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Case Report

Extradural Spinal Meningioma in a Nine-Year-Old Girl: A Case Report and Review of the Literature

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Abstract

The spinal meningioma is rare in children with an annual incidence of 5 case per 10,000,00 people. In the medical literature, approximately 60 cases of spinal meningioma have been reported in the otherwise normal pediatric population [1].

We report a case of a 9 year old girl who presented with weakness of both lower limbs and unable to walk. Imaging studies demonstrated an extradural spinal tumor at thoracic spine. The patient was operated and tumor was totally removed. The postoperative course was excellent. Histology confirmed the diagnosis of meningioma. After surgery there was improvement in signs and symptoms.

Keywords: *Meningioma; Benign Tumor; Extradural Spinal Tumor*

Case Report

Clinical presentation

A nine year-old female patient who has no known disease before, she was referred to our clinic with complaints of sudden progressive spastic paraparesis of lower limbs (over a period of three weeks) with bilateral feet drop and unability to walk. Moreover, no infections had been observed prior to symptoms, neither history of trauma nor relevant epidemiological antecedents or previous exposure to radiation. Clinical examination revealed bilateral reduction in muscular strength of the legs and thighs (both power grade I). Deep tendon reflexes (DTRs) of the lower extremities were observed to be bilaterally slightly hyperactive with ankle clonus ,while no changes in sensitivity to pain or proprioception were observed. An examination of the upper limbs was within normal Limits. The results of dermatologic examination were normal.

Her hematological and biochemical investigations were normal.

Radiological findings: Brain MRI showed no abnormality a thoraco-lumbar MRI (Figure 1) revealed a mass measures 40 X 18 mm, which is iso-intense on T1 image and hyper -intense on T2 image at the anterior extradural space extending from T5 and T7 vertebrae on left side causing compression and displacing spinal cord to right side and posteriorly, it shows homogenous contrast enhancement with posterior wall vertebral body erosion and destruction of the posterior element, she was considered to have an aggressive hemangioma as the initial radiological diagnosis.

Surgical Intervention

The patient underwent T5-T7 laminectomy (Figure 2) and exposed a whitish tumor compressing the adjacent dura. The tumor was adherent to that lateral side of dura as well as the posterior wall of thoracic vertebrae(located anterior to the cord). The tumor was well separated from the spinal cord and could be microsurgically resected completely with its dural attachment (Figure 3).

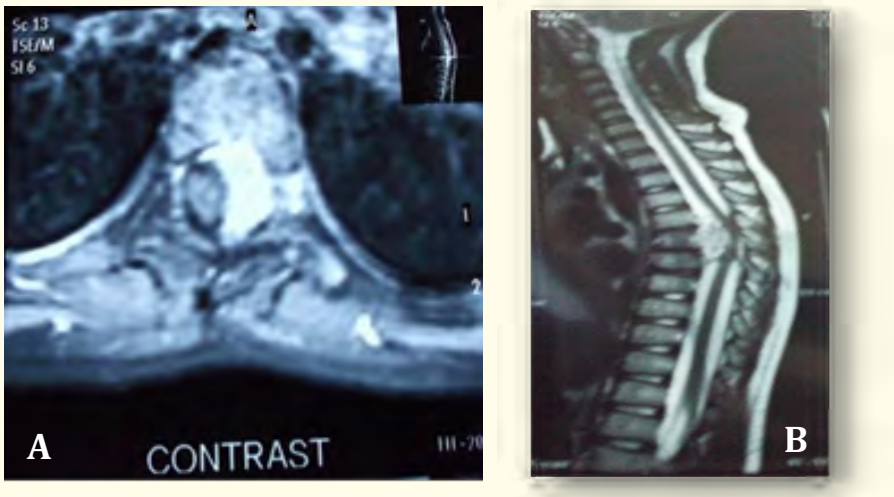

Figure 1: *Thoracic spine preoperative MRI images (a) with contrast (b) T 2 sagittal and axial at T5,T6,T7 level show extradural meningioma displacing the cord (white arrow).*

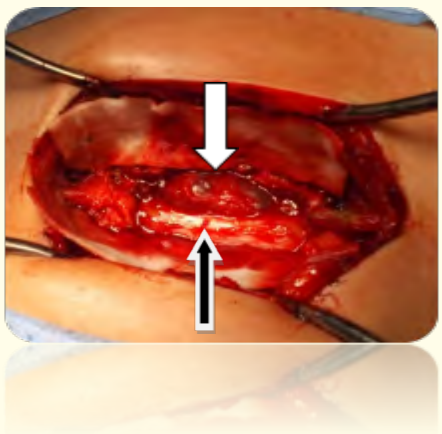

Figure 2: *Intraoperative image shows T5-T7 laminectomy and an exposed tumor(white arrow) compressing the adjacent dura black arrow) .*

