Journal of Pharmaceutical and Scientific Innovation

www.jpsionline.com

Research Article

SPONTANEOUS CERVİCAL EPİDURAL HEMATOMA DUE TO ORAL ANTİCOAGULANT USE

Ertuğrul Altınbilek[1], Derya Öztürk[1], Çilem Çaltılı[1], Müge Sönmez[2], Harika Gündüz[1], Balkan Şahin[3], İbrahim İkizceli[1], Cemil Kavalcı[4]*

[1]Şişli Hamidiye Etfal Training and Research Hospital, Emergency, İstanbul/Turkey
[2]Ankara Numune Training and Research Hospital, Emergency, Ankara/Turkey
[3]Şişli Hamidiye Etfal Training and Research Hospital, Neurochirurrgy, İstanbul/Turkey
[4]MD, Associate Professor, Başkent University Faculty of Medicine, Emergency department, Ankara/Turkey
*Corresponding Author Email: cemkavalci@yahoo.com

DOI: 10.7897/2277-4572.035188

Received on: 22/08/14 Revised on: 09/10/14 Accepted on: 15/10/14

ABSTRACT

Spontaneous spinal epidural hematoma (SCEH) is a considerbaly rare clinical condition. It may lead to persistent neurological deficits or even death unless recognized and treated early in its course. It usually occurs after trauma but may also develop spontaneously. Majority of cases can be diagnosed with a detailed neurological examination and magnetic resonance imaging (MRI). Urgent surgical tehrapy is the preferred mode of treatment in advanced cases while a conservative approach is selected for cases with mild neurological deficit. MRI is regarded as the imaging modality of choice fort he diagnosis of SCEH. We report a case of nontrumatic SCEH after oral anticoagulant (OAC) use that presented with sudden-onset paraplegia. We also reviewed the relevant literature.

Keywords: Spinal epidural hematoma, nontraumatic, oral anticoagulant, MRI, human prothrombin complex concentrate

INTRODUCTİON

Spontaneous spinal epidural hematoma (SCEH) is a rare condition and it is the rarest cause of neck pain. However, it is a medical emergency since it may lead to permenant neuroogical deficit or even death if missed or left untreated. The clinical picture usually starts with pain corresponding to the level of bleeding and progresses into neurological deficits. Depending on the site of occurrence, it may cause paraparesia, quadriparesia, and sphincteric malfunction.[1] Usually observed in cervical and thoracic regions, SCEHs are the rarest among the pathologies causing spinal cord compression.[2-5] Epidural hematomas are generally located to the posterior aspect of the spinal cord owing to close relationship of the dura with the posterior longitudinal ligament at the anterior aspect of the dural sac.[2,3,5,6] Epidural hematomas located in the cervical region manifest with acute or chronic symptoms, although neck pain or root pain are the most common complaints. Motor and/or sensory deficits accompany the clinical picture depending on the magnitude of spinal cord compression.[2,7,8] SCEH follows a trauma most of the time, although spontaneous SCEHs have also rarely been described. SCEH may complicate hypertension, vascular malformations, bleeding disorders, anticoagulant therapy, tumors, pregnancy, vasculitic syndromes, surgical interventions, and epidural anesthesia.[3-6,9,10] In this case, we aimed to presented a SCEH case. There was no ethical problem in this case.

Case report

A 26-year-old man presented with sudeen-onset neck pain and wekaness in arms and legs. He had been on oral antioagulant therapy (warfarin sodium 5 mg for 30 days). His genreal status was moderately impaired and he was consicous, cooperated and oriented. On physical examination the cardiac sounds were normal, abdomen was nontender, pupils were isocoric, and cranial nerves were roughly intact. Motor examination revealed a muscle strength of 1/5 in left wrist flexion and extension and 1/5 in right wrist flexion and extension. Sensory examination showed anesthesia on T1 dermatome and its continuity. TCR was bilaterally negative. His vital sgins were as follows: blood pressure 130/80 mmHg, pulse rate 95 bpm, sPO2 97 %. ECG showed sinus rhythm. Laboratory examinations were as follows: WBC: 9.3 x 10^3/u, Hgb: 14.4 mg/dl, PLT: 243 x10^3/u, aPTT: 61.2 seconds, PT: 42 seconds, INR:3.54. Biochemistry tests were in normal limits. A spinal MRI showed an appearance consistent with a SCEH that narrowed the spinal cors from posterolateral aspect at the level between C3 and T1 (Figure 1-2).

