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Case Study

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COINFECTION OF DENGUE FEVER AND SICKLE CELL ANEMIA IN AN ADULT- A CASE REPORT

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ABSTRACT

Sickle cell anemia (SCA) is a hereditary blood disorder characterized by the presence of abnormal hemoglobin (HbS), leading to the deformation of red blood cells into a sickle shape. While sickle cell anemia is prevalent in certain regions, it can coexist with other diseases, complicating the clinical picture. We present the case of a 26-year-old male patient who was diagnosed with both dengue fever and homozygous sickle cell anemia (HbSS), a rare occurrence. This case highlights the diagnostic challenges and the importance of considering underlying hemoglobinopathies in patients presenting with febrile illness.

KEYWORDS: Sickle cell anemia, Dengue fever, hemoglonipathies, co-infection.

INTRODUCTION

Sickle cell anemia (SCA) is an inherited disorder characterized by the production of hemoglobin S, which causes red blood cells to become rigid and crescent-shaped, leading to vaso-occlusive events and hemolysis. Co-infections in patients with SCA can result in a complex presentation, making diagnosis and management challenging.

Dengue fever, a mosquito-borne viral infection, is a common tropical disease that presents with fever, headache, and muscle pain, but can lead to complications such as thrombocytopenia, hemoconcentration, and hemorrhagic manifestations.

Here, we present a case of dengue fever in a patient with homozygous sickle cell anemia.

CASE REPORT

A 26-year-old male patient from a known endemic region for sickle cell anemia presented to the outpatient department with complaints of fever and abdominal pain for the past one week. The patient described the fever as high-grade, with chills and rigors and associated with sweating. He also complained of generalized weakness, myalgia, and also discomfort in the epigastric region. There was no history of vomiting, rash. He had previous history of blood transfusion 5 years back (in view of anemia). No history of bleeding manifestations. No history of chest pain, cough, breathlessness. History of occasional alcohol consumption from the past 3 years.

On physical examination, the patient had Pallor and icterus. Pulse rate of 70/min, Temperature of 99.8degree Fahrenheit. Blood pressure 110/70mmhg. upon palpation, epigastric tenderness present, no organomegaly.

Investigations

1. *Complete Blood Count (CBC):*
- Hemoglobin (Hb): 8.3 g/dL (anemic)
- Total Leukocyte Count (TLC): 8,500/µL
- Platelets: 3.16L

2. *Liver Function Test (LFT)*
- Indirect hyperbilirubinemia: indirect Bilirubin: 3.1 mg/dL, Direct Bilirubin: 0.8 mg/dL, no transaminitis.

3. *Fever Profile*
- Dengue IgM: Positive, confirming recent infection.

4. *Peripheral Blood Smear*
- Sickle-shaped red blood cells observed, indicative of sickle cell anemia.
- Sickle cell formation confirmed with a positive sickling test.

5. *Hemoglobin Electrophoresis*
- HbS: 82.1%, and consistent with homozygous sickle cell disease (HbSS).

6. Ultrasound Abdomen and pelvis- atrophic spleen, echogenic bilateral renal pyramids.

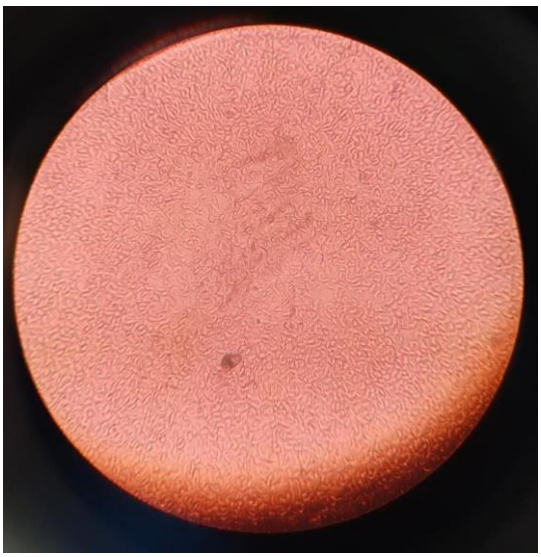
Renal fumnction test, Serum electrolytes, and Urine routine examination were normal.

Diagnosis
The patient was diagnosed with *dengue fever* (confirmed by Dengue IgM positivity) and *homozygous sickle cell anemia (HbSS)*. The presence of sickle cells on the peripheral smear and the positive sickling test confirmed the diagnosis of SCA.

The patient was managed symptomatically with the following
1. *Dengue Fever*
- Supportive care with intravenous fluids to maintain hydration and electrolyte balance.
- Antipyretics (paracetamol) for fever management.
- Monitoring of platelet count and hemoglobin levels due to the risk of hemorrhagic manifestations.

2. *Sickle Cell Anemia*
- Symptomatic management for pain control.
- Close monitoring for signs of vaso-occlusive crises or other SCA-related complications.
- Blood transfusion was not required as the patient was stable with only mild anemia.
- Patient was encouraged to maintain adequate hydration.

The patient responded well to symptomatic treatment and showed improvement in both his dengue symptoms and his anemia. His platelet count gradually returned to normal, and liver function tests showed gradual resolution of hyperbilirubinemia. The patient was discharged after nine days of hospitalization with advice on follow-up care. He was advised to continue monitoring his hemoglobin levels and to avoid triggers for sickle cell crises.



Sickling test showing sickle cells (positive sickling test)

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DISCUSSION
The coexistence of dengue fever and sickle cell anemia is rare but significant due to the potential complications in the management of both conditions. Dengue fever in sickle cell patients can exacerbate anemia and thrombocytopenia, complicating the clinical management. The challenge in this case was distinguishing between the symptoms of dengue and sickle cell anemia, as both conditions can present with abdominal pain, fever, and jaundice(can present with pallor and icterus). The recognition of sickle cells on the peripheral smear and the positive sickling test were crucial for the diagnosis of sickle cell anemia in this patient.

This case also highlights the importance of considering underlying hemoglobinopathies in patients presenting with febrile illnesses, particularly in endemic areas where sickle cell disease is prevalent. Proper diagnosis and early intervention can help prevent complications such as vaso-occlusive crises, acute chest syndrome, or further hemolysis.

CONCLUSION
This case underscores the importance of recognizing sickle cell anemia as a potential underlying condition in patients presenting with dengue fever in endemic areas. Early diagnosis, appropriate management, and supportive care are essential in managing such coexisting conditions. Clinicians must maintain a high index of suspicion for hemoglobinopathies, particularly in regions with a high prevalence of sickle cell anemia, to ensure proper diagnosis and treatment.

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