Case Report

A rare case of spontaneous spinal epidural hematoma with spontaneous resolution

P M Suman Reddy[1], Jerry Jacob[2], Roger Shannon Dsouza[3]

From [1]PG Resident, [2]Assistant Professor, [3]Senior Resident, Department of Emergency Medicine, MS Ramaiah Medical College, Bengaluru, Karnataka, India

ABSTRACT

Spontaneous spinal epidural hematoma (SSEH) is an uncommon cause of acute spinal cord compression. It is a neurological emergency that requires urgent imaging and appropriate treatment to prevent permanent neurological sequelae. Here, we present the case of a 30-year-old male with no known comorbidities who presented to the emergency department with a history of sudden onset of upper backache and chest discomfort followed by bilateral lower limb weakness. On examination, the blood pressure was 220/120 mmHg, and neurological examination showed decreased tone and power of 2/5 in bilateral lower limbs. In view of the initial chest discomfort, a cardiac evaluation was done, which was normal, followed by magnetic resonance imaging of the whole spine, which showed a lesion in the anterior epidural space suggestive of hematoma, causing spinal cord compression. A final diagnosis was C6-T2 dorsal SSEH secondary to a hypertensive emergency.

Key words: Epidural, Hematoma, High blood pressure, Spinal cord

Spontaneous spinal epidural hematoma (SSEH) is a rare emergent clinical condition that causes spinal cord compression. The annual incidence is 0.1/100,000 individuals [1]. SSEH usually presents with a sudden onset of neck or back pain at the involved vertebral level, with radiating pain followed by rapidly progressive symptoms and signs of spinal cord compression [2,3]. It may lead to a permanent neurological deficit or even death if diagnosis and treatment are delayed [4]. The clinical presentation can vary greatly when SSEH occurs in the cervical spine [5,6], and morbidity and mortality correlate strongly with cervical hematomas [7]. Prompt surgical decompression and evacuation of the hematoma are generally regarded as the optimal treatment for SSEH since symptom duration is reported to be associated with unfavorable outcomes [2,7-9]. However, a handful of patients have also shown spontaneous resolution in terms of both clinical and radiologic findings, even without surgery. This makes the selection of treatment modality difficult, given the complications liable to be induced by surgery.

Here, we report an uncommon case of SSEH that resolved under non-operative treatment with complete neurologic recovery.

CASE REPORT

A 30-year-old male with no known comorbidities, working in front of a computer in his office, suddenly developed a sudden onset of upper back ache and chest discomfort. Following this, he was brought to the emergency department within 30 min, and then the patient developed bilateral lower limb weakness, which was sudden in onset and progressive in nature. There was no history of sudden cough, sneeze, or trauma.

On examination, the patient was conscious and oriented with a blood pressure of 220/120 mmHg, a pulse rate of 84 beats/min (regular, no pulse deficit), and a respiratory rate of 18/min. Neurological examination showed motor power in both lower limbs 2 and 5, decreased tone, with absent deep tendon reflexes. The sensory examination was normal. The Glasgow coma scale was 15/15. There was no bowel or bladder involvement. No history of trauma or coagulopathy was present.

The initial cardiac evaluation was done with an electrocardiogram, echocardiography, cardiac markers, and computed tomography (CT) aortogram to rule out acute coronary syndrome and aortic dissection and was negative. Then, magnetic resonance imaging (MRI) of the whole spine was done, which showed a T2 MRI with a heterogenous and hyperintense lesion in the C6 to T2 dorsal spinal region suggestive of epidural hematoma (Fig. 1) was diagnosed probably secondary to a hypertensive emergency. The patient was diagnosed with new-onset hypertension secondary to bilateral renal artery stenosis. There is no evidence of bleeding tendency or coagulopathy.