The patient developed wekaness in both lower extremities on follow-up and thus an urgent surgical intervention was scheduled. Prior to operation, human prothrombin complex concentrate (PCC) (Cofact^R) 80 ml/IU was administered tor everse anticoagulation. A control INR level was found 1.5 after 15 minutes and the patient was operated by the neurosurgery department on an emergent basis upon development of advanced neurological deficit that rapidly progressed over a period of 1 day. During the operation the hematoma between the levels of C3 to T1 was evacuated with left posterior laminoplasty. He progressed to have tetraplegia postoperatively and was transferred to anesthesiology and reanimation unit while intubated. During follow-up his neurological status did not improve and he was discharged with persistent tetraplegia and a tracheostomy tube. A control cervical MRI examination showed that the compression largely disappeared after the operation.

Figure 1: SCEH on the spinal MRI

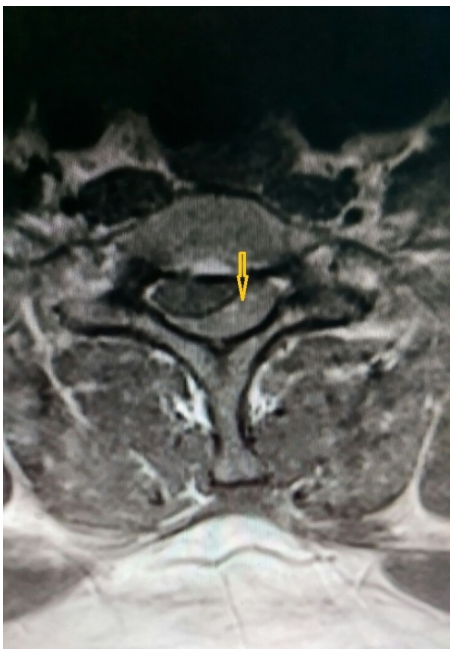

Figure 2: SCEH on the spinal MRI

DİSCUSSİON

SCEH is either traumatic or spontaneous.[11] It is a rare condition accounting for less than 1 % of space-occupying lesions in spinal cavity.[12-13] No underlying cause can be found in 40-50 % of the cases, while vascular malformations, hypertension, neoplasia, anticoagulant therapy, surgical intervention, lumbar puncture, trauma, chronic renal failure, and increased intraabdominal pressure with coughing or sneezing may account for the other half of the cases.[14-17] Our patient developed SCEH due to OAC use. The female/male ratio has been reported 1:1.4. Despite being observed in all ages, these lesions appear more commonly after fifth decade.[12,15] Our patient was a male patient in his second decade. The most common localizations for SCEHs are cervicothoracic and thoracolumbar regions.[1,12] Cervical bleedings tend to occur at lower cervical region. Cervical epidural hematomas with progressive neurological deficit may be show a rapid clinical course and cause death.[3,11] Consistent with the literature, our patient had a hematoma at the lower cerviothoracic section with a rapid and progreessive clinical course. Anticoagulant and antiplatelet medication use is one of the most significant causes of SCEH. In such patients aPTT, INR, thrombocyte count, and bleeding-clotting time should be necessarily checked.[16] Our patient had an aPTT of 61.2 seconds, a PT of 42 seconds, and an INR of 3.54, all of which were higher than normal levels. Anatomically, spinal epidural hematomas oiriginate from epidural venous plexus or small arteries located between two the layers of dura mater. Beatty ve Wilson, on the other hand, advocate that the pressure inside the venous plexus cannot overcome CSF pressure and cause bleeding.[18] MRI, myelography, and computerized tomography are used for diagnosis of SCEH. CT reveals the bleeding asa a hyperdense epidural mass and has a limited role in differential diagnosis or determining the timing of bleeding. The rate of diagnosis has increased since the advent of MRI.[11] The latter shows some superiorities compared to other imaging techniques. Sagittal MRI determines the lower and upper boundaries of epidural hematoma with a high precision.[19] Furthermore, it clarifies the anterior or posterior location of hematoma and reveals chordal compression when it exists.[20,21] Determination of the hematoma boundaries and differentiation from dura mater is possible on T1 and T2 weighted images. Hematomas commonly appear homogenous and isointense on T1 images during the acute phase between 0-24 hours. They may also rarely appear hypointense or hyperintense. T2 weighted images demonstrate a heterogenous hyperintense appearance accompanied by hypointense regions in acute phase.[22] During the subacute phase (after 24 hours) the lesions usually appear hyperintense on T1 and isointense with CSF on T2.[18] We also diagnosed our patient with the help of cervical MRI. The treatment of SCEH involves surgical decompression, during which hematoma evacuation and decompressive laminectomy are typically performed. Particularly cervical epidural hematomas, owing to their association with increased mortality, consitute an emergency that needs to be diagnosed more rapidly and decompressed immediately upon detection. A surgical therapy as early as possible will provide as much benefit as possible because of neurological deficits occurring solely by compression of neural tissues without invading them and the resulting ischemic processes. Patients with no neurological deficit who had a stable course may be monitored without surgery. Literature reports have provided cases with spontaneous resolution, albeit very rarely.[11] An urgent decompression surgery was performed in our case owing to sudden-onset neurological deficit. As reported by Jamjoom, SCEH is typically recognized during operation despite typical signs and symptoms. Thus, we would like to emphasize the importance of remembering SCEH as a possible etiology in spinal cord compression of unknown origin.[23] When no pathologies could be elucidated in diagnostic examinations aimed at cervical region, an intracranial mass, stroke, or infection should be suspected and a cranial imaging modality should be immediately obtained.[2] We could not detect any intracranial pathology in

