A case of spontaneous spinal epidural hematoma with stroke symptoms

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ABSTRACT

Objective: Spontaneous spinal epidural hematoma (SSEH) can present with symptoms resembling stroke, potentially leading to misdiagnosis and inappropriate treatment. In this case report, we aim to present a patient with SSEH whose clinical findings mimicked those of ischemic stroke.

Case Presentation: A 78-year-old woman presented to the emergency department with sudden weakness in her left arm and leg. Motor examination revealed a strength value of 3-4/5 in the left upper and lower extremities. Brain computed tomography (CT) and brain diffusion magnetic resonance imaging (MRI) showed no acute neurological pathology. However, cervical MRI revealed heterogeneous signal areas in the extradural region posterior to the C3-C5 level. Further evaluation with cervical spinal CT identified an epidural hematoma. The patient was referred to neurosurgery, and surgical intervention was planned. Following surgery, the patient's motor strength was assessed as 2-3/5 in the upper and lower extremities.

Conclusions: SSEH can occur in patients with multiple risk factors, although significant risk factors were not identified in our case. Paraparesis and tetraparesis are more commonly observed presentations of SSEH than hemiparesis. In our case, hemiparesis was an initial finding that resembled stroke symptoms. SSEH most frequently occurs at the C6 and T12 vertebral levels, making the location of our patient's lesion between the C3-C5 vertebrae even rarer. In summary, SSEH may rarely present with symptoms mimicking stroke, emphasizing the importance of accurate diagnosis to avoid mismanagement.

Keywords: magnetic resonance imaging, computed tomography, ischemic stroke, diagnostic imaging, patient outcomes, spontaneous spinal epidural hematoma, neurosurgery

INTRODUCTION

Spinal epidural hematomas (SEH) usually occur under certain risk factors, and spontaneous occurrence is rare (0.1/100000) with a male-to-female ratio of 1.4/1 (1). Multiple case series of SEH have been described, showing different clinical presentations starting with sudden back and neck pain and progressing to paresthesia and even complete quadriplegia (2).

SEH may mimic stroke with its findings and may lead to inappropriate treatment due to the potential risk of misdiagnosis (2).

In this case report, we aimed to present a patient with spontaneous spinal epidural hematoma (SSEH) whose findings mimicked ischemic stroke on the first day of hospitalization.

CASE PRESENTATION

A 78-year-old woman with a medical history of hypertension, achalasia, gastrointestinal bleeding, and rheumatoid arthritis presented to the emergency department with sudden weakness in her left arm and leg. She reported no speech difficulties but mentioned experiencing mild pain in her left arm.

Upon neurological evaluation, the patient exhibited clear consciousness and no cranial nerve deficits. Motor examination revealed a strength value of 3-4/5 in the left upper and lower extremities. Emergency brain tomography and brain diffusion MRI showed no acute neurological pathology.
The preliminary diagnosis was transient ischemic attack, considering the patient's symptoms. As severe neck and left arm pain intensified on the second hospitalization day, cervical and lumbar MRI was planned to rule out discopathy, alongside electromyography to assess possible plexopathy.

To investigate possible ischemic cerebrovascular disease, CT angiography of the brain and carotid arteries was performed, confirming patent vascular structures. Despite increasing paresis and paresthesia findings, repeated brain MRI at the 4th hour post-symptom onset showed no ischemic/hemorrhagic pathology. With the acute ischemic infarct ruled out, the patient was admitted to the neurology service for further evaluation and treatment.

Suboptimal electromyography results, due to limited patient cooperation and movement, suggested involvement of the cervical segment and left plexus axis.

MR imaging of the cervical spine revealed abnormal signal areas in the extramedullary area behind the C3–C5 level, measuring approximately 15x13x40 mm, with hyperintense regions in the T1 and T2 LVs.

