CASE REPORT

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A Case of Sickle Cell Disease First Diagnosed at the Age of 62 Years Following Acute Pancreatitis

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Abstract

Sickle cell disease (SCD) is a haemoglobinopathy characterised by haemolytic anaemia and vasoocclusion. There can be varied clinical manifestations of SCD. It usually manifests in childhood. During the first five to six months, infants are protected by elevated levels of haemoglobin F (Hb F); once the levels of Hb F start to reduce, the disease starts manifesting. Thus, most cases of SCD are detected in childhood or adulthood. Here we report a case of an Indian man diagnosed with sickle cell disease for the first time at the age of 62 years while being treated for acute pancreatitis. This case was an atypical manifestation of SCD, and points towards the fact that the course of sickle cell disease in an individual depends on genetic and environmental factors and their interaction. This also emphasises that elderly age group should not be used as an exclusion criterion for the diagnosis of SCD. The timely identification by screening can allow timely treatment and thus better quality-of-life for such patients.

Key words: Sickle cell disease, elderly population, acute pancreatitis.

Introduction

Sickle cell disease (SCD) is an inherited autosomal recessive haemoglobinopathy with disastrous multi-organ complications when sub-optimally managed. It is characterised by production of abnormal haemoglobin, which, when deprived of oxygen, changes its shape to sickle shape, and then has a propensity to cause occlusion and progressive vascular injury causing multiorgan damage[1]. The clinical manifestations of SCD are quite variable and reflects interactions with other genetic and environmental factors. There is a pervading heterogeneity in the clinical features between different communities, but sometimes also in the same family. Despite the fact that SCD is present since birth, most infants do not develop any problems until 5th or 6th months of age[2,3]. Here we report a case of an Indian man who was diagnosed with sickle cell disease for the first time at the age of 62 years. This atypical presentation of SCD at the age of 62 years is the centre of discussion in this report.

Case report

A 62-year-old man presented to us with complaints of exertional dyspnoea for two weeks and pain abdomen for 3 days. There was history of three to four episodes of jaundice in the past, which resolved without any treatment but episodes were not evaluated. Apart from this, he gave no history of prior hospitalisation or other co-morbidities. He was a non-smoker and non-alcoholic. On examination, his vitals were stable. He had severe pallor and icterus. The abdomen examination revealed diffuse tenderness and splenomegaly without hepatomegaly.

The routine laboratory investigations showed complete blood count with haemoglobin - 4.1 g/dL, total leukocyte count - 13800 cells/mm^3, platelet count - 2.05 lakhs/mm^3, MCV - 77.5 fL, MCH - 24 pg, MCHC - 31 g/dL and PCV - 24.5%. Reticulocyte count was 15.6%. Liver function test revealed total bilirubin - 5.6 mg/dL, direct bilirubin - 3.1 mg/dL with normal SGOT and SGPT. Renal function test was within normal limits. Serum amylase was 1,285 U/L, lipase 1759.1 U/L. Serological investigations were negative for commonly known causes of hepatitis. A fasting lipid profile was unremarkable. Serum Calcium was 9.2 mg/dL. Serum Folic acid and Vitamin B12 levels were unremarkable. LDH was elevated significantly. Abdominal ultrasound showed splenomegaly, (spleen size was 13.5cm) with normal liver size and texture. No obstruction was noted in the hepatobiliary system. This was an unexpected finding as in most patients with sickle cell disease, the spleen shrinks by adolescence due to numerous episodes of splenic infarction. Abdominal CT was done which showed features of acute pancreatitis and no features of obstruction in the hepatobiliary system (Fig. 1).

To evaluate the aetiology of anaemia, peripheral smear was done which showed RBCs which were microcytic hypochromic with a few normocytic normochromic cells and a severe anisopoikilocytosis in the form of sickle cells

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and tear drop cells, (Fig. 2) WBCs were increased with neutrophila and no atypical cells and platelets were normal. On further evaluation, Sickling test was positive. High performance liquid chromatography (HPLC) test was done and it showed Hb Sickle 76.20%, Hb A2 6.00%, Hb Adult 12.30% and HbF 5.5%. Direct and indirect coombs tests were negative (Fig. 3).

