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CASE REPORT

Expanded Dengue Syndrome with Pulmonary Manifestations: A Case Report

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ABSTRACT

Expanded Dengue Syndrome (EDS) refers to the atypical and rare manifestations of dengue fever that can involve vital organs like the lungs, liver, heart, kidneys, and central nervous system. Pulmonary involvement in dengue is less common but can include complications like pleural effusion, pulmonary oedema, pneumonitis, acute respiratory distress syndrome, and pulmonary haemorrhage.This case report describes a 42-year-old male patient who presented with typical symptoms of dengue fever that progressed to Dengue Haemorrhagic Fever (DHF) and Dengue Shock Syndrome (DSS), and subsequently developed respiratory distress and pulmonary involvement. Imaging studies revealed bilateral lung infiltrates, pleural effusions, and cardiomegaly. The patient was managed supportively in the intensive care unit with colloids, steroids, and close monitoring of fluid balance. He gradually improved and was discharged after 5 days of hospitalization. This case highlights the importance of recognizing the expanded and atypical manifestations of dengue, particularly the pulmonary complications, in order to provide prompt and appropriate management. Treating physicians should maintain a high index of suspicion for respiratory involvement in critically ill dengue patients to reduce morbidity and mortality.

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Introduction

Dengue fever is a vector-borne disease that spreads by mosquito called Aedes-egypti. It belongs to Flavivirus family of which 4 serotypes have been identified. Its incubation period ranges from 7 to 10 days. Currently, dengue fever causes more illness and death than any other arbovirus disease of humans.[1] Dengue viruses are distributed worldwide in tropical regions. It is currently endemic in 128 countries, mostly developing countries, putting an estimated 3.97 billion population at risk each year.[2] Changing and increasing incidences are associated with rapid urban population growth, overcrowding and lax mosquito control measures.

Dengue infection is a dynamic disease. Its clinical course changes as the disease progresses. Its symptoms range from mild like fever, headache, retro-orbital pain, nausea, vomiting, rash, myalgias and arthralgias hence the name break bone fever, to severe like Dengue Hemorrhagic fever (DHF), Dengue Shock Syndrome (DSS) and Expanded Dengue Syndrome (EDS). Expanded Dengue Syndrome is the term devised by WHO for rare and fatal symptoms of Dengue fever. Expanded Dengue Syndrome refers to the atypical symptoms which involve vital organs like lungs, liver, heart, kidneys and the Central nervous system.

Pulmonary manifestations are less commonly seen and include pleural effusion, pulmonary edema,

DATE	TLC	HB	HCT	Platelets	Bilirubin	ALT	ALP	Creatinine	Albumin
1-10-23	3790	11.5	38.2	72000	0.6	65	387	1.0	
2-10-23	2910	10.2	31	85000		60			3.3
3-10-23	5630	10.7	31.9	142000	0.57	53	396	1.1	
4-10-23	5190	11.2	33	206000					
5-10-23	7880	11	32	275000		48			

pneumonitis, acute respiratory distress syndrome and pulmonary hemorrhages. Along with co-infection, the severe form of dengue might also prone to have pneumonia as complication and the pneumonia might be the cause of death in dengue patient.[3] We present here a case of Expanded Dengue Syndrome involving respiratory system.

Case Presentation

42 Years old male, with previous no known co-morbid, presented in ER with the complaints of fever, headache, and nausea and vomiting for 05 days, cough and respiratory distress since last 01 day. His fever was sudden in onset, intermittent, high grade, documented up to 102'F, associated with rigors and chills, partially relieved by taking medications. He had headache, mainly localized to retro-orbital region. He developed vomiting which was sudden in onset, non-projectile, 3 episodes/day, occurring after food intake and contained food particles. He also had an episode of hematemesis associated with mild, generalized abdominal pain. There was no melena reported. His cough occurred off and on initially but gradually worsened, it was dry and associated with mild chest pain. A day before admission he developed shortness of breath, which gradually worsened and in Emergency Room, he was tachypneic with air hunger and extreme apprehension. There was no H/O bleeding from any site of the body. There was no loss of consciousness or fits. He had joint pains but no history of arthritis. His past medical history revealed that he had Pulmonary TB in 2010, Corona virus infection in 2019 and Dengue Fever 1 year back. Patient's many relatives had corona and died. These features made the patient anxious and apprehensive about his current health condition.