Contrast-enhanced brain and spinal CT scans confirmed the presence of a hyperdense lesion with reactive contrast enhancement in the adjacent dura mater, indicative of an epidural hematoma. No mass contrast enhancement was observed within the lesion. Myelopathic signal changes secondary to spinal cord compression were noted at the C3-C5 level. Urgent neurosurgical consultation was sought, and a surgical intervention was planned. After the operation, the patient’s control motor strength was evaluated as 2-3/5 in the upper and lower extremities, and physiotherapy recommendations were received. The patient was discharged from the hospital after five days.

**Figure 1:** Cervical MR imaging, T2 sagittal, T1 sagittal and contrast enhanced T1 sagittal sections

**Figure 2:** Cervical CT imaging, hyperdense hemorrhage area in the posterior medulla spinalis
DISCUSSION

SSEH may present with hemiparesis without facial involvement and should be considered in the differential diagnosis in patients presenting with stroke-like symptoms (3).

In 40–60% of patients, SSEH occurs spontaneously, and the most common underlying causes are the use of anticoagulant and antiaggregant therapy (4).

The occurrence of SSEH has also been reported in patients with genetic and metabolic coagulopathies, including vascular malformations, lumbar punctures, and drug use (5). However, none of the major risk factors associated with SSEH were identified in our patient.

Although stroke is a common cause of hemiparesis, it is mainly unrelated to pain. Sudden neck and back pain radiating to the whole extremity and trunk is a common complaint in patients with SSEH (6). In our patient, the fact that pain was not prominent before presentation may be considered an atypical presentation.

However, paraparesis and tetraparesis are more frequently encountered presentations of SSEH than hemiparesis (7). In our case, the initial presentation of hemiparesis closely resembled stroke symptoms.

In a literature review by Domenicucci et al., including 959 cases, the mean patient age was 48 years, and 60% of the patients were male. The disease showed a bimodal curve in terms of age of onset, with a higher frequency in the 2nd and 6th decades. The most common location of SSEH was at the C6 and T12 vertebral levels (5). Our patient differed from the demographic characteristics of these case series. The fact that our patient's lesion was located between the C3-C5 vertebral levels makes it an even rarer case.

Although MRI is considered the gold standard for defining the lesion in SSEH, it is far from practical in emergency departments. An inconspicuous, subtle hyperdensity of SSEH seen on spinal cervical CT may be missed if there is no clinical suspicion (6). In our case, a spinal MRI was first performed due to suspicion of discopathy because of the absence of significant neck pain in the emergency department and the addition of neck pain to the symptoms after hospitalization, and spinal CT was performed for precise identification of the lesion (for differentiation between mass and hemorrhage) after the lesion appeared.

CONCLUSION

In conclusion, spontaneous spinal epidural hematoma (SSEH) can present with symptoms that mimic ischemic stroke, posing challenges in diagnosis and treatment. Our case underscores the importance of considering SSEH in the differential diagnosis of patients presenting with stroke-like symptoms, especially when atypical features such as neck or back pain are present. Despite the rarity of SSEH, clinicians should maintain a high index of suspicion to avoid misdiagnosis and ensure timely intervention.

While SSEH typically presents with paraparesis or tetraparesis, our case demonstrated an unusual initial manifestation of hemiparesis, highlighting the diverse clinical presentations of this condition. Furthermore, the absence of major risk factors associated with SSEH in our patient suggests that spontaneous hemorrhage can occur in the absence of predisposing factors.

Radiological imaging, particularly magnetic resonance imaging (MRI) and computed tomography (CT), plays a crucial role in the diagnosis of SSEH. However, given the challenges of obtaining immediate MRI in emergency settings, spinal CT can be a valuable tool for prompt identification of epidural hematomas.

In summary, early recognition and accurate diagnosis of SSEH are essential for preventing delays in treatment and minimizing the risk of neurological sequelae. Further research is warranted to elucidate optimal management strategies and outcomes, particularly in comparison to conservative approaches.

Overall, our case highlights the importance of considering SSEH in the differential diagnosis of stroke-like symptoms and emphasizes the need for prompt diagnostic evaluation and multidisciplinary management to optimize patient outcomes.

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Ethical approval: The present study was conducted in strict accordance with the principles outlined in the Declaration of Helsinki. Informed consent was obtained from the participant of this study.

REFERENCES