

# Spinal Abscess Mimicking Acute Stroke

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## Abstract

With the emerging as well evolving revascularization therapy of central nervous system there is always an urgency to diagnose stroke at earliest presentation. In intent to avoid treatment within window period we are on the benefit of doubt, thus stroke mimic baffles clinician especially emergency physician. Here, we report a 46 years old male presenting with unilateral neurological deficit secondary to cervical spinal abscess provisionally diagnosed as stroke.

**Keywords:** Spine • Stroke • Abscess • Computed tomography

## Introduction

Stroke, a leading cause of disability and death, is a neurological condition developed due to an acute injury of central nervous system by a vascular cause including both ischemic as well hemorrhagic events [1]. Majority are ischemic resulting either by reduction or interruption of blood flow to the brain (ischemic stroke) whereas 20%-30% are hemorrhagic [2]. It's a medical emergency, hence an immediate evaluation, confirmation of diagnosis and revascularization therapy will lead to improvement in symptoms as well prevention of brain damage [3].

Stroke mimics are either a functional (conversion) disorder which are less frequent [4-7] or may be part of the symptomatology of a neurological or medical disorder comprise 50%-80% [8-10]. Most common are brain tumors (glioma, meningioma, and adenoma) [11], toxic or metabolic disorders (hypoglycemia, hypercalcemia, hyponatremia, uremia, hepatic encephalopathy, hyperthyroidism, thyroid storm [11-13], infectious disorders (e.g. meningoencephalitis) [13], psychological disorders and migraines, seizures [12,13], and demyelization disorders [12].

The frequency of stroke mimics varies from 20%-50% of cases of acute suspected stroke depending on the centers where diagnosis was made and specialist who had evaluated-emergency physician or stroke physicians [10-12]. Cervical epidural abscess can manifest as acute unilateral neurological deficit, an extremely rare stroke mimic.

## Case Presentation

A 46 years old Chinese male with recently diagnosed hypertension presented to emergency department for upper back pain since 2 days. His pain gets aggravated by truncal movements and associated with intermittent left upper limb paraesthesia. There was no limb weakness, no bladder or bowel disturbances or any gait instability. He denied any trauma or strenuous physical activities. His physical examination was unremarkable. Cervical and thoracic spine radiographs reported multilevel degenerative changes. He was discharged with symptomatic medication as well outpatient referral for physiotherapy.

Few days later, he revisited emergency department with fever and chills

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for past 3 days, neck pain associated with left upper as well as lower limbs weakness and numbness since few hours, although he had paraesthesia over left upper limb since 2-3 days. There was no history of speech or visual disturbances, no bladder or bowel disturbances, any clumsiness or gait instability. There was no history of seizure activities or changes in mood and behaviour. Patient denies any trauma or recent fall or sports activities. No history of respiratory or gastrointestinal or urinary symptoms mentioned.

On examination, he was alert and well oriented, febrile with temperature of 39.4 Celsius, blood pressure 139/92 and heart rate 96 regular. Neurological examination showed sensorimotor deficit over left upper as well lower limbs, distal weakness (grade 3/5) more than proximal (grade 4/5) and lower limb worse than upper. No facial asymmetry noticed, speech was clear and coherent, no cranial nerve abnormalities, nil cerebellar signs seen. Left pronator drift present, deep tendon reflexes were preserved and plantar was flexor in response bilaterally. No carotid bruit or cardiac murmur noted. No sign of meningism present.

Laboratory investigations showed moderate leucocytosis (19.75) with neutrophilia, raised erythrocyte sedimentation rate (80) and C reactive protein (290), raised alkaline phosphatase with normal renal function. Electrocardiogram shows normal sinus rhythm, chest radiograph reported normal.

Computed Tomography (CT) stroke multiphasic scan reported no established infarct or acute intracranial haemorrhage. No significant luminal narrowing seen along the intracranial and imaged extra cranial vessels. Computed Tomography (non-contrast CT) scan of cervical spine reported no acute cervical vertebral fracture or facet subluxation or dislocation.

