

Delayed Spontaneous Spinal Extradural Hematomas: Two Cases

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ABSTRACT

Aim: Spontaneous spinal extradural hematomas are uncommon disorders. They require a high index of suspicion for diagnosis.

Case report: This is a report of two patients, one lumbar and one cervical spontaneous extradural hematomas, who presented after a delay of a few weeks. A middle-aged male presented with progressive paraplegia with bladder involvement following a minor trauma 3 months back. Magnetic resonance imaging (MRI) showed an extradural hematoma at T11 to L2 levels. He underwent laminectomy and evacuation of hematoma and recovered completely. The other was a 52-year-old hypertensive lady who presented with right hemiplegia. She initially was thought to have a stroke but developed severe neck pain after 3 weeks, which induced the suspicion. The MRI showed a left-sided C3 to C5 extradural hematoma. She was operated and improved to normal.

Conclusion: These reports show that spinal extradural hematoma should always be kept as a differential diagnosis in any acute spine presentation and should be completely evacuated even if there is a delay in the patient presenting to produce good results.

Clinical significance: Spinal extradural hematomas should always be evacuated whatever time patient presents.

Keywords: Delay, Prognosis, Spinal extradural hematoma, Surgery.

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INTRODUCTION

Extradural hematoma of the spine is a rare entity and was first described by Jackson in 1896. The incidence is about 0.1 patients per 100,000 patients per year.¹ They are predominantly anteriorly situated and the upper thoracic

region is the most common site. T1-weighted images (T1WI) were most useful owing to the pathognomonic signal shift from isointensity with the cord in the early period to hyperintensity in the intermediate stage.¹ Early diagnosis and prompt management correlate with good outcome, but still remain a challenge for physicians.² Here we present two patients with spontaneous spinal extradural hematoma (SSEH) who underwent delayed surgery but had very good result.

CASE REPORT

A 55-year-old school teacher presented with 1 month history of slowly progressive weakness of both legs and retention of urine. He gave history of mild trauma to the back 3 months before. About 3 weeks after the trauma, he started having numbness of right leg and then left. Over another week he started feeling heaviness of the legs which progressed to weakness of both legs and then retention of urine for which he was catheterized over a period of 3 to 4 weeks. Clinical examination showed grade 0 spastic paraplegia with the level at L1, loss of pain below L1, including posterior column loss below L5. He was on continuous bladder drainage. In T2-weighted images (T2WI), MRI showed a posteriorly placed, biconvex, hypointense extradural lesion at T11 to L2. The lesion was isointense to the cord in T1WI (Fig. 1). Spinal angiography was normal. Coagulation parameters showed a very low platelet count of



Fig. 1: Sagittal T2WI showing the biconvex mixed intensity lesion at T11 to L1

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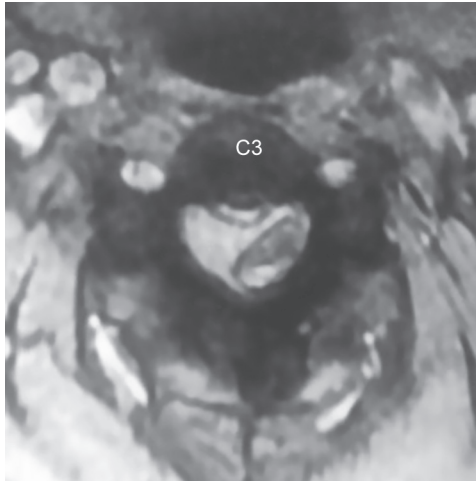


Fig. 2: Axial T2WI showing the biconvex mixed intensity lesion at C3

40,000 only. He was not on any anticoagulant therapy. He underwent T11 to L2 laminectomy and complete evacuation of the hematoma. By 1 month he improved remarkably that he was able to walk independently and even climb stairs. Surprisingly, he also achieved complete control of his bladder.

The other case also had a mild trauma 2 months back and was normal. She was a known hypertensive on medications but not on anticoagulants. About a month later, she presented with sudden onset right hemiplegia without facial or speech involvement. She was initially treated as a stroke but persistent neck pain forced a rethink on the diagnosis. The MRI of the cervical spine showed a left-sided extradural hematoma from C3 to C6 levels (Fig. 2). Patient underwent C3 to C6 laminectomy and evacuation of the hematoma. She had complete recovery by 2 months time.

DISCUSSION

Spontaneous spinal extradural hematoma is defined as accumulation of blood in the vertebral epidural space that has no obvious cause. It represents 40% of all spinal epidural hematomas. The pathogenesis is unclear but the bleeding is assumed to be of venous origin.³ Most spinal hematomas are localized dorsally to the spinal cord at the level of the cervicothoracic and thoracolumbar regions. Epidural and subdural spinal hematoma present with intense, knife-like pain at the location of the hemorrhage that may be followed in some cases by a pain-free interval of minutes to days, after which there is progressive paralysis below the affected spinal level. Most patients are aged between 55 and 70 years. Of all patients with spinal hemorrhage, 63.9% are men. The examination of first choice is MRI. The treatment of choice is surgical decompression. Of the patients investigated in the present work, 39.6% experienced complete recovery.

