Spontaneous Spinal Epidural Hematoma : A Rare Case Report

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Received, 2 February, 2010
Accepted, 25 February, 2010

This is a rare case of spontaneous spinal epidural hematoma presented to us with gradual weakness of all four limbs, respiratory distress and bladder dysfunction. This 57 year-old man was intubated and ventilated initially.

After confirmation of diagnosis by MRI he underwent Laminectomy and evacuation of haematoma. At 2 months follow up he was off tracheostomy with improved neurological status.

Only few published cases were found on this topic. Other cases showed a similar presentation and prognosis after same treatment.

Key words: quadriparesis, respiratory distress, spontaneous epidural hematoma.

A spinal epidural hematoma is a relatively rare but an important neurological condition. The spontaneous development of spinal epidural hematomas is most frequent after the fourth or fifth decade. [3] However, it has been reported to occur in all age groups, and it is a very rare clinical entity in children. The male/female ratio is 1.4:1. Certain precipitating factors, including anticoagulant therapy for prosthetic cardiac valves, therapeutic thrombolysis for acute myocardial infarction, hemophilia B, factor XI deficiency, long-term aspirin using as a platelet aggregation inhibitor, and vascular malformation, are suggested to be correlated with spontaneous spinal epidural hematomas. [1]

Statistically idiopathic cases account for approximate 40% of all cases. [2] The most common site of a spontaneous spinal epidural hematoma is the cervicothoracic region or thoracolumbar region.[8]

Most researchers assert that (spontaneous spinal epidural hematomas) SSEHs arise from the epidural venous plexus in the spinal epidural space because it lacks venous valves, and undulating pressure from the thoracic and abdominal cavities can impact it directly.[3] Several authors have proposed the spinal epidural arteries as a source of hemorrhage.[9] A more likely explanation is that pressure from arterial bleeding compresses the spinal cord, because the intra-thecal pressure is higher than the venous pressure.[6]

The usual clinical presentation of a SSEH is sudden stabbing neck or back pains those progresses to paraparesis or quadriparesis, depending on the level of the lesion and the nerve root.[4] In high cervical region, SSEH could cause spinal shock, leading to fatal condition. [3]
Currently, magnetic resonance imaging (MRI) is considered as the first choice diagnostic method for SSEH.[5] It typically

shows biconvex hematomas in the epidural space with well defined borders tapering superiorly and inferiorly.[2] A computerized tomographic (CT) scan should be obtained if MRI is unavailable.[7]

The differential diagnosis of spontaneous spinal epidural hematoma includes an acute herniated intervertebral disc, acute ischemia of the spinal cord, epidural tumor or abscess, spondylitis, transverse myelitis, or even a dissecting aortic aneurysm and acute myocardial infarction.

Early surgical intervention is the general treatment for spontaneous spinal epidural hematomas.[5] The procedure includes decompressive laminectomy and hematoma removal. In cases with incomplete neurological deficits, the operation should be performed within 48 hours of the onset of the initial symptoms. [9] If the initial neurological deficits are complete, the operation should be performed within 36 hours. [9] Conservative treatment has also been documented, and it was employed only when neurological deficits improved in the early phase or with the coexistence of coagulopathy.[10]

Case report

We present a case of spontaneous spinal epidural hematoma who was a 57 year-old diabetic and hypertensive patient presented in intubated state with gradual weakness of upper and lower limbs (lower > upper) for 2 days and followed by respiratory arrest. Eight days back he had developed sudden pain in back of neck. Initially he was treated conservatively in a local hospital.

Two days later he felt weakness in both lower limbs with gradual weakness of upper limb followed by respiratory arrest. He had urinary retention for which he was catheterized by indwelling catheter. He had no history of trauma, recent viral fever or diarrhea. He was not taking any anti platelet drug. There was also no history of vomiting, convulsion or bladder dysfunction.

He was febrile. Muscle tone was decrease in all four limbs. Muscle power of both lower limbs were grade 0/5, and in upper limbs grade 2/5 in both grips and grade 3/5 in rest of the joints. All the deep tendon reflexes were absent. His coagulation profile was normal.

MRI of the cervical spine revealed a large spinal extradural haematoma extending from C5 to C7 with significant cord compression **(Figure 1 & 2)**.

C5-T1 laminectomy and evacuation of epidural haematoma was done under G/A **(Figure 3)**. Postoperatively he was kept under elective mechanical ventilation. Trial weaning from ventilator failed due to insufficient respiratory effort. So a tracheostomy was performed following which he was weaned off the ventilator and soon he was able to breathe adequately in room air alone. As he was febrile since admission, blood, urine and tracheal aspirates was sent for culture and sensitivity which showed profuse growth of Klebsiella in tracheal aspirates, antibiotic was started accordingly and fever subsided gradually. Physician's consultation was sought and rehabilitation procedure was also started. On discharge muscle power was grade 0 in both lower limbs, though there was recovery of tone. It was grade 4 in both upper limbs with distal weakness. Gradually tracheostomy was closed in 15 days of discharge. On two months follow up patient was conscious and oriented with grade 4/5 power in the upper limb muscles and only flickering of movement in toes. Folley's catheter was in situ.

