Conus Medullaris Dermoid Rupture into Central Canal: A Case Report

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ABSTRACT

Intramedullary spinal dermoids are benign, uncommon, mostly congenital and slow growing tumours. Here, we present a rare case of ruptured intramedullary dermoid in a 45-year-old male who presented with lower back ache and both lower limb weakness. Magnetic Resonance Imaging (MRI) demonstrated an elongated mass expanding the conus medullaris and displacing the cauda equina with extension into lower thoracic spinal cord and ruptured fat droplets within the central canal of lower thoracic spinal cord. Correlative CT imaging confirmed the presence of fat within the lesion.

CASE REPORT

A 45-year-old male presented with chronic mild lower back pain and bilateral lower limb weakness since two months, more pronounced on the left side. Pain was dull and intermittent in nature aggravated on moderate degree of physical activity and relieved with rest and analgesics. Power was 4/5 in the both lower limbs and 5/5 in upper limbs. The patient had no sensory or urinary symptoms or gait abnormality. There was no previous history of trauma, infection or surgery.

MRI whole spine with IV contrast was performed, which demonstrated an elongated heterogeneous complex cystic mass expanding the conus medullaris measuring 5.5×1.8×2 cm Craniocaudal, Anteroposterior and Transverse (CC×AP×TR) and filling the spinal canal at the level of D11-D12 vertebra. Superiorly the lesion demonstrated extension into the lower thoracic spinal cord and inferiorly causing anterior displacement of the cauda equina nerve roots. The upper margin of the lesion was irregularly marginated. The lesion was heterogeneous in signal characteristics with predominant T1W and T2W hyperintensity. Multiple T1W/T2W hypointense to isointense soft tissue foci were noted within the mid and lower portions of the lesion and a few small loculations were present in the upper portion [Table/Fig-1a,b]. The hyperintense areas of the lesion (on T1W/T2W images) were completely suppressed on fat saturation T1W sequences. The “fat only” images of chemical shift based MRI images (DIXON) showed pronounced bright fatty component within most of the lesion [Table/Fig-2a,b]. Overall these characteristics were consistent with the presence of fat. No post contrast enhancement was seen. No blooming foci were seen on Gradient Recalled Echo images. Apart from this main lesion, few small free fatty foci seen within the central canal of thoracic spinal cord at D8 and D9 levels, suggestive of ruptured fat droplets possibly extruded from the lesion [Table/Fig-3a,b]. No evidence of sinus tract, meningeal herniation, extradural extension, tethered spinal cord,
spinal dysraphism or vertebral anomalies seen. Rest of the spinal cord was unremarkable [Table/Fig-4]. Correlative non contrast CT study of spine demonstrated fat attenuating material (~80 to ~100 HU) within the lesion and also showing small fat droplets superior in the central canal in thoracic spinal cord. (Images from left to right)

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In the current case, there was extensive intramedullary dissemination of the ruptured fat droplets within the central canal and subarachnoid spaces up to the level of C12 vertebra. Where as in the present case, there was limited area of dissemination of the fat droplets only in to the central canal with no evidence of dissemination in to subarachnoid spaces, which is probably the reason for absence of urinary or sensory or gait abnormalities.

Surgery with close observation and follow up for complications is the treatment of choice for ruptured dermoid [1,3,6,7]. Special precautions need to be taken to prevent the further spillage of contents during surgery. Majority of the cases show significant neurological improvement.

CONCLUSION
Intramedullary dermoids are uncommon and usually detected in the first two decades of life. The present case is rare and relatively unique in terms of middle age presentation, intramedullary location, limited spread of ruptured fat droplets in the spinal cord, absence of CSF dissemination and absence of spinal anomalies. Metuculous study of typical signal characteristics and awareness of intramedullary rupture as a complication will aid prompt diagnosis by radiologists. Accurate diagnosis and meticulous surgery can produce positive outcome.

REFERENCES
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