

Spontaneous Resolution of Paraparesis Because of Acute Spontaneous Thoracolumbar Epidural Hematoma

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Abstract

Symptomatic spontaneous spinal epidural hematoma (SSEH) is an uncommon cause of cord compression that commonly is considered as an indication for emergent surgical decompression. We aimed to investigate a patient with a SSEH that completely resolved clinically and radiographically, without surgical treatment. The patient presented three days after the sudden onset of back pain, numbness, and weakness. Magnetic Resonance Imaging (MRI) revealed a posterior thoracolumbar epidural hematoma extending from the level of T10 to L2 with significant cord compression. Decompression was recommended but he refused surgery and was managed conservatively. One month later, weakness totally recovered and hematoma was absent on MRI.

Keywords: Spinal epidural hematoma; Cord compression; Conservative therapy

Introduction

Spontaneous spinal epidural hematoma (SSEH) is an uncommon cause of cord compression and associated with vascular malformations, neoplasm, infections, coagulopathy, pregnancy and idiopathic causes.¹⁻⁴ Magnetic Resonance Imaging (MRI) is the gold standard for diagnosis of SSEH. We want to indicate a patient with a SSEH that a complete motor and sensory recovery was observed at 1-month follow up with resolution of the thoracolumbar epidural hematoma, clinically and radiographically, without surgical treatment.

Case Report

A 46-year-old man presented 3 days after the sudden onset of back pain, numbness, and weakness of lower limbs after warfarin therapy for deep vein thrombosis. Clinical examination showed that the degree of motor weakness of both lower limbs was 3/5 and the level

of numbness was T11 dermatome. Reflexes were depressed. Rectal examination showed normal anal tone and urinary retention was not detected. There was no neurological deficit in the upper limbs. The MRI revealed a posterior thoracolumbar epidural hematoma from the level of T10 to L2 with significant cord compression. The epidural mass was hyperintense on the T1W images (Figure 1A, 1B and 1C).

The patient was admitted to our department, an emergency decompression was recommended and operation preparing was started. But he refused surgical treatment. Therefore, he was managed conservatively with cessation of warfarin therapy and beginning of low-molecular-weight heparin therapy. He was not placed on intravenous or oral steroids due to his neurological complaint started 3 days ago. His complaint of weakness in lower extremities were gradually recovered in one week and he was mobilized. After one month, he regained full power and a control MRI was performed. MRI revealed the resolution of the thoracolumbar epidural hematoma totally (Figure 2A and 2B).

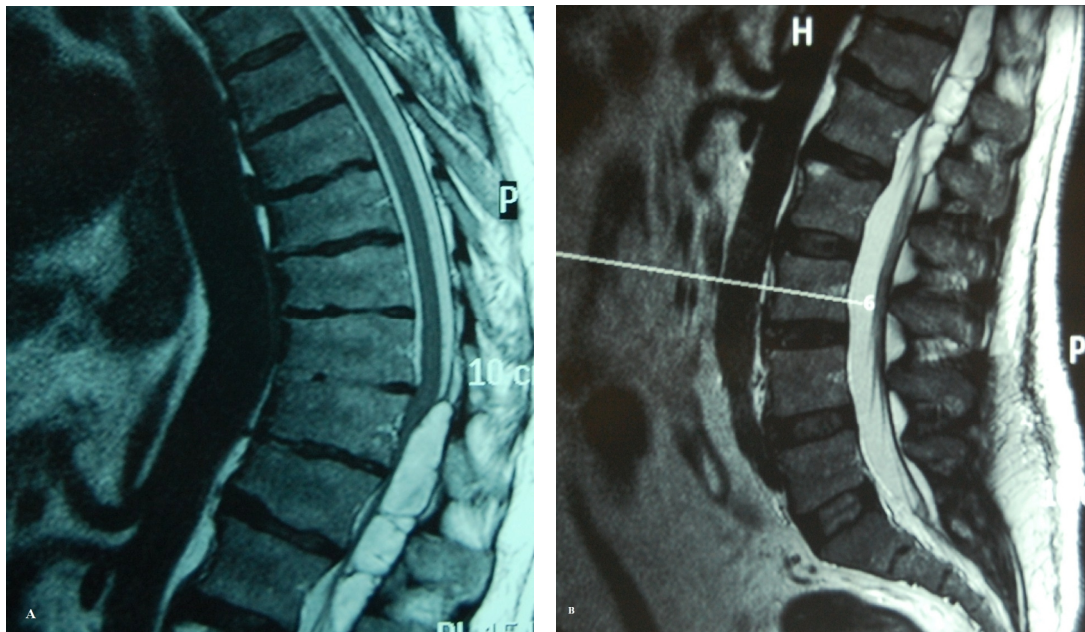
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Discussion

