

Dengue Fever with Isolated Phrenic Nerve Involvement: A Case Report

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Running Title: *Involvement of isolated phrenic nerve in dengue fever*

Abstract: *Manifestation of dengue virus is following types: Dengue without warning sign, with warning sign and severe form of dengue. Some rare presentation of dengue has been reported in the past encephalopathy, transverse myelitis, polyradiculopathy, and ophthalmic involvement, nerve palsy [1]. This is one such case with rare presentation of diaphragmatic paralysis caused by paralysis of phrenic nerve.*

Keywords: Dengue Fever, Phrenic nerve, Fever, Thrombocytopenia

1. Introduction

Dengue fever an arboviral disease in humans, transmitted by Aedes mosquitoes has high probability of any age group [2]. Even though the clinical course of the disease is normal but in some rare occasions complication seems to be arising like neuropathies.

2. Case Report

A 45 year old female who presented with a five-days history of high fever, retro-bulbar pain, arthralgia and body pain. No history of cough at the reception and no complaints about breathing. No history of discharge of blood with inclusion of melena. No history any recent visits to districts affected by malaria. He had no past history of abuse of importance. His general and physical examination was found to be normal though he was admitted to a 38.4 degree Celsius. His total leucocyte count showed a total of 6700 / mm³ WBC having normal variability, haemoglobin was 15.4 g / dl with evidence of hemoconcentration (PCV 48%) and found to have thrombocytopenia with a count of 35, 000 / mm³ platelets. Then count of platelets dropped to 18000 / mm³ from initial values during the period of illness but there was no significant bleeding. X-ray of chest at was normal at the time of admission. Positive test of dengue PCR and dengue IgM antibodies confirmed dengue fever. Patient administered with fluids intravenously as per the nationally followed guidelines. The patient presented with persistent coughing, with no fever 2 days before the discharge. No abnormality seen in chest X-ray taken and bronchodilators and cough suppressants given as the treatment for acute bronchitis.

Two month after his discharge, the patient presented again, with dry cough and dyspnoea (NYHA Class II). The cough

was persistent and continued for three days before the second admission. No complaints of paroxysmal nocturnal dyspnoea. He does not have chest pain. On examination, patient has decreased breath sound and on percussion stony dullness is present. A chest x-ray was done and was found to have an elevated left hemi-diaphragm.

On Chest Ultrasound scan there was no pleural discharge but was reduction in diaphragmatic movements by breathing on the diseased side. Computed tomography (CECT) differences of the thorax did not show any abnormalities in the lungs or internal organs. His lung function tests showed that the sitting force was forced to be 2.42 L and Supine position was found to be 1.5 L. Phrenic nerve conduction study was done and it showed decrease in the amplitude of conduction on the left side. No neuromuscular joint problem as was noted by conventional electromyography. The patient treated as expected and recovery seen in a few days of being hospitalized and then released from the hospital. Repeated chest x-ray taken after 2 weeks of discharge, which showed the hemidiaphragm is back to the normal form.

3. Discussion

Dengue remains the commonest arboviral tropical disease. Though the clinical symptoms and signs of the infection is well known, minor complications of disease are still known to occur. Abnormal neurological manifestations such as Encephalopathy and Guillain-Barre syndrome are noted frequently than others [3]. Paralysis of diaphragm because of involvement of the phrenic nerve is noted very rarely.

Dengue infection of this patient was treated with no problems. He was later diagnosed with pneumonia and left phrenic nerve palsy which was diagnosed by nerve conduction study and a lung function test was done. By

electromyography, pathology of neuromuscular junction was ruled out. By CECT, Phrenic nerve compression by any lesions was ruled out.

Post viral phrenic neuropathy has been documented previously following Polio-virus infection (especially such as post-polio syndrome), Herpes-Zoster infection and the Human Immunodeficiency virus [4]. The pathophysiology remains unclear but suggests a method of intervention.

4. Conclusion

Although Dengue has normal clinical course in most of the cases, some rare occasion it presents with complication. One such complication is observed in this patient, isolated phrenic nerve palsy [5]. Hence patient diagnosed as dengue should have the proper follow up and should be looked for any complication.

References

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