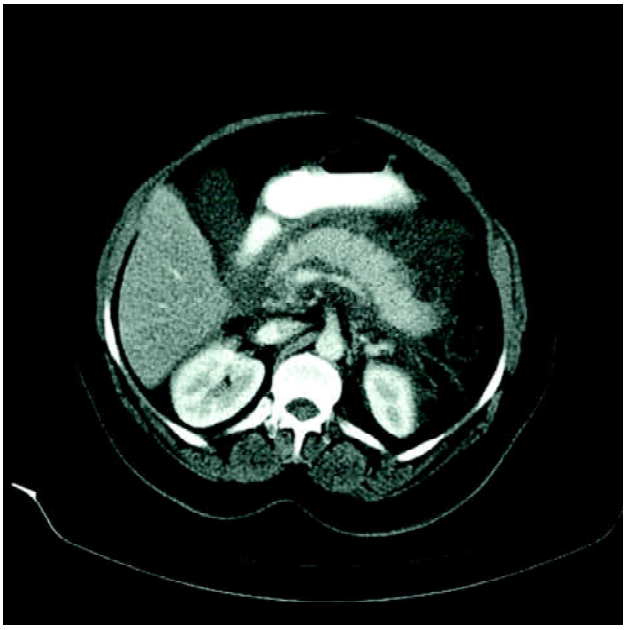

Fig. 1: *Abdominal CT showing features of acute pancreatitis.*

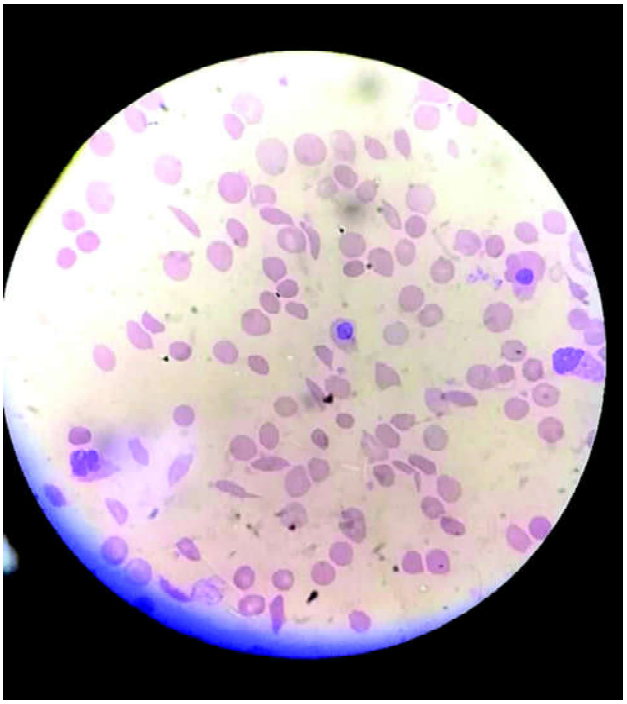

Fig. 2: *Peripheral smear showing microcytic hypochromic cells and sickle shaped RBCs.*

During his hospitalisation, patient was treated for both acute pancreatitis and sickle cell disease. His treatment included adequate IV fluids, four units of matched packed red blood cells transfusion and other adjuvant treatment. Patient was closely monitored for complications. His condition ameliorated substantially, and dyspnoea and abdominal pain resolved. He was discharged with advice to have plenty of fluids and folic acid. At a subsequent visit after three months, he had developed easy fatigability and blood investigations showed that his haemoglobin had dropped to 7 g/dL. Per patient preference, he was started on chronic transfusions (over hydroxyurea therapy) to keep haemoglobin levels around 10 g/dl. He is currently maintained on chronic transfusions for long-term management and continues to do well.

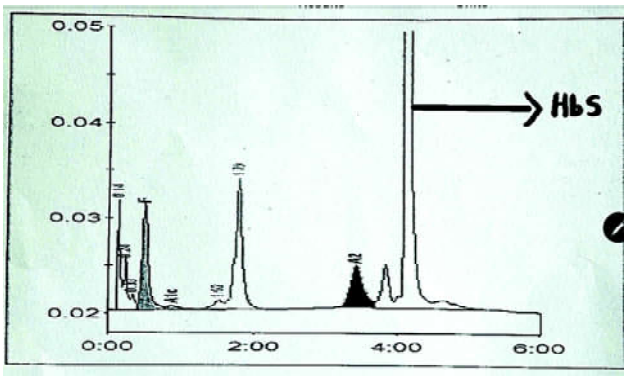

Fig. 3: *Haemoglobin HPLC (High performance liquid chromatography) showing elevated levels of HbS, HbF and reduced levels of Hb Adult.*

