Okmeydanı Tıp Dergisi 30(3):169-172, 2014
doi:10.5222/otd.2014.169

Olgu

Spontaneous Complete Resolution of Spinal Epidural Hematoma Localized in Thoracic Region: Case Report

Kadir Tufan, Feyzi Birol Sarica, Ozgur Kardes, Fatih Aydemir, Melih Cekinmez
Başkent Üniversitesi Tıp Fakültesi, Beyin ve Sinir Cerrahisi Anabilim Dalı

SUMMARY

Spontaneously occurring spinal epidural hematoma (SEH) is a relatively rare disease. It is frequently observed in cervicothoracic and thoracolumbar regions. They require emergency surgical intervention as they may lead to serious and permanent neurological damage. On the other hand, rare cases with mild neurological findings, which resolve without surgical intervention have also been reported in the literature. In this paper, spontaneous resolution of SEH in day 20 was reported which was observed in a 72-year old male patient with history of hypertension.

Key words: *Spinal epidural hematoma, spontaneous resolution, thoracic region*

ÖZET

Torakal Bölgede Lokalize Spinal Epidural Hematomun Spontan Komplet Rezolüsyonu: Olgu Sunumu

Spontan oluşan spinal epidural hematom (SEH) nispeten ender görülen bir hastalıktır. Sıklıkla servikotorakal ve torakolomber bölgede gözlenirler. Ciddi ve kalıcı nörolojik hasara neden olduklarından acil cerrahi müdahale gerektirirler. Bunun yanında nörolojik bulguları hafif seyredip, ilerlemeyen ve cerrahi yapılmaksızın düzelen az sayıda olguda literatürde bildirilmiştir. Bu makalede, hipertansiyon öyküsü bulunan 72 yaşında erkek hastada gelişen Spontan SEH'un 20 gün sonra spontan rezolüsyonu ele alınmıştır.

Anahtar kelimeler: *Spinal epidural hematom, spontan rezolüsyon, torakal bölge*

INTRODUCTION

Spontaneous SEH is a rare emergency. Its incidence, as estimated by Holtas et al [1], was 0.1 per 100,000 people. Its etiology is related with coagulopathy, vascular malformation, hypertension, neoplasms, infections and idiopatic causes. They are frequently observed in cervicothoracic and thoracolumbar regions. Although rarely observed in SEHs, spontaneous resolution of hematoma has been reported in cases followed with conservative treatment [2].

CASE REPORT

In a 72-year old male patient with a history of hypertension, a severe back pain and lumbar pain started suddenly one week ago and extended to bilateral hips and legs. The severity of pain increases when the patient lies in supine position and the patient mostly wakes up because of the pain. In the course of time, numbness and loss of strength occurred in both legs and patient could only walk with aid. In the spinal magnetic resonance imaging (MRI) performed in a third party site, a subacute SEH, appearing isointense with cord in T1 sequences and hyperintense in T2 sequences, was found in right mediolateral and posterior sections of spinal cord at the level of T11-T12 vertebrae, which remarkably compresses the cord (Figure 1). Then, an operation was planned but the patient refused to undergo an operation. The back pain of the patient was gradually alleviated within 1 week and loss of strength in legs was also spontaneously improved.

In the neurological examination of the patient, who admitted to our hospital for control visit, hypoaesthesia under T11 and hypoactivity in deep tendon reflexes under that level were detected. In laboratory examinations, RBC was 4.99 M/mm^3, Hct: 42 %, WBC:5.12 K/mm^3, PLT: 104.000/mm^3, bleeding time: 2.2 min., prothrombin time: 12.9 sec., APTT <26 sec. and Glucose: 95 mg/dL. In the examination performed by Hematology Department because of low PLT count, no etiological factor suggestive of bleeding diathesis

Alındığı Tarih: 12.08.2013
Kabul Tarihi: 14.01.2014
Yazışma adresi: Uzm. Dr. Feyzi Birol Sarica, Başkent Üniversitesi Tıp Fakültesi, Adana Eğitim ve Araştırma Hastanesi, Nöroşirürji Kliniği, Dadaloğlu Mah. 39. Sok. No:6, 01250-Adana
e-posta: saricafb@gmail.com