Patient was presumptively treated for acute ischaemic stroke in view of sudden onset unilateral weakness and numbness and was started with dual anti-platelet agents. Intravenous thrombolysis was not given in view of unremarkable stroke multiphasic scan. He was planned for Magnetic Resonance Imaging (MRI) of Brain and spine as inpatient.

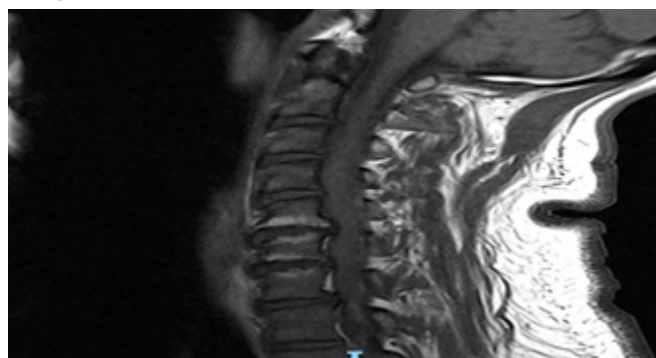
Magnetic Resonance Imaging (MRI) cervical, thoracic and lumbosacral spine reported posterior epidural abscess contiguous from C3/4 to T3/4, indenting the posterior thecal sac in the thoracic levels without causing thoracic cord oedema. Multiloculated left paravertebral abscess spanning from C7-T1 through to T2 level.

Patient underwent emergency spinal surgery, left C5 hemi-laminectomy and C3/4 and C6/7 laminotomy. Thereafter, he continued with neuro-rehabilitation (Figures 1 and 2).

## Discussion

Acute presentation of unilateral neurological deficit is always considered as stroke unless proven otherwise. Hemorrhagic stroke can be easily diagnosed with non-contrast CT but ischemic remains challenging specially due to mimics. Ischemic stroke can be potentially treated if diagnosed within window period its assessment requires immediate management, decision-

to-treat is an exclusionary diagnosis based on clinical findings and normal non-contrast CT or showing early ischemic changes based on the current AHA guidelines [14].



**Figure 1.** Magnetic resonance imaging of cervical spine -T1 (sagittal)



**Figure 2.** Magnetic resonance imaging of cervical spine -T2 (sagittal)

Cervical discitis or cervical epidural abscess may manifest as unilateral neurological deficit mimicking acute stroke [15]. It's extremely rare, potentially life threatening disease and a diagnostic challenge [16,17]. Incidence of Cervical epidural abscess may be as low as 1 in 70,000 to 1 in 400,000 hospital admissions [18]. Multiple emergency department visits and diagnostic delays occur in 68% of patients, contributing to a 45% morbidity rate and 15% mortality [19,20]. Late recognition often leads to permanent weakness or paralysis.

Our patient initially presented to emergency room with neck pain and intermittent paresthesia in left upper limb and was treated for possible cervical spondylosis. In his second visit, he presented with fever, chills and left sided weakness as well numbness. Initial impression was made of acute stroke due to acute unilateral neurological deficit, hence proceeded with Multiphasic stroke computed tomography of brain. He did not receive intravenous thrombolysis (Intravenous tissue plasminogen activator) due to unremarkable imaging but started with dual antiplatelet therapy. Even computed tomography of cervical spine was done which remained unremarkable. Later on, labs were more suggestive of infective etiology and Magnetic Resonance Imaging (MRI) confirmed cervical epidural abscess.

## Conclusion

We are reporting a very rare stroke mimic which can be potentially life threatening if missed or diagnosed late. In certain circumstances, patient might receive intravenous tissue plasminogen activator erroneously with added associated complications. We should be reasonably suspicious to pick up the stroke symptom or sign at earliest for an immediate revascularization therapy but not at the cost of missing diagnosis or delaying management of primary condition.

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None.

## Conflict of Interest

The authors declare that they no known competing interests.

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