Discussion

SCD is one of the most common aetiologies of haemolytic anaemia. It is a monogenic disease with an autosomal recessive inheritance. Its intricate manifestations are due to the elevated levels of haemoglobin S (HbS), which results from the substitution of the glutamic acid with valine in 6th position of the beta-globin chain. HbS, under low oxygen tension, polymerizes and leads to sickling of the red blood cells[2]. Repeated episodes of sickling lead to vaso-occlusive pain crises. It is also known to cause a myriad of complications like acute chest syndrome, pulmonary hypertension, priapism, retinopathy, hepatosplenic sequestration and stroke. Patients are usually asymptomatic for the first five to six months of life due to the presence of fetal haemoglobin (HbF). As HbF eventually reduces and HbS starts to predominate, they become symptomatic. Most cases are diagnosed in childhood. There are several subtypes of sickle cell disease. Few subtypes have gradual clinical progression, and may be misdiagnosed or remain undiagnosed for years, as in this case[2,4].

SCD can widely vary in clinical features and age of presentation with some presenting in childhood and the rest may remain asymptomatic into adulthood. In patients presenting with vague, mild symptoms such as intermittent pain or easy fatigability, SCD is often missed owing to mild anaemia and indeterminate smears. In these cases, microcytosis with normal iron levels might be the only aberration[5]. Yaranal *et al* reported a case of SCD diagnosed for the first time in a patient with paraplegia at the age of 55 years[6]. Sood *et al* reported a case of fat embolism in a 46-year-old, in previously unrecognised SCD[5]. Padrick *et al* reported 19 cases of SCD which were diagnosed in adulthood and suggested that diagnosis may be missed in the absence of screening programmes[7]. Claeys *et al* have discussed factors which influence age at presentation in SCD in children[8]. They reported that factors like lack of clinical suspicion, lack of laboratory resources and difficulty in accessing healthcare settings in locations where SCD prevalence are high contribute to delayed diagnosis of SCD. They also reported that SCD genotype like HbSC or Hb$S\alpha^+$, Arab/Indian haplotype and co-inheritance of alpha-thalassaemia may affect the age of presentation[8].

In our case, given a history of multiple episodes of jaundice and presence of sickle cells in the smear, we ordered for sickling test. The test was positive. Consequently, additional evaluation with haemoglobin high performance liquid chromatography (HPLC) showed elevated levels of HbS; a feature suggestive of SCD haemoglobinopathy. Despite having multiple episodes of jaundice, he was never evaluated. In addition to this, he never had any considerable sickling episodes nor any situation which required blood transfusion, which explains the undiagnosed SCD. This case highlights that acute pancreatitis can also result from painful vasoocclusive crises. Acute pancreatitis due to SCD is a diagnosis of exclusion. Very few cases in the literature have been reported. It may occur as a result of microvascular occlusion[2]. Laboratory parameters and clinical manifestations are similar to pancreatitis due to other aetiologies[9]. This case also underscores the need for a good peripheral smear examination while evaluating patients with anaemia. Meanwhile, as there was an increase in HbA2 and splemomegaly, suspecting co-inheritance of beta-thalassaemia and to delineate SCD genotype, patient was advised for family study and DNA analysis to assess α-globin gene mutation. But could not be done due to financial constraints. Despite the fact that most SCD are recognised in childhood or early adulthood, our approach based on the clinical features and initial laboratory investigations helped us clinch the diagnosis.

Conclusion

SCD is an entity that is widely present but not a thoroughly apprised entity. When newborn screening is not mandatory some cases can be missed and SCD can remain unrecognised for years. It can manifest for the first time in disparate ways and at unusual ages. This report presents the case of a male with SCD whose condition was not diagnosed until he developed acute pancreatitis at the age of 62 years. After gleaning information from his clinical history, examination and appropriate investigations, we arrived at the diagnosis of SCD. The diagnosis helped us to short appropriate long-term management with chronic transfusion. Ergo through this report we want to emphasize the possibility of undiagnosed SCD in adults. Elderly age group should not be used an elimination criterion for the diagnosis of SCD; if done can lead to a missed diagnosis. It also emphasizes the low threshold for additional tests like peripheral smear and haemoglobin electrophoresis while suspecting thalassaemia and SCE, which can clinch the diagnosis earlier.

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