

Spontaneous Resolution of a Traumatic Lumbar Epidural Hematoma with Transient Paraparesis

Ki-Chang Yi, Sung Hwa Paeng, Yong Tae Jung, Moo Sung Kim, Young Gyun Jeong, Se Young Pyo, Kun Su Lee, Sung Tae Kim, Won Hee Lee, Ho-Su Kim, Young Seo Lee

Department of Neurosurgery, Busan Paik Hospital, Inje University College of Medicine, Busan, Korea

To clinically and radiologically report a traumatic spinal epidural hematoma (SEH) that completely resolved, without surgical treatment. A 17-year-old woman presented with back pain, lower motor weakness, and sensory change after trauma to the lower back area. Neurologic examination revealed paraparesis (grade 3/5) and radiating pain in both legs at the L5 dermatome. Magnetic resonance imaging (MRI) of the lumbar spine showed a space-occupying lesion in the ventral spinal epidural space at the L4 level. The lesion was consistent with acute stage hematoma in the spinal epidural space. The patient was prepared for decompression surgery. However, the patient's neurologic symptoms began to improve (grade 4+/5) at 2 hr after the onset of paraparesis. Surgical intervention was delayed, and the patient was treated conservatively with close neurologic monitoring. Two days after the onset of symptoms, the patient's neurologic symptoms recovered completely. The follow-up MRI at 3 days after the event showed complete resolution of the epidural hematoma. A SEH can occur after blunt trauma to the spine. This case illustrates that immediate surgical intervention may not always be necessary in some patients with traumatic SEH. Conservative management may be a possible option for patients presenting with neurologic dysfunction if neurological symptoms recover rapidly.

Key Words: Hematoma • Epidural • Spinal • Lumbar vertebrae • Low back pain • Paraparesis

INTRODUCTION

Traumatic spinal epidural hematoma (SEH) is mainly induced by trauma or after spinal surgery. Symptoms of SEH include motor, sensory, and bladder dysfunction. Such neurologic symptoms require immediate decompression. Most cases of traumatic SEH require urgent surgery. However, in this case report, we would like to discuss about a patient who suffered a L4 compression fracture with a traumatic epidural hematoma, whose neurologic symptoms and magnetic resonance imaging (MRI) findings improved via conservative treatment without urgent operative treatment.

CASE REPORT

A 17-year-old woman visited our hospital due to lower back pain and paraparesis and radiating pain in both legs. Two

hr earlier, she had fallen from a 1-m height. After the fall, she only had lower back pain but motor weakness and radiating pain in both legs developed 1 hr later. At the time of visiting the emergency room, her vital signs were stable and laboratory findings were normal. On physical examination, the patient had motor weakness and dorsiflexion 3/5 grade in both ankles, and she complained of aggravation of radiating pain in both posterior thighs and lateral calves. The deep tendon reflexes of the lower extremity were normo-active, and there were no pathologic reflexes. A direct lower back tenderness was noted. Bladder function and anal tone were normal. We performed lumbar spine MRI. The MRI revealed an epidural mass-like lesion extending posteriorly from the L4 to S2 vertebral body and the mass-like lesion had low signal intensity on a T1-weighted image (WI) and slightly high signal intensity on a T2-WI. The L4 vertebral body showed high signal intensity on T2 fat suppression image (Fig. 1). A clinical and radiological diagnosis of SEH was made based on the clinical history and MRI findings. We prepared the patient for decompressive surgery. However, 2 hr after the visit to our hospital, her neurological symptoms including motor weakness and radiating pain recovered rapidly, and lower back pain also improved with nonsteroidal anti-inflammatory drugs (NSAIDs) and steroids, and bed rest. Hence, we delayed surgery and performed conservative treatment. Three days

Corresponding author: **Sung Hwa Paeng**
Department of Neurosurgery, Busan Paik Hospital, Inje University
College of Medicine, Bokji-ro 75, Busangjin-gu, Busan 47392, Korea
Tel: +82-51-890-6144, Fax: +82-51-898-4244
E-mail: shpaeng@empal.com



Fig. 1. L-spine magnetic resonance imaging (MRI) sagittal images show anterior epidural hemorrhage (white arrow) causing central canal stenosis at L4-5 level (T1-weighted image [WI] and T2-WI of lumbar MRI).