The less severe the preoperative symptoms are and the more quickly surgical decompression can be performed, the better are the chances for complete recovery.³ The patient in this study also had some similar characteristics.

For examination, MRI is the investigation of choice, and T1WI are especially useful due to the shift of the hematoma from isointensity with the cord in the early period to hyperintensity in the intermediate stage.¹

Surgical decompression has been always the method of choice. Matsumura et al⁴ assessed the relationship between the initial symptoms, imaging diagnosis of MRI, treatment selection (conservative or surgical treatment), the interval of surgery, and the severity of paresis using American Spinal Injury Association (ASIA) impairment scale (AIS) grading. Decompression was performed in 5 cases, and spontaneous recovery appeared in 2 cases. The mean interval time for operation was 29.8 hours. The severity of paresis was grade B in 3 cases and grade C in 4 cases at onset. These cases recovered to become grade E in 3 cases and grade D in 4 cases. Neurological deficits were present in 2 patients with conservative therapy and in 2 patients with a long interval for operation. They concluded that precise diagnosis without delay and rapid surgical treatment are essential for the management of SSEH. Another study by Gopalkrishnan et al⁵ advised prompt surgical evacuation of the hematoma leads to a favorable neurological outcome, whereas delay in treatment can be disastrous. The role of conservative management needs to be proven and should be tailored on an individual basis. But some studies have also suggested conservative management in specific cases. Kim et al⁶ did a comparative study between conservative and surgical treatment. Among 15 patients, 10 patients underwent decompressive surgery, and remaining 5 were treated with conservative therapy. Patients showed no different initial neurologic status between treatment groups. Initial neurologic status was strongly associated with neurological recovery. Factors that did not seem to affect clinical outcomes included age, sex, length of the involved spinal segment, sagittal location of hematoma, pre-morbid medication of antiplatelets or anticoagulants, and treatment methods. They concluded that early decompressive surgery is usually recommended. However, conservative management can also be feasible in selective patients who present neurologic status as ASIA scale E or in whom early recovery of function has initiated with ASIA scale C or D.

Rajz et al⁷ studied the importance of preoperative neurological status and rapid intervention in 17 cases. Mean time-to-surgery was 28 hours (3–96). Time-to-surgery in 2 patients remaining at AIS A was ≤ 12 hours; in 4/8 patients recovering to AIS E it was >12 hours, including 3 patients operated on after >24 hours. In patients remaining at AIS A, a mean of 4.4 levels was treated compared with means

of 3.7 and 3.5 in those with AIS C and E respectively, at late follow-up. They concluded that preoperative neurological status had greater impact on late outcome than time from symptom onset to surgery in patients with SSEH. Another study by Fedor et al⁸ also concluded that better postoperative outcome was associated with less initial neurological dysfunction, shorter time to operation from symptom onset, and male patients.

Both patients in this study had a history of mild trauma few months before the symptoms onset. Also, there was a delay of a few weeks before the hematoma was evacuated. In spite of this time interval, both patients improved to become normal over time, including getting back full bladder function in the male patient.

Rodrigues et al⁹ presented a 62-year-old male who developed complete paraplegia with loss of bladder control about 6 weeks after a minor trauma. Magnetic resonance imaging showed a large extradural hematoma. After surgical decompression, he had good improvement in motor function, partial improvement of sphincters, but minimal improvement of sensory functions. Matsui et al¹⁰ presented a case report of lumbar epidural hematoma, which was initially diagnosed as a spinal tumor. Lumbar MRI on T1WI revealed a space-occupying lesion with a hyperintense signal relative to the spinal cord with no enhancement on gadolinium administration and T2WI revealed a heterogeneous intensity change at the L4 vertebra. Moreover, the computed tomography scan demonstrated scalloping of the posterior wall of the L4 vertebral body suggestive of a spinal tumor. During the epidural space exploration, a dark red-colored mass surrounded by a capsular layer, which was fibrous and adhered to the flavum and duramater, was found. Microscopic histological examination of the resected mass revealed a mixture of the relatively new hematoma and the hematoma that was moving into the connective tissue. Accordingly, the hematoma was diagnosed as chronic SEH. There has also been another case report of chronic spinal extradural hematomas.^{11,12} We are not sure whether our case fits into this definition.

CONCLUSION AND CLINICAL SIGNIFICANCE

Spontaneous spinal extradural hematoma is an uncommon disorder and requires a high level of suspicion for

diagnosis. Surgery is usually curative and results in good functional outcome even if patient presents quite late.

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