The patient was treated with intravenous analgesics and anti-hypertensives. Neurological improvement was seen with the control of blood pressure, 4/5 power over 6 h and over 24 h, and

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Correspondence to: Dr. Jerry Jacob, Department of Emergency Medicine, MS Ramaiah Medical College, Bengaluru-560054, Karnataka, India. E-mail: jerryjacob123@gmail.com

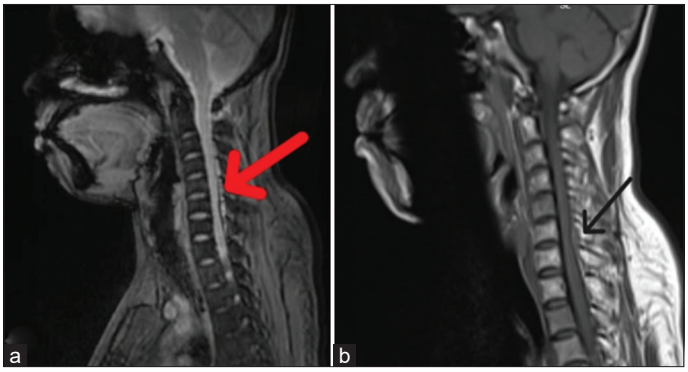

Figure 1: (a and b) Magnetic resonance imaging showing T2 hyperintense lesion in C6-T2 region suggestive of epidural hematoma; T1 weighted image

motor power 5/5 in both limbs. A repeat MRI of the spine was done after 3 days, which showed a T2 MRI isointense area with spontaneous resolution without surgery (Fig. 2). The patient had no neurological deficit at the 6-month follow-up.

DISCUSSION

SSEH is a rare cause of spinal cord and radicular compression, accounting for <1% of all spinal epidural space-occupying lesions [10]. Though any vertebral segments may be involved, the location is predominantly in the cervicothoracic and thoracolumbar dorsal areas [7,8]. SSEH is most often attributed to the spontaneous collection of blood in the spinal epidural space without any traumatic or iatrogenic cause [8]. However, this does not exclude pre-disposing factors such as coagulopathy, vascular malformation, antiplatelet or anticoagulant therapy, cavernous angioma, or tumor [11-16]. The epidural venous system is a low-pressure system without a valve, and any changes in pressure can lead to bleeding.

SSEH usually presents with a sudden onset of neck or back pain at the involved vertebral level, with radiating pain followed by rapidly progressive symptoms and signs of spinal cord compression [2,3]. However, early accurate diagnosis is a challenge, especially in cervical SSEH spontaneous cervical epidural hematoma (SCEH) [6]. Due to the varying rapidity of onset and severity of upper spinal cord and radicular compression, various symptoms in SCEH can mimic cerebral stroke, ruptured cervical disc, or cervical arterial dissection [10,17]. Therefore, MRI is critical for the diagnosis of SCEH and can reveal the location and extent of the hematoma and the severity of spinal cord compression and spinal cord edema.

The treatment of choice for SSHEs is typically surgical evacuation of the hematoma. But in our case, the patient improved neurologically once the blood pressure was improved. Therefore, in selected patients without or with only slight neurologic symptoms or showing early sustained neurologic improvement, non-surgical therapy with close observation and repeated MRI follow-up is a viable treatment option that can achieve excellent neurologic outcomes. However, considering that most spontaneously resolved SSEH patients experienced neurologic

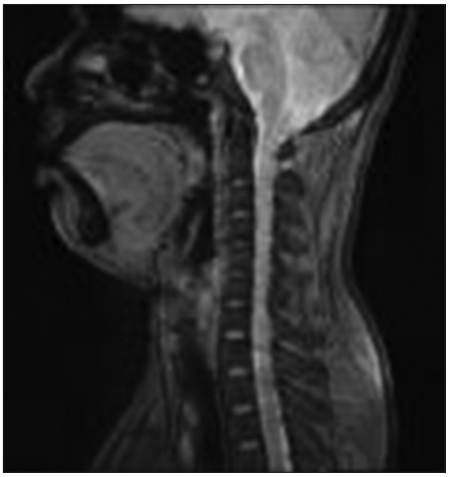

Figure 2: Magnetic resonance imaging of neck showing decrease of hematoma on day 3

improvement in the first 24 h, if neurologic improvement is not observed within the first 24 h in a patient with a severe neurologic deficit or if neurologic deterioration occurs and neurologic improvement stops at an unacceptable level, surgical intervention should be undertaken as soon as possible.

CONCLUSION

SSEH is a rare clinical emergency, needing prompt diagnosis and treatment. Atypical presentations can mimic a cerebral stroke or ruptured cervical disc, and an MRI examination is critical for diagnosis. For patients without or with only slight neurologic symptoms or showing early sustained neurologic improvement, non-surgical therapy with close observation and repeated MRI follow-up is a viable option that can achieve excellent neurologic outcomes.

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