Case Report

Splenic abscess in childhood B-Thalassemia Major

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ABSTRACT

Splenic abscess is a rare complication of thalassemia major. In this paper we report a 10-year-old male thalassemic child with splenic abscess. He presented with high-grade fever, abdominal pain and tender splenomegaly. The diagnosis was confirmed by ultrasonography and computerized tomography scan of the abdomen. The patient underwent emergency splenectomy.

Keywords: Splenic abscess, Thalassemia.

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Splenic abscess is a rare complication of sickle cell disease in which there is a high incidence of splenic infarction with an increased risk of infection and bacteremia due to functional asplenia, which occurs in infants with hemozygous sickle cell anemia (hemoglobin SS) as early as 6 months of age.[1,2] Splenic abscess is a rare complication in thalassemia and to the best of our knowledge it has not been previously reported from the Kingdom of Saudi Arabia (KSA), although thalassemic patients are at increased risk of infections.[3] We report this rare case of splenic abscess in a child with thalassemia major.

Case Report. A 10-year-old male child diagnosed with thalassemia major at 4 years of age was on chronic hyper-transfusion regimen to maintain his hemoglobin at 9-10g/dl. He was also on maintenance therapy of Desferrioxamine, and his previous general condition was satisfactory. He was admitted to Madina Maternity & Children's' Hospital with a history of high-grade fever on and off for 7 days and abdominal pain, not associated with vomiting or respiratory symptoms. He received antipyretic and oral antibiotics prior to admission without significant improvement. Physical examination revealed an ill looking child, highly febrile with temperature of 40°C, respiratory rate 18/minute pulse rate 110/minute, and blood pressure 110/70 mmHg. On palpation, abdomen was soft and lax, spleen was 6 cm below costal margin and was tender. Examination of other systems was unremarkable. Relevant laboratory results revealed hemoglobin (Hb) 7g/dl, white blood cell count 16.700/mm^3, platelet count 140,000/mm^3, hemoglobin electrophoresis showed Hb F 98%, Hb A2 2%, serum ferritin was 2459 ng/ml. Blood culture yielded no growth. Hepatitis and human immunodeficiency virus (HIV) screening were negative. Abdominal ultrasonography (US) showed splenomegaly with rounded hypoechoic lesion measure 3.3 cm x 3 cm, located in the lower splenic pole, suggestive of splenic abscess (**Figure 1**). Computerized tomography (CT) of abdomen demonstrated splenic abscess (**Figure 2**). Management of the patient included intravenous 3rd generation cephalosporin with Aminoglycosides. Emergency splenectomy was performed and the

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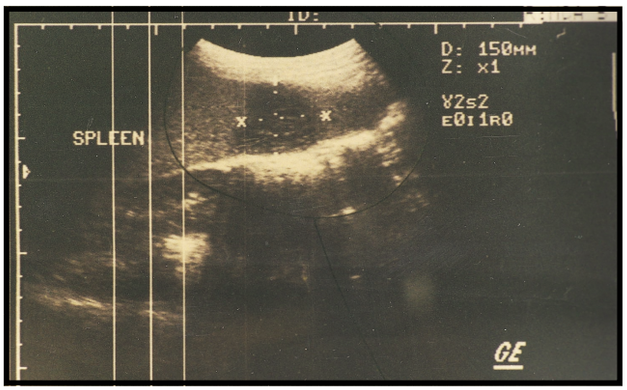

Figure 1 - Abdominal ultrasonography showing splenic abscess.

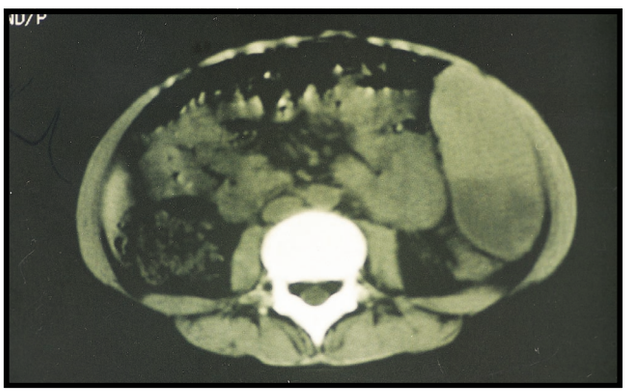

Figure 2 - Abdominal computerized tomography scan demonstrating splenic abscess.