CT or MRI examination following neurological examination. Since we detect cervical epidural hematoma on cervical MRI examination, we did not performed further tests. Although debate surrounding the optimal treatment of cervical epidural hematomas continues, most authors have suggested surgical therapy for acute cases with neurological deficit.[2,5,24,25] Chang *et al* advocated that the lesions are active in cases with contrast uptake in MRI and an agressive surgical therapy is warranted.[26] The hematoma is located at the posterior epidural space in most cases. Our case had a hematoma in posterolateral epidural region and required hematoma evacuation with posterior laminoplasty. Hematoma evacuation via laminectomy is the preferred surgical approach.[2,7] In cases with anterior epidural localization, on the other hand, hematoma should be evacuated via anterior approach. Since the chance for neurological recovery is directly related to the time from the onset of bleeding to surgical decompression, surgery should be performed without delay.[7] It has been demonstrated that cases with no prominent neurological deficit or clinical and radiological deterioration may respond favorably to methylprednisolone and rest alone and disappear spontaneously.[5,24] Our case was urgently operated to evacuate hematoma owing to his neurological deficits on examination at emergency department and rapidly progressive clinical course. Unfortunately he did not recover completely despite hematoma evacuation.

CONCLUSİON

In conclusion, SCEH is a serious condition with high morbidity and mortality unles treated in a timely fashion, which is usually suspected in physical examination and diagnosed by MRI. It should be taken into consideration in cases with spinal mass. In cases with newly developed neurological deficit, an urgent decompression surgery following emergent spinal MRI examination may provide patients with early neurological recovery. Since oral anticoagulants have a narrow therapeutic window and even slight over anticoagulant may lead to spontaneous bleeding events, these drugs should be used with great care and the dose should be meticulously followed according to INR levels.

