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Is it myocardial infarction? A case report of C7 cervical radiculopathy with cervical angina

Harold L Mashauri[1,2,3], Frank J Makunga[2], Elisha C Luhwago[2], Eliasa Ndale[2] and Kajiru G Kilonzo[2,4]

Abstract

Cervical radiculopathy refers to the mechanical compression or inflammation of any of the cervical roots which lead to their dysfunction. Male sex, uncontrolled diabetes mellitus, manual labor-related occupation or activities are among the possible factors which can predispose or precipitate the occurrence of cervical radiculopathy. A 63 years old male presented with cervicogenic angina which was refractory to painkillers. C7 cervical radiculopathy might present with cervicogenic angina and pose a clinical diagnosis challenge given its similarity in clinical presentation with other clinical conditions like myocardial infarction. Clinicians should have a high index of suspicion to differentiate the two conditions. Nevertheless, ruling out firstly myocardial infarction and pulmonary embolism among patients presenting with chest pain is of clinical benefit in terms of morbidity and mortality of a patient. Furthermore, proper and timely physical examination should be emphasized to be conducted to every patient so as to avoid delayed diagnosis and management.

Keywords

C7, cervical angina, cervical radiculopathy, myocardial infarction

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Introduction

Cervical radiculopathy refers to the mechanical compression or inflammation of any of the cervical roots which lead to their dysfunction.[1] It can present with tenderness, weakness and numbness of the muscles and dermatome areas supplied by the affected nerve and episodes of neck pain radiating to the affected arm, shoulder and the upper back enough to affect significantly the quality of life.[1–3] Moreover, it can manifest with sensory, reflex deficit and cervical angina characterized by severe chest pain on the affected side.[1,4,5] It is mostly caused by cervical disk herniation and cervical spondylosis.[1] In most cases of cervical radiculopathy, the main pathophysiologic feature is inflammation.[2]

Most of the time cervical radiculopathy is unilateral with the incidence rate of 85 cases among 100,000 people, more prevalent among men and can occur at any age.[1,2] Manual labor activities like driving, weight lifting and operating vibrating equipment are among the common risk factors to develop the condition.[2] Several cases of cervical radiculopathy and radiculoplexus neuropathy presenting with pain, weakness, numbness and other neuropathic deficits have been reported also among diabetic patients.[6,7] C7 and C6 are the most common nerve roots to be affected in cervical radiculopathy conditions.[1,2]

Diagnosis of cervical radiculopathy is made from a combination of clinical signs, symptoms and imaging investigations including cervical X-ray, computed tomography (CT) and magnetic resonance imaging (MRI) Scan.[1–3] The management ranges from conservative treatment with painkillers,

[1]Department of Epidemiology and Biostatistics, Institute of Public Health, Kilimanjaro Christian Medical University College, Moshi, Kilimanjaro, Tanzania
[2]Department of Internal Medicine, Kilimanjaro Christian Medical University College, Moshi, Kilimanjaro, Tanzania
[3]Department of Emergency Medicine, Kilimanjaro Christian Medical University College, Moshi, Kilimanjaro, Tanzania
[4]Department of Internal Medicine, Kilimanjaro Christian Medical Centre, Moshi, Kilimanjaro, Tanzania

Corresponding Author:
Harold L Mashauri, Department of Epidemiology and Biostatistics, Institute of Public Health, Kilimanjaro Christian Medical University College (KCMUCo), P.O. Box 2240, Moshi, Kilimanjaro, Tanzania.
Email: haroldneweinstein@gmail.com

muscle relaxants, anti-inflammatory agents to minimally and major invasive surgical interventions depending on the suspected etiology.[1–3]

Case report

A 63 years old male presents to the emergency department with the chief complaint of left upper limb pain for 3 days which started with the sudden onset history of numbness of the left fingers which progressed into severe pain ascending to the left shoulder and left side of the neck. The pain was severe and radiating to the left side of the chest, shoulder and the back accompanied with headache episodes. The pain was sharp in nature and worsened by lying flat but improved by walking around. The pain was so severe that he could not sleep well for 3 days and it was not relieved by painkillers.

