

Spinal Subdural Haematoma

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What to Learn from this Article?

1. Spinal Subdural hematoma should be a differential in cases presenting with rapidly progressive radiculopathy.
2. A detailed knowledge of the MRI appearance as per the chronological stages helps in diagnosis and management planning.

Abstract

Introduction: Spinal Subdural hematoma is a rare cause of radiculopathy and spinal cord compression syndromes. It's early diagnosis is essential. Chronological appearance of these bleeds vary on MRI.

Case Report: A 56 year old man presented with progressive left lower limb radiculopathy and paraesthesias with claudication of three days duration. MRI revealed a subdural space occupying lesion compressing the cauda equina at L5-S1 level producing a 'Y' shaped dural sac (Y sign), which was hyperintense on T1W imaging and hypointense to cord on T2W image. The STIR sequence showed hyperintensity to cord. There was no history of bleeding diathesis. The patient underwent decompressive durotomy and biopsy which confirmed the diagnosis.

Conclusion: Spinal subdural hematoma may present with rapidly progressive neurological symptoms. MRI is the investigation of choice. The knowledge of MRI appearance with respect to the chronological stage of the bleed is essential to avoid diagnostic and hence surgical dilemma

Keywords: Spinal subdural haematoma, extramedullary spinal cord compression, MRI scan.

Introduction

Spinal subdural haematomas are extremely rare occurrences. They are known to cause cord compression and radicular pain [1]. MRI has made it possible to chronologically label these haematomas as hyperacute, acute, subacute and chronic. We report a case with early subacute spinal subdural haematoma managed surgically.

Case report

A 56 year old gentleman presented to emergency with progressive

history of pain along the left posterior aspect of thigh and postero lateral aspect of leg, going up to the lateral aspect of foot since three days. It was associated with paraesthesias in the same areas but no numbness. The paraesthesias were progressive. He did not have any back pain or contralateral leg pain. His pain worsened after walking for a couple of minutes and was relieved after taking rest. The general examination was unremarkable. On local examination there was no spasm or tenderness at the lumbar spine. There was mild restriction of forward bending. The straight leg raising test was positive on the left side at 40 degrees. There was no sensori-

Author's Photo Gallery



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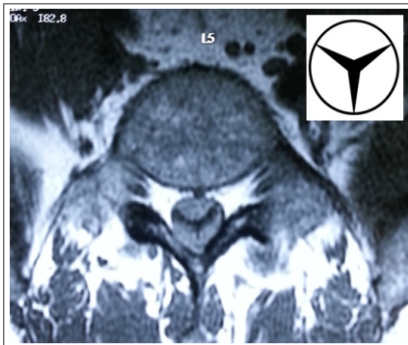


Figure 1: T1W axial image at the L5 mid body level showing the 'Y' shaped sign as well as the compression of the neural structures.



Figure 2: T1W mid sagittal image shows at L5-S1, iso to hyperintense signal with respect to the cord signal. Note the pooling of the bleed on the dorsal aspect of the thecal sac than ventrally. Also note the compression of the neural structures



Figure 3: T2W mid sagittal image showing iso intensity of the lesion as compared to the cord signal.



Figure 4: Sagittal STIR sequence showing iso to mild hyperintense signal with respect to the spinal cord.

motor loss. The left ankle jerk was absent. The standing AP and lateral radiographs did not reveal any abnormality. MRI was done, which revealed a subdural space occupying lesion compressing the cauda equina at L5-S1 level producing the "Y" shaped dural sac on axial images (Fig 1). The lesion was hyperintense on T1W imaging (Fig 2) and hypointense to cord on T2W image (Fig 3). The STIR sequence showed hyperintensity to cord (Fig 4). The radiological differentials included spinal subdural hematoma and lymphoma. The patient did not give any history of spinal intervention or bleeding diathesis or medications. There were no signs or symptoms related to higher functions. The patient underwent decompressive durotomy and frozen section biopsy which confirmed the diagnosis of a hematoma. Post operatively patient improved.

Discussion

Spontaneous non traumatic spinal subdural hematomas (SSH) are rare and literature is sparse. In contrast to their cranial counterparts which have bridging veins as a source of bleed, the pathogenesis and aetiology of SSH are not fully known. Various theories have been studied like migration from the intracranial space, [1] redistribution of clival subdural hematoma to dependant areas in lower lumbar spine [2] and collection of blood in the "intradural" space. [3]. These have been reported to occur after vigorous back massage [4] and even paraspinal muscle needling [5]. Symptoms include back pain and/or radiculopathy with variable amount of neurological deficit ranging from an acute rapidly progressive paraparesis to slowly developing mild deficit depending on the severity of neural compression. About half of these patients develop complete sensorimotor deficit. [6] Symptoms also vary according to the level of the bleed. The extent of bleed can vary from one to seven segments [6] MRI is the investigation of choice for diagnosis as well as for planning surgery. The differential diagnosis of an intradural mass includes haematoma, lipomatosis, abscess and tumours. In our case the MRI findings were suggestive of a haematoma versus lymphoma. The MRI findings in a spinal bleed vary according to the stage of bleed. [7] The hyperacute bleed is iso/hypointense on T1W sequence and hyperintense on T2W sequence. The acute hematoma is slightly hypo-/isointense on T1W images and hypointense on T2W images. In early subacute hematoma the T1W

image is hyperintense and hypointense on T2W images. The late subacute hematoma is hyperintense on T1- and T2- weighted images. The chronic hematoma is usually hypointense on T1W and T2W images. Our patient had an early subacute haematoma as it was hyper on T1W and hypo on T2W images. The "Y"

shaped sign we noted, is similar to the "Inverted Mercedes Benz" sign described by Kasliwal et al. [8]. This sign is a result of the encasement of blood around arachnoid lined neural structure. This helps to differentiate between an epidural and subdural location of the haematoma. Similarly, in the sagittal sections, the bleed takes the contour of the compressed arachnoid membrane resembling two convex discs in apposition to each other, suggestive of liquid nature of the lesion. Location of the lesion in the dependant area (L5-S1) adds to this information. In contrast, intradural lymphomas usually take a fusiform or sausage shape, although any shape is possible.

There are no definite guidelines for management. Treatment involves conservative management with serial MRI in cases with preserved neurology [9], [10]. In cases with serious neurological deficit, laminectomy and drainage is required. Predictors of good outcome include pre operative neurological deficit and level of the lesion. The extent of the hematoma does not influence the surgical outcome. [6] Thus, one needs to be aware of the different stages of bleed and its MRI appearance for diagnosis. Early diagnosis using MRI imaging and prompt management is the key to prevent disastrous neurological consequences.

Conclusion

Spinal subdural hematoma may present with rapidly progressive neurological symptoms. MRI is the investigation of choice. The knowledge of MRI appearance with respect to the chronological

stage of the bleed is essential to avoid diagnostic and hence surgical dilemma. Early symptoms without significant neurological deficits may be considered for conservative management.

Clinical Message

1. Spinal Subdural hematoma should be a differential in cases presenting with rapidly progressive radiculopathy
2. MRI is the investigation of choice
3. A detailed knowledge of the MRI appearance as per the chronological stages helps in diagnosis and management planning.

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