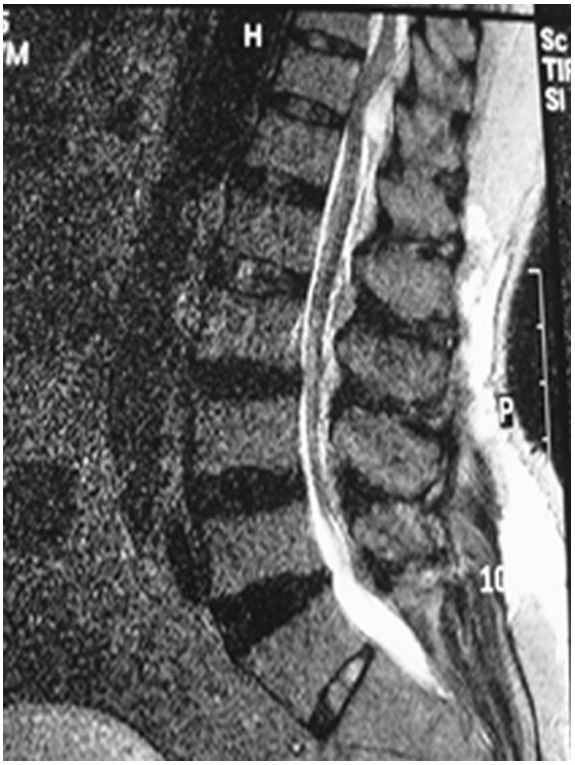

Figure 1. In spinal magnetic resonance imaging, a spinal epidural hematoma in acute stage appearing hyper-intense in T1 sequence on sagittal plane at level of T11-T12 vertebra and remarkably compressing spinal cord in posterior section is found.

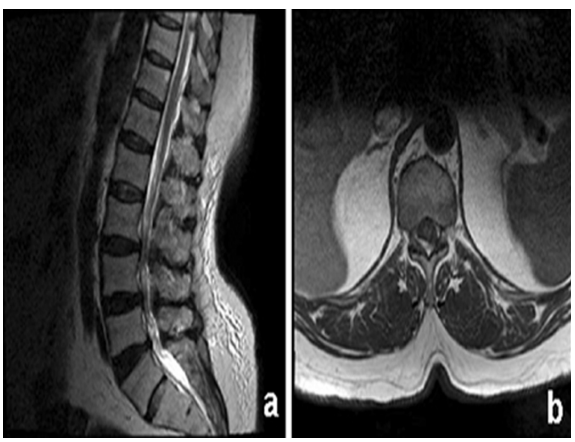

Figure 2. In the control spinal magnetic resonance imaging performed one weeks following diagnosis of the patient; it was found on a) sagittal plane and b) axial plane that dimensions of spinal epidural hematoma (a 0.3cm thick SEH involving 3cm segment) at level of T11-T12 were regressed.

could be found. The only present predisposing factor was hypertension. In the repeated spinal MRIs performed for control purposes, it was observed that dimensions of SEH at T11-T12 regressed (a 0.3 cm thick SEH involving a 3 cm segment) and it did not

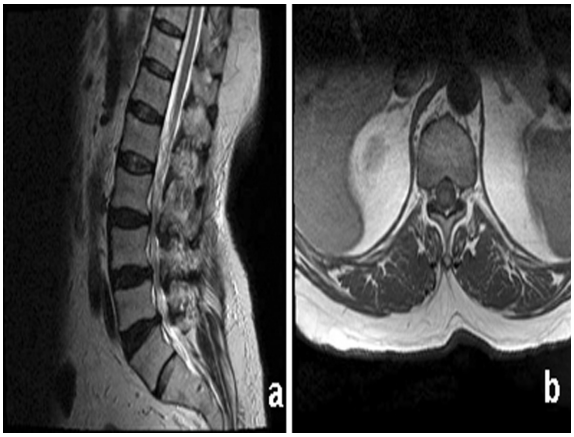

Figure 3. In the control spinal magnetic resonance imaging performed 20 days following diagnosis of the patient was made; it was observed on a) sagittal plane and b) axial plane that spinal epidural hematoma at level of T11-T12 was completely regressed.

cause spinal compression anymore (Figure 2a,b). As no signal void areas suggestive of vascular malformation was detected in spinal cord MRI of our patient, spinal angiography, which is accepted as an invasive method, was not preferred. The patient was advised for clinical and radiological follow-ups as the SEH was in resorption process. In the control neurological examination of the patient performed 20 days later, the results were normal. In the spinal MRI, it was observed that SEH had been completely resorbed (Figure 3a,b).