Spontaneous spinal epidural hematoma is an uncommon



Figs.1A, 1B: Sagittal T1W MRI images showing a well defined lesion in the posterior epidural space extending from T10 to L2 level.

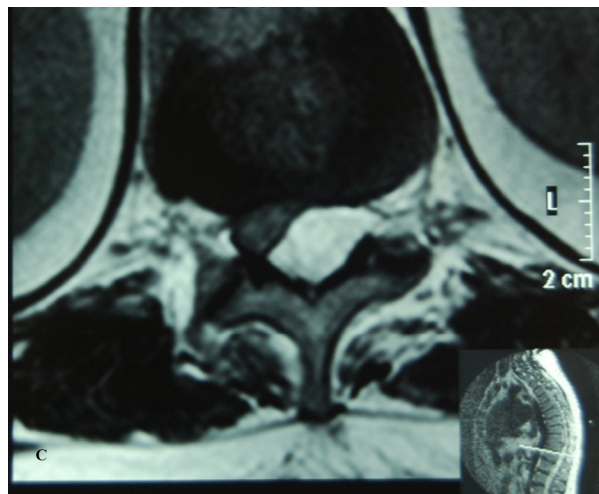


Fig. 1C: Axial T1W MRI image showing a hyperintense lesion in the posterior epidural space displacing the cord anteriorly and compressing it

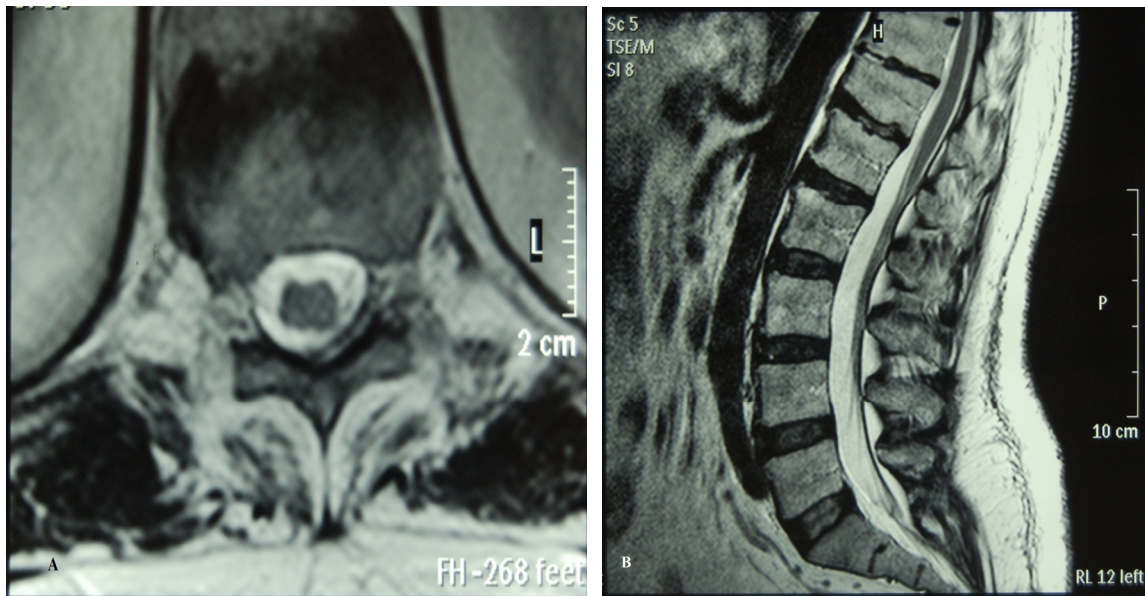
cause of cord compression. The incidence of SSEH as estimated by Holtas *et al.* was 0.1 per 100,000 people and less than 1% of people with the condition, the spinal epidural space was occupied by lesions. The spontaneous development of spinal epidural hematomas is most frequent after the fourth or fifth decade. The male/female ratio was reported 1.5: 1.^{1,2,5-7}