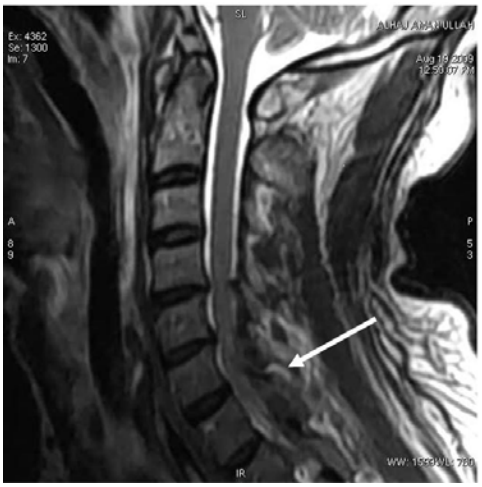

Figure 1: MRI of Cervical spine, T2 W Sagittal showing (arrow) posterior epidural haematoma.

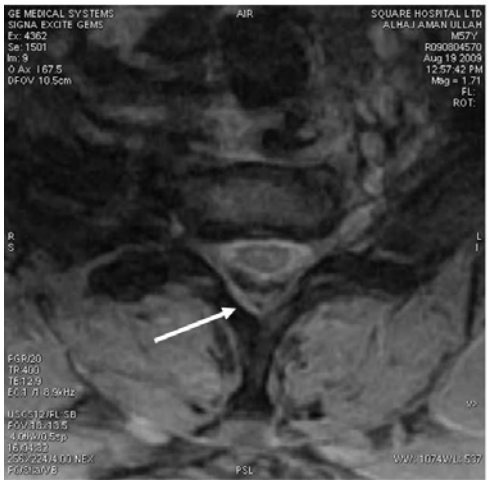

Figure 2: MRI of Cervical spine, T1 W Axial showing (arrow) posterior epidural haematoma.

Discussion

We presented a case report on SSEH which is one of the rare conditions in neurosurgical practice. Few international papers were found to compare with our case.

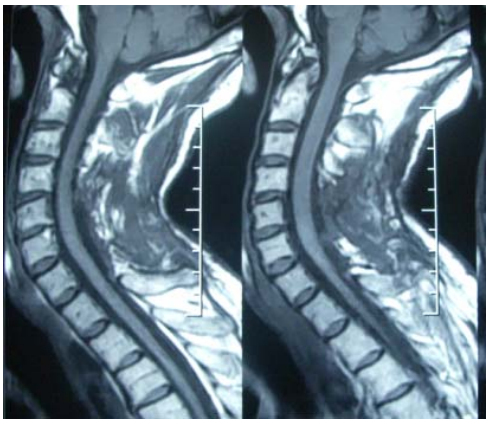

Figure 3: MRI of cervical spine (post operative) shows evidence of laminectomy and decompression of spinal cord.

Takasaka Naoki reported a case of SSEH in a 60-year-old man complained of severe neck and back pain of sudden onset, followed by left hemiparesis. He first treated the patient conservatively with corticosteroids. Then hemilaminectomy of C3 to C6 with evacuation of the hematoma was performed 4 days after onset. He treated his patient surgically and achieved a good result.

Thiele RH presented a case who presented with clumsiness, neck pain with radiation to both arms, and bilateral arm weakness.[8] Patient was treated by C5-6 decompressive hemilaminectomy with evacuation of hematoma.

J.S. Lee reported a case of first youngest infant of a 4 month-old boy with spontaneous spinal epidural hematoma in cervicothoracic spine presented initially with irritable crying, neck stiffness, and fever followed by progressive quadriparesis.[9] The case was treated by Laminectomy with reconstruction in situ from C4 to T4 was performed 5 days after the onset of symptoms. One year later, the infant's growth and development was within normal limit without any neurological deficits

Kelly ME presented a case with acute onset of paraplegia at 32 weeks of pregnancy. [10] The patient had a sensory level at 2nd thoracic vertebra and complete paralysis of all lower extremity motor groups and was diagnosed as acute epidural hematoma posterior to the thoracic spinal cord between the second and fourth thoracic vertebrae. He was treated by laminectomy and evacuation of a spinal epidural hematoma just after delivery and the patient gradually recovered lower extremity function and was independently ambulating at six month follow-up. Voluntary bowel and bladder function returned within four months. Our patient has achieved marked improvement in upper limb power just after decompression but progression was static after 2 weeks. Bladder function also didn't improve during 2 months follow up time.

Byung Suck Baek presented 3 cases of Spontaneous epidural haematoma.[11] His first case was a 19 year-old man presented with neck pain, left upper extremity sensory changes, and mild weakness without any history of trauma. Partial hemilaminectomy of C3, 4, 5 and removed the epidural hematoma compressing the spinal cord. Second case was a 64-year-old man who presented with low back pain and weakness in both legs without any history of trauma. Laminectomy from T6 to T10 was performed followed by removal of dark brownish epidural haematoma. Third patient was a 69-year-old woman with the complaint of neck pain and left upper extremity weakness with a history of hypertension and had taken aspirin for 5 years. MRI images show an elongated spindle shaped lesion at the left dorsolateral epidural space of the upper cervical level. A partial hemilaminectomy of C2, 3, and 4 was performed. Her left arm weakness improved from grade III to grade IV.

When our case was compared with those of others, fair similarities were found in presentation, location of haematoma, mode of treatment and prognosis. This is a rare type of spinal haematoma with any known precipitating factor. These cases present with limb weakness, respiratory difficulty and loss of bladder / bowel control. Early decompression by laminectomy is the best surgical option. Prognosis is not very dramatic. Rehabilitation is an important part for the management of these patients.

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