The patient denied history of difficulty in breathing, chest tightness, awareness of heart beat, headache, coughing, blurry vision, lower limb swelling but reported history of heartburns episodes which has been controlled by medication. The past medical history was unremarkable and the patient denied history of any recent trauma. On family and social history, the patient is a mason by occupation and has been attending indoor gyms for exercise including weight lifting 1 month prior to onset of the symptoms. On physical examination there was muscle tenderness on left side of chest and left arm with reduced reflexes in the lower limbs. On admission, the patient had the following vitals; blood pressure of 187/117 mmHg, temperature-36.8°C, pulse rate-133 bpm, respiratory rate 28 bpm, SPO2-97%. Neither diclofenac, pethidine, tramadol, meloxicam, morphine, pregabalin nor their combination was able to relieve the pain.

Several investigations were done to rule out some differentials including myocardial infarction and adhesive capsulitis. On laboratory tests, full blood picture and serial troponins were within normal range except for D-dimer which was slightly elevated with significantly elevated HbA1C of 13%. On electrolytes, both potassium and sodium were within the normal range except for calcium which was slightly low. Among the imaging, serial ECG tests showed mild ST elevation in lead V2 and V3. Both chest, left shoulder and cervical spine X-rays were normal.

The patient was admitted and initiated empirically on peptic ulcers and myocardial infarction (MI) treatment with no improvement of the pain symptoms. The treatment of MI was stopped later on after the CT Coronary Angiogram showed normal findings. Moreover, anti-hypertensive and anti-hyperglycemic drugs were initiated and closely monitored.

Given the refractory pain experience which was not relieved by medications and 2 days' post admission development of some episodes of twitching on the left hand few minutes after holding an object like when reading a book, local examination of the left upper limb was repeated on the sixth day of admission and it was found with elicited tenderness radiating to the left side of the neck, chest and back when compressing the middle finger only and the C7 dermatome areas. The diagnosis of inflammatory C7 cervical radiculopathy was made. Cervical spine MRI revealed normal findings. The patient was initiated on prednisolone tabs, 60 mg per oral once a day for 7 days. The symptoms improved significantly the next day with improved night sleep and stable vitals. The patient was discharged home with the appointment after 2 weeks for follow-up and was counseled on proper diabetic and hypertensive management.

Discussion

The case above describes the complicated similarity of clinical symptoms between C7 cervical radiculopathy and MI. Cervical radiculopathy can be misdiagnosed as other medical conditions like MI at first glance due to cervicogenic angina presentation.[3–5] Male sex, newly diagnosed and untreated diabetes condition might be among the risk factors which exposed the patient to succumb to the condition while occupation and history of weight lifting in indoor gyms as exercise might have precipitated the condition. The clinical presentation of the case was misdiagnosed at first due the fact that the symptoms matched with those of MI and clinicians gave it more likelihood of occurrence because of its high prevalence in our settings among patients presenting with chest pain compared to cervical radiculopathy. The fact that all the imaging tests done revealed no abnormality and the patient improved significantly on prednisolone implied that the culprit of the condition was of inflammatory origin.

Conclusion and recommendation

C7 cervical radiculopathy condition presents with cervicogenic angina and poses a clinical diagnosis challenge given its similarity in clinical presentation with other clinical conditions like MI. Since more than 50% of acute chest pain cases presenting at the emergency department are of non-cardiac origin, clinicians should have a high index of suspicion to differentiate the two conditions.

Proper, thoroughly and timely systemic and local physical examination should be emphasized to be done strictly among clinicians to every patient so as to avoid delayed diagnosis and management. Nevertheless, ruling out firstly MI and pulmonary embolism among patients presenting with chest pain is of clinical benefit in term of morbidity and mortality of a patient. Furthermore, in patients presenting with chest pain and with manual labor-related occupation history, advanced age, uncontrolled or newly diagnosed diabetes mellitus, recent history of trauma or weight lifting, cervical radiculopathy should be considered and investigated properly as among the likely differential diagnosis

especially with refractory pain history despite the use of strong painkillers.

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Author contributions

H.L.M. and F.J.M. conceptualized the manuscript. Both authors did data curation. H.L.M., F.J.M. and E.C.L. wrote the first draft of the manuscript. E.N. and K.G.K. reviewed and edited the first draft of the manuscript. H.L.M. administered the project. All authors reviewed the final version of the manuscript and approved for submission. K.G.K. supervised the whole process.

Data Availability

Not Applicable.

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Ethics approval

Our institution does not require ethical approval for reporting individual cases or case series.

Informed consent

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ORCID iD

Harold L Mashauri https://orcid.org/0000-0001-6012-234X

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