It has been reported to occur in all age groups. For instance, some pediatric cases of spinal subdural and epidural hematoma have been documented in the literature. They claimed that, aggressive surgical treatment should be delayed as long as possible in pedi-

atric patients because of the spinal structure is still developing.^{6,8}

The causative hematomas most frequently occur at the lower cervical and thoracolumbar spinal levels in adults, from C5 to T1 spinal levels in children.^{7,9,10} Symptoms such as numbness, radicular paresthesia, progressive paraparesis appear within minutes to days.^{3,11} Children often suffer from additional symptoms of irritability, and occasionally urinary retention.¹²

The etiology of SSEH is unknown, but predisposing factors such as increased venous pressure, hypertension, anticoagulant therapy for prosthetic cardiac



Figs. 2A, 2B: The lesion disappeared on the sagittal and axial sections on T1W images after a month.

valves, therapeutic thrombolysis for acute myocardial infarction, hemophilia B, factor XI deficiency, long term acetylsalicylic acid using as a platelet aggregation inhibitor, vascular malformation and pregnancy. However, the exact pathogenesis of the spinal epidural hematomas remains still obscure.^{2,13-15}

Most authors have contended that, SSEH arise from epidural venous plexus in the spinal epidural space. Because of fluctuations in intrathoracic and intraabdominal pressures after exercise or other maneuvers, reversal of blood flow may induce rupture of a delicate vein in the valveless epidural plexus. Other researchers have proposed the spinal epidural arteries as a source of hemorrhage.^{12,16}

MRI is the first choice diagnostic method for SSEH. If MRI is unavailable, CT scan should be obtained. In the differential diagnosis of other disease includes a spinal abscess, ischemia, transverse myelitis, acute herniated intervertebral disc and epidural tumor. MRI recognition of the blood products is the most important sign that distinguishes SSEH from other spinal extramedullary lesions. Spinal subdural hematoma was differentiated from spinal epidural hematoma. Spinal epidural hematoma has a more lentiform shape, and occasionally extends into the intervertebral foramina. On the contrary, spinal subdural hematoma has a crescent shape and traps the spinal cord or cauda equina.⁸

Our patient was admitted to our department with mild paraparesis and hypoesthesia. We decided to

emergent surgical treatment and operation preparing was started. Also his warfarin therapy changed with low-molecular-weight heparin therapy. But the patient refused surgical treatment. Therefore, we decided to give him pain killers and strict bed rest with serial neurological examinations. After a week complaint of weakness in lower extremities, they recovered gradually. After three weeks, he was consulted with the Department of Cardiovascular Surgery and was managed with cessation of low-molecular-weight heparin therapy and beginning of warfarin therapy again. After a month, the patient was recovered completely. His MRI revealed the resolution of the thoracolumbar epidural hematoma totally.

So spontaneous spinal epidural hematoma was an uncommon cause of cord compression that commonly was considered as an indication for emergent surgical decompression. It should be considered in the differential diagnosis of the other conditions. In our case, the patient had mild paralysis and he was recovering gradually. So conservative treatment was recommended.

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Conflict of interest: None declared.