DISCUSSION

The first SEH case was reported in 1869 by Jackson [3]. Spontaneous SEHs are most frequent in fourth or fifth decade. The male/female ratio is 1.4:1. Coagulopathy (most frequently, hemophilia) or use of anticoagulating drug (most commonly, warfarin) is the case in around 1/3 of spontaneous SEH cases [2,4]. It was also reported that aspirin leads to risk in the long-term use [5]. Cases developing spontaneous SEH due to combination of tissue plasminogen activator which is recently used for thrombolytic treatment and heparin are also reported [6].

For SEH, it was reported in the literature that the bleeding is venous in nature and coagulation mechanism disorder alone is not sufficient. It was also reported that association of factor and/or factors increasing fragility of epidural venous structure such as advan-

ced age and arterial hypertension, which were also the case in our patient, are required. With regards to the rupture of fragile vessel wall, acute (i.e., coughing, sneezing, vomiting or exercise) or chronic (i.e., portal hypertension and pregnancy) increased intra-abdominal pressure is very important. The view is widely recognized that increased pressure is reflected to epidural veins via batson plexus and veins rupture secondary to distension [2,7]. In one third of cases in the literature, hematoma is between C5-T2, whereas it was observed between T9-L3 in one fourth. Due to non-rigid connections at posterior surface of dural sac, SEHs are more commonly observed in posterior aspect of dural sac, which was also observed in our case [2,8].

The typical symptom observed in patients with thoraco-lumbar spontaneous SEH is the sudden onset and severe back pain and lumbar pain converting into a radicular form involving the leg within minutes. As we observed in our case, usually flask and symetrical paraparesis and loss of sense is added to the picture within hours [2,8].

In the past, diagnostic method for SEH was myelography. However, during the procedure, depending on the drainage of CSF, development of hematomas have been reported. For this reason, today the most preferred method in the diagnosis of spontaneous SEH is spinal MRI, which is a non-invasive method. It typically shows biconvex hematomas in the epidural space with well defined borders tapering superiorly and inferiorly. Subacute hematomas show characteristic high signal intensity on T1-weighted images. MRI images obtained in acute phase and during transition to subacute phase may mimic spinal subdural hematoma, epidural neoplasm and epidural abscess [1,8,9]. In addition, SEH can also be observed due to spinal vascular malformations localized in the epidural region and detailed information about the structure of blood vessels of spinal cord can be obtained [3]. However, as in our case, cases with undetectable cause of spontaneous SHE were seen in the literature [10].

In spontaneous SEH cases particularly associated with neurological loss and localized in this region due to inadequate spinal blood supply in the thoracolumbar junction and risk of spinal infarction, it is required to ensure spinal cord decompression with emergency surgical intervention [2]. For patients not eligible for surgical procedures, hematoma aspiration can be performed via various minimally invasive methods [11]. Although there is no consensus in the literature, we believe that administration of methylprednisolone at trauma dose will be appropriate [12]. In cases with incomplete neurological deficits, the operation should be performed within 48 hours of the onset of the initial symptoms. If the initial neurological deficits are complete, the operation should be performed within 36 hours [2].

Physiopathology of spontaneous resolution in SEH has not been completely clarified. Recently, as in our case, an increase in number of individual cases followed with conservative treatment is observed in the literature [13-15]. In SEHs occurred due to coagulopathy, resolution of hematoma without surgical intervention has been observed with coagulation factor replacement therapy. Boukobza et al. reported 11 cases of spinal epidural hematoma. Five of these patients were treated conservatively. Follow-up MRI of three patients revealed resolution of the hematoma after 6 days in one patient and after 2 months in two patients [8]. Holtas et al. employed conservative treatment in 13 patients with clinically correlating SEH. It was reported that outcomes were good in 11 of those patients [1]. Jamjoom et al. [9] also emphasized that there was an increase in both number of SEH cases and number of cases who were diagnosed with MRI findings and did not require operation.

