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Case Report

A spontaneous cervical epidural hematoma mimicking a stroke – A case report

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ABSTRACT

Background: A spontaneous cervical epidural hematoma (SCEH) is a rare occurrence. It usually presents with quadriparesis, but it may present with hemiparesis or hemiplegia and can easily be misdiagnosed as stroke. We present a case of stroke mimicking SCEH with hemiparesis worsened after tissue plasminogen activator therapy (tPA) followed by emergency cervical decompression laminectomy.

Case Description: A 63-year-old female presented to the emergency department with sudden onset of posterior neck and left shoulder pain with the right side hemiparesis. On neurological examination, the patient had motor power of the right upper and lower limb of 2/5 Medical Research Council, and her whole left extremities were intact. Her medical history was unremarkable for trauma, hemorrhagic diathesis, or anticoagulation therapy. A head computed tomography was ordered ruling out intracranial hemorrhage. Assuming an acute ischemic stroke as the most likely diagnosis, alteplase (tPA) was administered 3 h after symptoms onset, however without any improvement in patient symptoms. A cervical magnetic resonance was performed revealing a right paramedian epidural mass-like lesion between C3-C6. The patient underwent cervical laminectomy C3-C6 with evacuation of epidural hematoma with significant clinical status improvement after surgery.

Conclusion: tPA treatment is frequently used as first-line therapy for acute ischemic stroke. Therefore, physicians should be aware of the potential for the SCEH in patients presenting with hemiparesis, as tPA administration may increase cervical hematoma leading to clinical deterioration. With this case, we intended to warn about SCEH as a rare but possible entity, since its early recognition and prompt clinical intervention may improve neurological outcomes.

Keywords: Cervical epidural hematoma, Stroke, Thrombolysis

INTRODUCTION

A spontaneous cervical epidural hematoma (SCHE) is a rare condition with an estimated incidence of 0.1/100,000.[7] Vascular malformations, infections, coagulopathies, and anticoagulants are thought to be responsible for the majority of the cases.[5,8]

The classical clinical presentation is acute neck or interscapular pain, and as a result of the spinal cord compression sensory and motor loss may be seen, such as paraparesis, quadriparesis, or

Brown-Sequard syndrome.[2,14] Although in some cases, a pure motor hemiparesis may be seen and mistaken for cerebrovascular stroke.[14] Therefore, early diagnosis and treatment are essential for good prognosis.

We describe a case of SCHE mimicking a stroke where treatment with alteplase (tPA) was considered as first-line treatment followed by emergency laminectomy.

CASE DESCRIPTION

A 63-year-old female presented to the emergency department with sudden onset of posterior neck and left shoulder pain with right side hemiparesis, mimicking a stroke.

She reported taking hydrochlorothiazide and atenolol for hypertension and her medical history was otherwise unremarkable without known hemorrhagic diathesis, anticoagulation therapy, or recent trauma. Neurological examination revealed right side hemiparesis with 2/5 Medical Research Council (MRC) in the upper limb and 0/5 in the lower limb, sensory function was preserved bilaterally, and all other findings were within normal limits.

A head computed tomography (CT) was ordered which ruled out intracranial hemorrhage. Assuming an acute ischemic stroke as the most likely diagnosis at the time (NIHSS 8), tPA was administered 3 h after symptoms onset, however without any improvement in patient symptoms.

During the first 48 h, her neurological examination remained the same, after which she developed worsening of clinical symptoms with progressive posterior neck and left shoulder pain associated with decreased sensation to pinprick and light touch in the right lower limb.

A cervical magnetic resonance image (MRI) was performed revealing a right paramedian epidural mass-like lesion between C3-C6 [Figure 1]. The mass was hyperintense in T1-weighted images and hypointense in T2-weighted images with no contrast enhancement, findings consistent with early subacute epidural hematoma 6 mm wide by 4 cm long, with significant spinal cord compression.

Seventy-two hours after onset the patient underwent cervical laminectomy C3-C6 with evacuation of epidural hematoma [Figure 2]. We could find neither vascular malformation nor an active bleeding source.

The patient clinical status suffered no significant improvement immediately after surgery, maintaining right side hemiparesis. During the hospital stay, she enrolled in a strict neurological rehabilitation program and presented motor strength of 3/5 MRC in the right upper limb and 1/5 MRC in the right lower limb at the time she was repatriated back home.

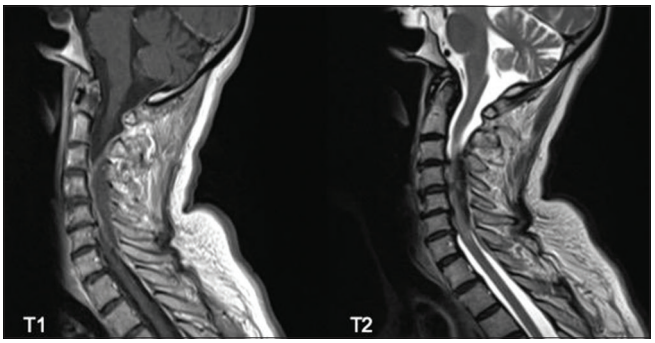

Figure 1: T1- and T2-weighted images showing right side cervical hematoma with spinal cord compression.