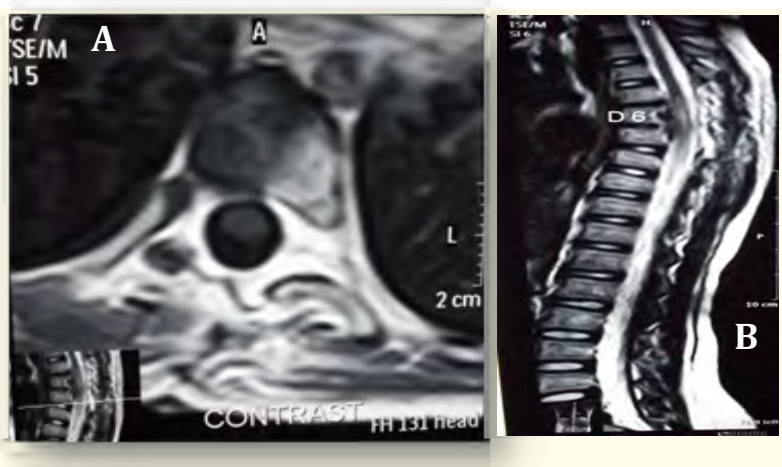

Figure 3: *Thoracic spine post-operative MRI images T 1 (a) with contrast and T 2 (b) sagittal and axial at T5,T6,T7 level (white arrow). Shows total mass resection.*

Pathology: Revealed a choroid meningioma.

Postoperatively: The patient evolution was satisfactory, with recovery of muscular strength to power grade 3 in three days. she is currently undergoing motor rehabilitation with good clinical evolution.

Discussion

Spinal meningiomas have rarely been describe in pediatrics age [2]. There are very few case reports in the literature describing intraspinal meningioma in children less than 13 years of age [2].

Spinal meningiomas comprise about 25 to 46% of all spinal tumors [3]. Pediatric spinal cord tumors represent only 5% of tumors of the central nervous system, 25% of which occur in the intradural-extramedullary compartment [4], and 75% arise from the dorsal sensory rootlets [5].

Reports in adult patients describe that most of cases tend to occur in females (about 2:1). However, this association is not replicated in children, in which there are reports of an about 1.2:1 predominance of cases in males [2]. A retrospective analysis done by Greene and colleagues of 20 patients showed a median age of presentation of the tumors of about 13 years old [2]. Case reports in younger age groups included those in 14 and 20 month-old infants, while only a few reports of spinal meningiomas in children of school age were found [6-8].

Known risk factors for developing meningiomas include previous exposure to radiation which is the most environmental risk factor predisposing to meningiomas [9,10] and the presence of type 2 neurofibromatosis, in which meningiomas are present in 25% to 40% of children with neoplasia [11]. The link to type 2 neurofibromatosis is becoming clearer, with loss of a tumor suppressor gene in the chromosome 22 (NF2). Other gene mutations may contribute to the progression of the meningiomas, leading to the anaplastic type.

Gezen and colleagues [3] reviewed the main characteristics of 36 cases of spinal cord meningiomas. Regarding to the symptomatology, pain and sensory loss were the most common symptoms associated with some degree of weakness.

A grading system proposed by the World Health Organization (WHO) is the most used in the classification of the meningiomas. There are 3 grades - benign (grade I), atypical (grade II) and anaplastic or malignant (grade III).

Conclusions

MRI imaging is the gold standard for diagnosing meningiomas in children. The most common lesion pattern is the finding of T1 and T2 iso-intense masses with different degrees of peritumoral edema.

Surgery is the best treatment in cases of spinal meningiomas. Complete resection is possible in most of the cases and is associated with good postoperative functional improvement. This emphasises the need for an early diagnosis and an early referral to a neurosurgical center. Recurrence of the tumor is rare, and in most series the reported rate of recurrence ranged from 3 - 14% [12,13].

Radiosurgery should be considered for the exceptional cases involving recurrent and symptomatic spinal tumors.

Follow up using clinical exams and serial imaging is important to enable early detection and selection of further surgical interventions when needed.

Bibliography

1. Gelabert-González M., *et al*. "Spinal meningiomas". *Neurocirugia (Astur)* 17.2 (2006): 125-131.

2. Ciapetta P and Domenicucci M. "Spinal meningiomas: prognosis and recovery factors in 22 cases with severe motor deficits". *Acta Neurologica Scandinavica* 77.1 (1988): 27-30.

3. Sze G. "Neoplastic disease of spinal cord". In: Atlas SW (ed), Magnetic Resonance Imaging of the Brain and Spine. Philadelphia: Lippincott Williams & Wilkins (2002): 1715.

4. Binning M., *et al*. "Spinal tumors in children". *Neurosurgery Clinics of North America* 18.4 (2007): 631-658.

5. Handbook of Neurosurgery, Mark Greenberg, eight edition (2016): 785.

6. Klekamp J and Samii M. "Surgical results for spinal meningiomas". *Surgical Neurology* 52.6 (1999): 552-562.

7. Gezen F., *et al*. "Review of 36 cases of spinal cord meningioma". *Spine* 25.6 (2000): 727-731.

8. Ferraz-Filho JRL., *et al*. "Clinical-radiological aspects of primary extracranial meningioma of the etmoid sinus in a child". *Arquivos de Neuro-Psiquiatria* 66.2 (2008): 274-275.

9. Riemenschneider MJ., *et al*. "Histological classification and molecular genetics of meningiomas". *Lancet Neurology* 5.12 (2006): 1045-1054.

10. Practical Handbook of Neurosurgery (2009): 115.

11. Wang XQ., *et al*. "Spinal meningioma in childhood: clinical features and treatment". *Child's Nervous System* 28.1 (2012): 129-136.

12. Levy WJ Jr, *et al*. "Spinal cord meningioma". *Journal of Neurosurgery* 57.6 (1982): 804-812.

13. Solero CL., *et al*. "Spinal meningiomas: Review of 174 operated cases". Neurosurgery 25.2 (1989): 153-160.

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