In conclusion, although spontaneous improvement has been observed in limited number of SEH cases, it was found that late surgical intervention did not sufficiently improve the neurological status in many cases. Therefore, it will be appropriate that in patients with diagnosis of SEH, clinical and radiological follow-up should be performed as close as possible.

REFERENCES

1. Holtas S, Heiling M, Lonntoft M. Spontaneous spinal epidural hematoma: findings at MR imaging and clinical correlation. *Radiology* 1996;199:409-413. http://dx.doi.org/10.1148/radiology.199.2.8668786
2. Kreppel D, Antoniadis G, Seeling W. Spinal hematoma: a literature survey with meta-analysis of 613 patients. *Neurosurg Rev* 2003;26:1-49. http://dx.doi.org/10.1007/s10143-002-0224-y
3. Jackson R. Case of spinal apoplexy. *Lancet* 1869;2:5-6.

http://dx.doi.org/10.1016/S0140-6736(02)67624-X
4. Bisson EF, Dummont T, Tranmer B. Spontaneous spinal epidural hematoma in a child with hemophilia B. *Can J Neurol Sci* 2007;34:488-490.
5. Franscini L, Ballmer RE, Sturzenegger M, et al. Evaluation of back pain secondary to spinal epidural hematoma associated with aspirin intake and a partial platelet glycoprotein Ia/IIa deficiency. *Arch Intern Med* 1994;54:2769-2771. http://dx.doi.org/10.1001/archinte.1994.00420230166020
6. Chan KC, Wu DJ, Ueng KC, Lin CS, Tsai CF, Chen KS, et al. Spinal epidural hematoma following tissue plasminogen activator and heparinization for acute myocardial infarction. *Jpn Heart J* 2002;43:417-421. http://dx.doi.org/10.1536/jhj.43.417
7. Sage DJ. Epidurals, spinal and bleeding disorders in pregnancy: a review. *Anaesth Intens Care* 1990;18:319-326.
8. Boukobza M, Guichard JB, Boissonet M, et al. Spinal epidural hematoma: report of 11 cases and review of the literature. *Neuroradiology* 1994;36(6):456-459. http://dx.doi.org/10.1007/BF00593683
9. Jamjoom ZA. Acute spontaneous spinal epidural hematoma: the influence of magnetic resonance imaging on diagnosis and treatment. *Surg Neurol* 1996;46:345-349. http://dx.doi.org/10.1016/S0090-3019(96)00149-8
10. Adamson DC, Bulsara K, Bronec PR. Spontaneous cervical epidural hematoma: case report and literature review. *Surg Neurol* 2004;62:156-160. http://dx.doi.org/10.1016/j.surneu.2003.10.040
11. Solymosi L, Wappelschmidt J. A new neuroradiologic method for therapy of spinal epidural hematomas. *Neuroradiology* 1985;27:67-69. http://dx.doi.org/10.1007/BF00342519
12. Ghaly RF. Recovery after high-dose metylprednisolone and delayed evacuation: a case of spinal epidural hematoma. *J Neurosurg Anesthesiol* 2001;13(4):323-328. http://dx.doi.org/10.1097/00008506-200110000-00008
13. Clarke DB, Bertrand G, Tampieri D. Spontaneous spinal epidural hematoma causing paraplegia: resolution and recovery without surgical decompression. *Neurosurgery* 1992;30:108-111. http://dx.doi.org/10.1227/00006123-199201000-00019
14. Davies DG, Weeks RD. Acute spontaneous spinal epidural haematoma with temporary resolution. *Br J Neurosurg* 1992;6:63-66. http://dx.doi.org/10.3109/02688699209002903
15. Wagner S, Forsting M, Hacke W. Spontaneous resolution of a large spinal epidural hematoma: case report. *Neurosurgery* 1996;38:816-818. http://dx.doi.org/10.1227/00006123-199604000-00036