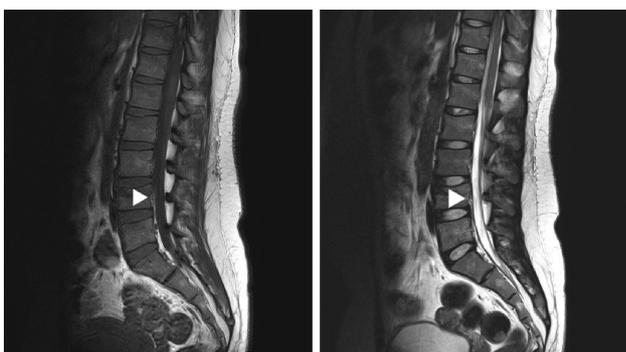


Fig. 2. L-spine magnetic resonance imaging (MRI) sagittal images 3 days after injury show nearly complete resolution of anterior epidural hemorrhage (white arrow) with central canal stenosis at L4-5 level (T1-weighted image [WI] and T2-WI of lumbar MRI).

later, motor weakness recovered completely. We performed follow-up MRI, which demonstrated disappearance of SEH (Fig. 2) Patient took bed rest for 2 weeks. Her lower back pain disappeared. She was discharged on hospital day 15, and 6 months later, she had no neurological deficit or lower back pain.

DISCUSSION

Symptomatic traumatic SEH is known to be a rare condition after spinal trauma. The incidence rate of traumatic SEH has not yet been determined, and it has been reported to account for 0.5% to 1.7% of all spinal injuries⁵. Traumatic SEH is mostly associated with spinal fracture or dislocation. But, blunt spinal injury can cause traumatic SEH with vertebral fracture¹³.

The most reliable diagnostic tool for traumatic SEH is MRI.

MRI can demonstrate the location and extent of traumatic SEH. Injury to neural structures, bones, discs, and soft tissues can be detected. Traumatic SEH is usually iso-intense on T1-WI and hyper-intense on T2-WI, compared to signal intensity of the spinal cord within the first 24 hr. After 24 hr, traumatic SEH shows more increased signal intensity on T1-WI by 48 hr. An epidural abscess can show a similar MRI pattern to traumatic SEH. But, epidural abscess is usually accompanied by discitis and an enhanced image is helpful in the differential diagnosis. A spinal tumor can be differentiated based on histological features. A spinal tumor usually has a sub-acute or chronic onset and it will not show a change in MRI findings with passage of time^{2,3,10}.

Hence, MRI scan should be performed as soon as possible when traumatic SEH is suspected in cases of spine injury.

In symptomatic cases of traumatic SEH, urgent surgical decompression should be considered initially. Some authors have reported better outcomes when surgical decompression was performed within 48 hr in cases of incomplete spinal cord dysfunction^{6,11,12}. But, there are several reports showing that symptomatic SEH can be treated conservatively and successfully^{1,4,7-9}.

In our case, we performed conservative treatment. The patient had radiating pain and motor weakness of the lower extremity and no bladder dysfunction. But while preparing the patient, her symptoms recovered rapidly and the patient was young. Hence, we decided to perform conservative treatment. The follow-up MRI scan performed 3 days later showed that the SEH had disappeared (Fig. 2).

The reason for absorption is not known. The patient was a young female. Hence, the epidural space was wider compared to that in an elderly patient. There was no degenerative change in the spine. The patient had significant epidural fat tissue. Hence, we inferred that the epidural hematoma was absorbed into the epidural fat tissue or it leaked into the extra-spinal cavity through a foramen.

Although surgical treatment usually provides a better result in cases of symptomatic traumatic SEH, traumatic SEH was successfully treated with conservative management in this case. The patient was young. Her neurological deficit was mild and it recovered rapidly, and there was no bladder dysfunction. Also, she had no coagulopathy. Hence, conservative treatment was possible.

We report a case of spontaneous resolution of traumatic SEH. For management of patients with traumatic SEH, surgical treatment is important. But physicians should be aware of the patient's neurological symptoms. As observed in this case, if neurological symptoms recover progressively, surgical treatment is not always necessary.

CONCLUSION

Spontaneous resolution of traumatic SEH is a very rare occurrence. Most cases of traumatic SEH which present with neurologic symptoms require urgent surgical decompression. However, the cases that recover rapidly, in which neurological symptoms improve, can be treated conservatively.

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