

Figure 3. Operative photograph not reproduced in this version.

Fig. 03: Intraoperative image. A - Before opening the dura mater, showing a lesion visible through it. B - After opening the dura mater, revealing a yellowish lesion surrounded by the cauda equina roots

Figure 4. Operative photograph not reproduced in this version.

Fig. 04: Image at the end of the procedure showing complete excision of the lesion with release of the cauda equina roots

The histopathological examination confirmed a mature teratoma. The postoperative course was uncomplicated, with complete resolution of the painful symptoms and no new neurological deficit. At the three-month follow-up, the patient was asymptomatic and had resumed her school activities normally.

DISCUSSION

Spinal intradural teratomas are extremely rare tumors, accounting for less than 0.5% of spinal cord tumors [1]. Their occurrence in the cauda equina region is even more exceptional, particularly in adolescent girls. Their origin is thought to be related to the abnormal persistence of migrating germ cells within the neural tube during embryogenesis [2].

Clinically, the symptoms are often nonspecific: low back pain, atypical radicular pain, and sensory or motor disturbances that may mimic sciatica, as in our case. The absence of initial neurological deficits complicates the diagnosis and frequently delays management.

MRI is the diagnostic imaging modality of choice. It allows localization of the tumor, assessment of its intradural nature, and evaluation of its relationship with the nerve roots [3]. A mature teratoma often appears as a heterogeneous mass that may contain fatty, cystic, or even calcified components.

Treatment is based on complete surgical excision, which is curative for mature teratomas. However, surgery may be challenging because of the frequent adherence of the tumor to the nerve roots. Histopathological examination remains essential to confirm the nature of the teratoma and guide follow-up. Unlike immature forms, mature teratomas generally do not require additional treatment [4].

The prognosis is generally excellent after complete excision. Recurrence is rare, but prolonged clinical and radiological follow-up is recommended.

CONCLUSION

This rare case of an intradural cauda equina teratoma in an adolescent girl emphasizes that, despite their rarity, neoplastic etiologies should be considered in the presence of atypical chronic low back pain refractory to medical treatment. MRI is a key diagnostic tool. Complete surgical excision remains the treatment of choice and allows optimal clinical recovery in benign forms. This case also highlights the need for increased clinical vigilance when evaluating prolonged low back pain in adolescents.

REFERENCES

1. Solero CL, Fornari M, Giombini S, et al. Spinal neurinomas: review of 174 cases. *Neurosurgery*. 1989;25(6):792–798.
2. Park SH, Won JH, Youm JY, et al. Mature spinal teratoma in an adolescent: case report and literature review. *J Korean Neurosurg Soc*. 2008;44(1):45–48.
3. Virchow R. *Krankhafte Geschwülste. Pathologische Anatomie und Physiologie für Praktische Ärzte*. Berlin: August Hirschwald; 1863.
4. Horsley V, Gowers WR. A case of spinal tumour successfully removed by laminectomy. *Medico-Chirurgical Transactions*. 1888;71:377–422.
5. Kanev PM, Mason L, Park TS. Spinal teratomas in children. *Neurosurgery*. 1990;26(2):269–272.
6. Lee M, Rezai AR, Abbott R, et al. Intramedullary spinal teratoma: case report. *Neurosurgery*. 1995;36(6):1181–1186.