References

- 1 Chan DT, Boet R, Poon WS, Yap F, Chan YL. Spinal shock in spontaneous cervical spinal haematoma. *Acta Neurochir (Wien)* 2004; **146**:1161-2; discussion 1162-3. [15309588] [<http://dx.doi.org/10.1007/s00701-004-0347-8>]
- 2 Chen CJ, Hsu WC. Imaging findings of spontaneous spinal epidural hematoma. *J Formos Med Assoc* 1997; **96**:283-7. [9136517]
- 3 Liao CC, Lee ST, Hsu WC, Chen LR, Lui TN, Lee SC. Experience in the surgical management of spontaneous spinal epidural hematoma. *J Neurosurg* 2004; **100**:38-45. [14748572]
- 4 Saracoglu KT, Saracoglu A, Karaca F, Fidan V. An alternative management procedure after inadvertent dural puncture. *J Res Med Sci* 2011; **16**:331-34. [22091253]
- 5 Alexiadou-Rudolf C, Ernestus RI, Nanassis K, Lanfermann H, Klug N. Acute nontraumatic spinal epidural hematomas. An important differential diagnosis in spinal emergencies. *Spine* 1998; **23**:1810-3. [9728384] [<http://dx.doi.org/10.1097/00007632-199808150-00018>]
- 6 Groen RJ. Non-operative treatment of spontaneous spinal epidural hematomas: A review of the literature and a comparison with operative cases. *Acta Neurochir (Wien)* 2004; **146**:103-10. [14963742] [<http://dx.doi.org/10.1007/s00701-003-0160-9>]
- 7 Güzel A, Simşek O, Karasalihoğlu S, Küçükkuşurluoğlu Y, Acunaş B, Tosun A, Cakir B. Spontaneous spinal epidural hematoma after seizure: a case report. *Clin Pediatr (Phila)* 2007; **46**:263-5. [17416884] [<http://dx.doi.org/10.1177/0009922806289427>]
- 8 Park DH, Cho TH, Lee JB, Park JY, Park YK, Chung YG, Suh JK. Rapid spontaneous remission of a spontaneous spinal chronic subdural hematoma in a child. *Neurol Med Chir (Tokyo)* 2008; **48**:231-4. [18497499] [<http://dx.doi.org/10.2176/nmc.48.231>]
- 9 Shin JJ, Kuh SU, Cho YE. Surgical management of spontaneous spinal epidural hematoma. *Eur spine J* 2006; **15**:998-1004. [16758110] [<http://dx.doi.org/10.1007/s00586-005-0965-8>]
- 10 Yu HP, Fan SW, Yang HL, Tang TS, Zhou F, Zhao X. Early diagnosis and treatment of acute or subacute spinal epidural hematoma. *Chin Med J* 2007; **120**:1303-8. [17711732]
- 11 Poonai N, Rieder MJ, Ranger A. Spontaneous spinal epidural hematoma in an 11-month-old girl. *Pediatr Neurosurg* 2007; **43**:121-4. [17337924] [<http://dx.doi.org/10.1159/000098385>]
- 12 Bisson EF, Dumont T, Tranmer B. Spontaneous Spinal Epidural Hematoma in a Child with Hemophilia B. *Can J Neurol Sci* 2007; **34**:488-90. [18062462]
- 13 Hsieh CT, Chang CF, Lin EY, Tsai TH, Chiang YH, Ju DT. Spontaneous spinal epidural hematomas of cervical spine: Report of 4 cases and literature review. *Am J Emerg Med* 2006; **24**:736-40. [16984848] [<http://dx.doi.org/10.1016/j.ajem.2006.01.025>]
- 14 Solheim O, Jorgensen JV, Nygaard OP. Lumbar epidural hematoma after chiropractic manipulation for lower back pain: Case Report. *Neurosurgery* 2007; **61**:E170-1; discussion E171. [17621008]
- 15 Patel H, Boaz JC, Phillips JP, Garg BP. Spontaneous spinal epidural hematoma in children. *Pediatr Neurol* 1998; **19**:302-7. [9831003] [[http://dx.doi.org/10.1016/S0887-8994\(98\)00059-9](http://dx.doi.org/10.1016/S0887-8994(98)00059-9)]
- 16 Park J, Lee JB, Park JY, Lim DJ, Kim SD, Chung YK. Spinal cord infarction after decompressive laminectomy for spontaneous spinal epidural hematoma. *Neurol Med Chir (Tokyo)* 2007; **47**:325-7. [17652921] [<http://dx.doi.org/10.2176/nmc.47.325>]