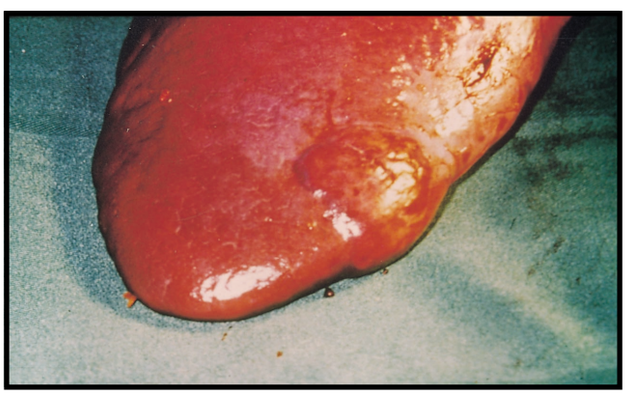

Figure 3 - Showing operative findings of spleen with abscess.

operative finding confirmed splenic abscess (**Figure 3**). The patient had uneventful post-operative recovery and was maintained on penicillin prophylaxis and was subsequently followed at the Thalassemia center for regular blood transfusions.

Discussion. Splenic abscess is a rare surgical condition encountered mostly in immuno compromised patients. Intravenous drug abuse and HIV diseases are significant risk factors. In hemoglobinopathies it is a recognized complication of sickle cell disease, in which there is a high incidence of splenic infarction in addition to predisposition to infection and bacteremia due to functional asplenia,[4,5] however, to the best of our knowledge it has not previously been reported in thalassemia. This may be the first reported case of splenic abscess in thalassemia. Patients with thalassemia are at increased risk of infection possibly due to a defect in neutrophil chemotaxis.[6] There is also evidence that indicates iron overload in thalassemia compromises the ability of phagocytes to kill microorganisms, and a number of infections with unusual organisms have been reported in patients with iron overload.[7-9] The iron chelator desferrioxamine has also been implicated in the development of opportunistic infection in some patients with iron overload.[10] Some pathogenic bacteria and fungi can utilize the iron bound by desferrioxamine to promote their growth, thereby enhancing the risk of severe infection. Our patient presented with fever, abdominal pain and tender splenomegaly consistent with other reports.[5,11] The diagnosis of splenic abscess was made by abdominal US, and was confirmed by CT scan. Ultrasonography is more sensitive than CT scan for detection of malignant splenic lesion particularly splenic lymphoma, while US and CT scan were equally effective in benign lesions, thus US is recommended as the method of choice for splenic imaging.[12] However others found CT scan to be more reliable and consider it the gold standard for definitive diagnosis of splenic abscess.[4,5,13] We recommend US, as it is easy cheep, and quick to perform especially for critically ill patients. The causative organism was not isolated in our patient as oral antibiotic was administered prior to admission, however the most frequently encountered organism are *Staphylococcus aureus, Streptococci* and gram negative bacilli. The patient was successfully managed with appropriate intravenous antibiotics and splenectomy which, is considered to be the treatment of choice for splenic abscess.[14-16] However recent reports have established that the effectiveness of percutaneous abscess drainage as preservation of splenic tissue is of value in reducing the susceptibility to over whelming post splenectomy sepsis.[17-19] We recommend open splenectomy for

splenic abscess particularly for thalassemia patients who are at a higher risk of hypersplenism with subsequent need for splenectomy. Presence of functional asplenia in sickle cell disease patients makes splenectomy together with prophylactic *Pneumococcal* and *Haemophilus influenzae* vaccine and oral antibiotics more rational.[5]

In conclusion, as thalassemic patients are at increased risk of serious infection. including biliary tract infection, cellulitis and septicemia which have already been reported in thalassemia patients,[20] we suggest the use of oral antibiotic prophylaxis in thalassemia to be initiated at early childhood even before splenectomy and particularly in those patients with iron overload. However further studies are required to solidify this suggestion. We also recommend splenectomy as the treatment of choice for splenic abscess.

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