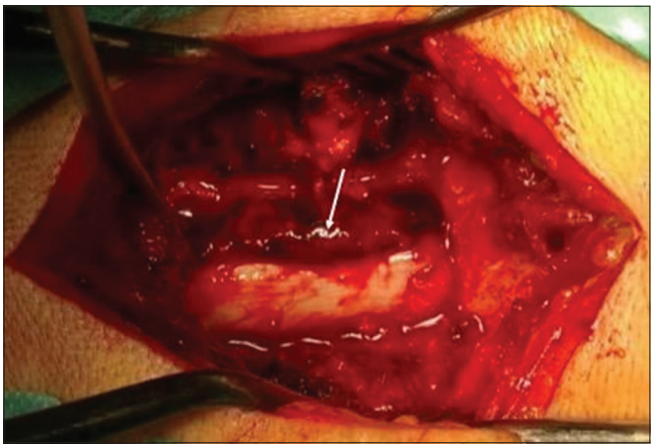

Figure 2: Intraoperative image of the right side cervical epidural hematoma C3-C6 (marked with white arrow).

DISCUSSION

SCHE is considered a surgical emergency and was first described by Jackson in 1869.[10] Hemiparesis typically occurs after a cerebrovascular incident causing disruption of the corticospinal tract, although rare, hemiparesis can be present in cervical spine cord lesions where unilateral injury of the corticospinal tract occurs.[9,15] Therefore, SCHE which usually causes tetraparesis may compress only the ipsilateral spinal cord and present as hemiparesis or Brown-Séquard syndrome.[3]

Even though there is still some debate if the hematoma mechanism originates in an arterial or venous bleeding point, some risk factors have been established including coagulopathy, vascular malformation, tumors, hypertension, as well as anti-coagulation therapy and Paget's disease.[11,14]

Neurological examination and clinical findings are of paramount importance to avoid misdiagnosis; however, imaging studies are still necessary for a definitive diagnosis. The most common symptoms are sudden neck or back pain followed by motor or sensory deficit caused by compression

of the spinal cord and nerve roots.[1,12] Therefore, in the presence of these symptoms, the possibility of SCHE should be considered.

CT is the first-line diagnostic tool to exclude cerebral hemorrhage, in patients where ischemic stroke is suspected, and intravenous thrombolytic treatment is considered. Although not necessary to identify ischemic lesions, MRI is more sensitive than CT, showing early signals of cerebral infarction in diffusion-weighted images.[6,12] MRI is the most reliable diagnostic tool for spinal lesions, determining location, size, and mass effect caused by hematoma.

During the first 24 h, SCHE is shown isointense in T1-weighted images and mildly hyperintense in T2-weighted images, after 72 h due to the hemoglobin oxygenation status and cellular lysis usually appears hyperintense in T1 and hypointense in T2, which correlates with the findings in our case.[4,5,11]

Although tPA is an effective first-line treatment for acute ischemic stroke, it has been established a correlation between its use and spinal hematoma, with potential risk for hematoma progression and worsening of symptoms.

The absence of clinical improvement after tPA administration should prompt further investigation as lack of improvement at 24 h is an independent predictor of poor outcome. Early MRI, when available, should be obtained to exclude extension of the original infraction, lacunar infarction, brain edema, or hydrocephalus and to rule out complications such as intracranial hemorrhage. In this case, an MRI scan was obtained at 48 h after worsening of clinical symptoms. This may have caused a delay in the diagnosis, leading to late surgery and therefor limiting potentially recovery.

Emergency decompression laminectomy with hematoma evacuation represents the most effective treatment for SCHE, however conservative treatment may be an option in patients without neurological involvement or with strong surgical contraindication.[11] Patients who underwent surgical decompression within 12 h of symptom onset had a better outcome with 83% recovery rates, 64% for patients operated within 12-24 h and 46.7% after the 24 h window.[13]

In this case, surgery was performed 72 h after symptom onset, which is beyond optimal time, fact that could explain the lack of significant neurological improvement. This emphasizes the need for early diagnosis to reduce the time elapsed between symptom onset and surgical decompression and maximize potential neurological recovery.

CONCLUSION

tPA treatment is frequently used as first-line therapy for acute ischemic stroke. Therefore, physicians should be aware of the potential for the SCEH in patients presenting with hemiparesis, as tPA administration may increase cervical hematoma leading to clinical deterioration. With this case, the authors intended to warn about SCEH as a rare but possible entity, since its early recognition and prompt clinical intervention may improve neurological outcomes.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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