Physical examination revealed a young man with normal built, lying in bed, anxious and tachypneic with vitals of: BP-- 130/80mmHg, Pulse-- 110/min, Temp-- 102'F, R/R-- 28/min, SpO2—he had hypoxia i.e. 83% on room air and 97% @7L O2, Dependent Oedema on feet was seen. Chest examination revealed bilateral decreased air entry in bases with basal crepitations. Rest of the systemic examination was normal. Laboratory investigations revealed thrombocytopenia, leukopenia, and increased alanine aminotransferase, alkaline phosphatase, D-Dimers, erythrocyte sedimentation rate, c-reactive protein. Dengue NS-1 was positive. His Serum creatinine, electrolytes, Urine routine examination, Calcium and albumin were normal.

An Ultrasound scan of Abdomen showed thickened gall bladder wall, moderate amount of right sided and minimal amount of left sided pleural effusion and moderate pelvic ascites. X-ray Chest revealed bilateral shadowing.

With the initial laboratory and ultrasound reports the diagnosis of DHF was confirmed with features of capillary leak. The initial drug treatment was with intravenous Paracetamol, crystalloids and Moxifloxacin. Patient developed left sided chest pain and dizziness after 4 hours of admission. His urgent CT scan brain and High-Resolution CT scan was planned and patient was shifted to Intensive Care Unit. CT scan Brain was normal. High resolution CT chest showed extensive bilateral lung shadowing

reported as pulmonary oedema, mild bilateral pleural effusion and mild cardiomegaly. His Echocardiography revealed Ejection Fraction of 60% and mild pulmonary hypertension of 38mmHg.

In ICU and when laboratory reports were available, his treatment was revised. With decreasing Hematocrit, patient was shifted to colloids and was given initially 4 units of Fresh Frozen Plasma and subsequently intravenous albumin. His Urine output was critically monitored. The Crystalloid administration was minimized. He was given steroid support as well. He improved gradually with his respiratory distress while on the supportive treatment. He stayed in ICU for four days and then moved to the ward in a stable clinical state.

Discussion

This patient developed dengue fever complicated with Dengue Hemorrhagic Fever and Dengue Shock Syndrome then leading to pulmonary involvement with Chest X-ray shadowing resembling consolidation. This case focuses on many important and unusual presentations of Dengue fever and the challenges faced in the management of it. There have been number of case reports on Expanded Dengue syndrome but few have been reported with pulmonary manifestations. Pakistan is included in the countries where Dengue Fever is Endemic. It is known that primary infection with the disease leads to mild infection but rate of complications is high when patient gets secondarily infected with Dengue Virus. Unusual Manifestations of dengue fever are common.[4] Expanded Dengue Syndrome is now being increasingly used in literature around the world, as it encompasses the rare atypical and uncommon symptoms of dengue, which we are seeing in recent times since the severity and spectrum of disease in Dengue Fever has broadened.[5] The spectrum of pulmonary involvement can occur in DF, ranging from pleural effusion, pneumonitis, non-cardiogenic pulmonary edema to hemoptysis.[6] In Dengue Fever, pleural effusion is the most frequent cause of dyspnea; usually, it is bilateral and seen in the context of plasma leakage syndrome.[7] Lung parenchymal involvements are less common, including ground glass abnormalities, the varying patterns of consolidation, interlobular septal thickening, and pulmonary hemorrhage.[4] Staphylococcal pneumonia is an important concomitant problem seen in dengue patient.[8] The co-infection between dengue and influenza can result in exacerbation of pneumonia.[9]

So, our patient was admitted with the suspicion of Dengue fever with its complications and treated on the lines of it along with sepsis. He was shifted to Intensive Care Unit for 1 and a half day because of decreasing saturation. He remained admitted for 5 days and was discharged when he became afebrile and platelets were in increasing trend.

Conclusion

Our patient presenting with usual symptoms of Dengue Fever suddenly went into Dengue Leak and involvement of respiratory system with subsequent difficulty in breathing and hence deceasing saturations. Treating physicians should be aware of the respiratory manifestations that a patient can present with. It is important to detect the complications arising in the critical phase efficiently. A thorough respiratory examination should be done in critical as well as stable patients so that prompt actions must be taken. Treatment of a patient presenting with symptoms of Dengue Expanded syndrome can be challenging for the physician as it follows undue course with undetectable prognosis. A precise diagnosis can help to reduce patient morbidity and mortality

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