REFERENCES

1. Baek BS, Hur JW, Kwon KY, Lee HK. Spontaneus Spinal Epidural Hematoma. J Korean Neurusurg Soc 2008; 44: 40-2. http://dx.doi.org/10.3340/jkns.2008.44.1.40
2. Adamson DC, Bulsara K, Bronec PR. Spontaneous cervical epidural hematoma: Case report and literaturereview. Surg Neurol 2004; 62: 156-60. http://dx.doi.org/10.1016/j.surneu.2003.10.040
3. Konya D, Tural S, Gerçek A, Özgen S, Pamir MN. Spontan Servikal Epidural Hematom: Olgu Sunumu. Sinir Sistemi Cerrahisi Derg 2008; 1: 54-8.
4. Spengos K, Sameli S, Tsivgoulis G, Vassilopoulou S, Vemmos K, Zakopoulos N. Spontaneous spinal epidural hematoma in an untreated hypertensive patient. Eur J Intern Med 2005; 16: 451-3. http://dx.doi.org/10.1016/j.ejim.2005.01.019
5. De Melo PM, Kadri PA, De Oliveira JG, Suriano IC, Cavalheiro S, Braga FM. Cervical epidural haematoma with clivus fracture: case report. Arq Neuropsiquiatr 2003; 61: 499-502. http://dx.doi.org/10.1590/S0004-282X2003000300034
6. Saxler G, Barden B. Extensive spinal epidural hematoma an uncommon entity following cervical chiropractic manipulation. Z Orthop Ihre Grenzgeb 2004; 142: 79-82.
7. Kimiwada T, Takahashi T, Shimizu H, Tominaga T. Clinical feature and surgical treatment of spontaneous spinal epidural hematoma. No Shinkei Geka 2004; 32: 333-8.
8. Narberhaus B, Rivas I, Vilalta J, Abos J, Ugarte A. Transient Brown-Sequard syndrome due to spontaneous spinal epidural hematoma. Neurologia 2002; 17: 384-7.
9. Jankowski R, Zukiel R, Nowak S. Acute cervical epidural hematoma as a complication of anterior cervical C5-C6 diskectomy. A case report. Neurol Neurochir Pol 2003; 37: 955-62.
10. Masski G, Housni B, Ibahiouin K, Miguil M. Spontaneous cervical epidural haematoma during pregnancy. Int J Obstet Anesth 2004; 13: 103-6. http://dx.doi.org/10.1016/j.ijoa.2003.09.006
11. Göksel HM, Karadağ Ö, Gürelik M, Özüm Ü. Spontan spinal epidural hematom olgu sunumu. Türk Nöroşirürji Derg 2000; 10: 218-20.
12. Groen RJ, Ponssen H. The spontaneous spinal epidural hematoma. A study of the etiology. J Neurol Sci 1990; 98: 121-38. http://dx.doi.org/10.1016/0022-510X(90)90253-J
13. Dönmez O, Çakın H, Akgün B, Albayrak S, Kaplan M. Spontan Spinal Epidural Hematom. Türk Nöroşirürji Dergisi 2011; 21: 274-7.
14. Cullen DJ, Bogdanov E, Htut N. Spinal epidural hematoma occurrence in the absence of known risk factors: A case series. J Clin Anesth 2004; 16: 376-81. http://dx.doi.org/10.1016/j.jclinane.2003.12.007
15. Yücel N, Akgün SF, Tekin YK, Önal SÇ, Alkan A. Spontan spinal epidural hematom olgu sunumu. Türkiye Acil Tıp Derg 2010; 10: 78–81.
16. Ziyal IM, Aydın S, İnci S, Şahin A, Özgen T. Multilevel spinal epidural hematoma in a patient with chronic renal failure. Neurol Med Chir 2003; 43: 410-3. http://dx.doi.org/10.2176/nmc.43.409
17. Kotil K, Akçetin MA, Kuşcuoğlu U, Eras M, Acar C, Bilge T. Spontaneus thoracic spinal epidural hematoma causing paraplegia. Turkish Neurosurgery 2004; 14: 45-8.
18. Beatty RM, Winston KR. Spontaneous cervical epidural hematoma. A consideration of etiology. J Neurosurg 1984; 61: 143-8. http://dx.doi.org/10.3171/jns.1984.61.1.0143
19. Holtas S, Heilling M, Lonntoft M. Spontan spinal epidural hematoma: Findings at MR imaging and clinical correlation. Radyology 1996; 199: 409-13.
20. Fukui MB, Swarnkar AS, Williams RL. Acute Spontaneous spinal epidural hematomas. Am J Neuroradriol 1999; 20: 1365-72.
21. Mascalci M, Torselli P, Falaschi F, Dal Pozzo G. MRI of spinal epidural lymphoma. Neuroradiology 1995; 37: 303-7. http://dx.doi.org/10.1007/BF00588341
22. Ng WH, Lim CC, Ng PY, Tan KK. Spinal epidural haematoma; MRI aided diagnosis. J Clin neurosci 2002; 9: 92-4. http://dx.doi.org/10.1054/jocn.2001.0918
23. Jamjoom ZA. Acute spontaneous spinal epidural hematoma: The influence of magnetic resonance imaging on diagnosis and treatment. Surg Neurol 1996; 46: 345-9. http://dx.doi.org/10.1016/S0090-3019(96)00149-8
24. Lefranc F, David P, Brotchi J, De Witte O. Traumatic epidural hematoma of the cervical spine: magnetic resonance imaging diagnosis and spontaneous resolution: case report. Neurosurgery 1999; 44: 408-11. http://dx.doi.org/10.1097/00006123-199902000-00106
25. Muthukumar N. Chronic spontaneous spinal epidural hematoma a rare cause of cervical myelopathy. EurSpine J 2003; 12: 100-3.
26. Chang FC, Lirng JF, Chen SS, Luo CB, Guo WY, Teng MM, Chang CY. Contrast Enhancement Patterns of Acute Spinal Epidural Hematomas: A Report of Two Cases. AJNR Am J Neuroradiol 2003; 24: 366-9.

Source of support: Nil, Conflict of interest: None Declared

QUICK RESPONSE CODE	ISSN (Online) : 2277 –4572
	Website http://www.jpsionline.com

How to cite this article:
Ertuğrul Altınbilek, Derya Öztürk, Çilem Çaltılı, Müge Sönmez, Harika Gündüz, Balkan Şahin, İbrahim İkizceli, Cemil Kavalcı. Spontaneous cervical epidural hematoma due to oral anticoagulant use. J Pharm Sci Innov. 2014;3(5):425-427 http://dx.doi.org/10.7897/2277-4572.035188