

## A Case Report of Spinal Intramedullary Lipoma

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### Abstract

3 months old boy presented with inability to move upper limb and cries on touching the upper limb from 1 week of age. On examination reflexes were absent in upper limb but hyper reflexia was found in lower limb. Cervical and brain MRI revealed expansion of the cervical spinal canal with smoothly margined mass within the cervical cord which is hyperintense in T1WI, T2WI and completely loses its signal intensity in FS and gradient weighted sequences. There was no diffusion restriction and appears mostly intramedullary. MRI features were consistent with intramedullary lipoma in cervical spinal cord.

### Introduction

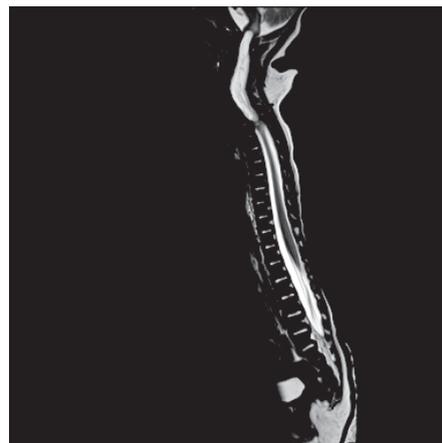
Spinal cord lipomas are rare lesions, accounting for approximately 1% of all spinal cord tumors. True intramedullary spinal cord lipomas are extremely rare. Patient usually present with history of disability followed by rapid progression of symptoms including spinal pain, dyesthetic sensory changes, gait difficulties, weakness and incontinence.<sup>4</sup>

Intramedullary spinal cord lipomas not associated with dysraphism is frequently

reported. They typically occur in children and have a predilection for the cervical and thoracic spinal cord.<sup>2</sup> Intramedullary spinal cord tumor can be focal or may involve the entire spinal cord from the cervicomedullary junction to the conus. These tumor have a solid component and often are associated with a rostral and caudal cystic component.<sup>6</sup> Patient with intramedullary spinal cord lipoma present with significant neurological compromise and have a very poor prognosis with regards to neurological function and generally show no improvement with surgical resection.

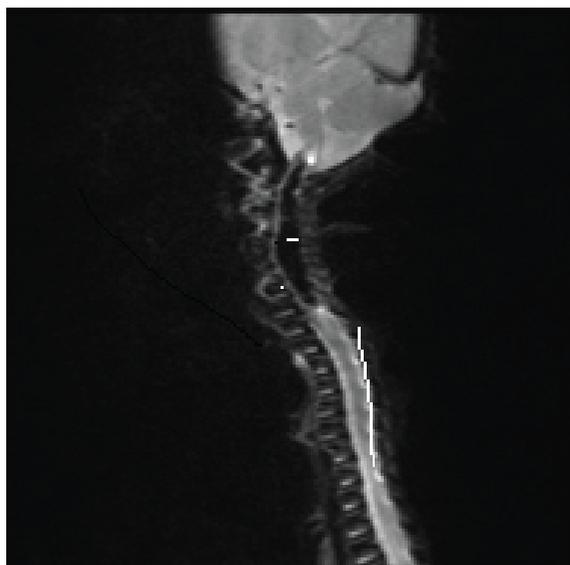


**Figure A :** Pre-contrast sagittal T1W image demonstrating a homogenous well-defined hyperintense spinal cord mass.

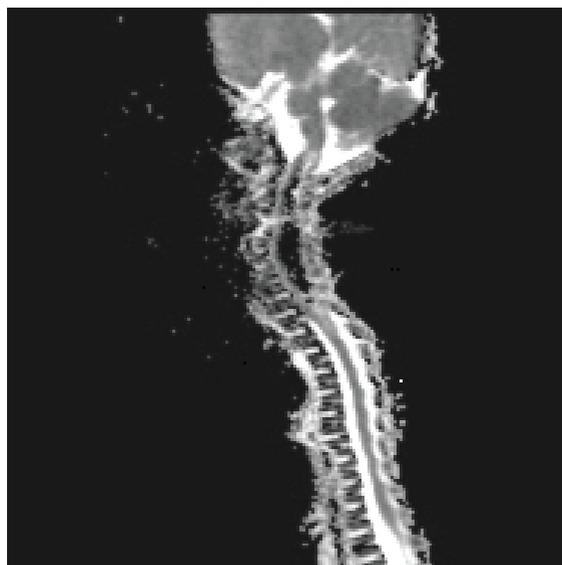


**Figure B :** T2W sagittal image showing a hyperintense lesion. But the mass lesion is less intense compared to T1W image.

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**Figure C:** The signal intensity dropped with fat saturation technique.



**Figure D:** The lesion is not diffusion restricted and appears mostly intramedullary.

### Case Report

A 3 months old boy presented with inability to move upper limb, cries on touching the upper limb from 1 week of age and less feeding.

On examination weight was 4 kg, no movement of upper limb; excessive crying on moving the upper limb and it was mildly spastic. Skin stigma such as hair, dimple or mass were not found. Reflexes were absent in upper limb but hyper reflexia was found in lower limb. Routine investigation like CBC, HB, TSH, VDRL were within normal limit. Then planed for cervical and brain MRI. MRI revealed expansion of the cervical spinal canal from cervicomedullary junction to mid body of D3 level. Lower medulla, cervical and upper dorsal cord are expanded. Smoothly margined mass is noted within the cervical cord which is hyperintense in T1WI, T2WI and completely loses its signal intensity in FS and gradient weighted sequences. The lesion is not diffusion

restricted and appears mostly intramedullary. However at C3, C4, C5 and C6 levels, there is extension towards right neural foramina which is suspicious for extramedullary component. No syringohydromyelia or hydrocephalus was evident.

### Discussion

Spinal lipoma is a congenital lesion and not a neoplasm. Histologically spinal intramedullary lipoma is an admixture of lobulated fatty tissue separated by delicate connective tissue and intervening neural tissue.<sup>1,5</sup> Several hypothesis are proposed.

First is “developmental error theories”. Inclusion of the misplaced adipocytes during the formation of neural tube causes growth of lipoma in spinal cord.<sup>1-10</sup>

The second hypothesis is “metaplastic theory”. Connective tissue metaplasia may lead to deposition of fat within dura.

The third is “hamartomatous origin theory”. The fat tissue can include peripheral nerve twig, dermoid cyst, skeletal muscle and lymphoid or renal tissue, which originate from ectoderm or mesoderm.

The fourth hypothesis is that adipocytes could arise from cells giving rise to the spinal vessels. All of these theories share same basic aspects but none of these theories fully explain the exact genesis of the spinal lipoma.

Patient of intramedullary lipoma present with neurological deficits secondary to mass effect.<sup>5</sup> The treatment of choice is surgical resection. As lipoma adhere closely to the adjacent spinal parenchyma, they generally cannot be entirely resected and aim of surgery is decompression. In addition to a decompressive laminectomy, debulking of the lipoma provides the best long term neurological out come. Gross total excision is not warranted and usually is not

possible. Long term follow up is needed and repeat debulking of the lipoma is indicated if increase in tumor size and tumor growth is associated with neurological deterioration.

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