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Case Note

Kala-azar (Visceral Leishmaniasis) from Khotang

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Abstract
Kala-azar is a chronic infection of reticuloendothelial system caused by flagellated protozoan, *leishmania donovani* injected into human host by the bite of the sand fly (*phlebotomous*) previously infected by biting and sucking the blood of a patient of leishmaniasis. It is characterized by irregular fever of long duration, large spleen and liver, anaemia, leucopenia and progressive emaciation. This article reports a case of a 10year old girl from Khotang, a nonendemic zone for Kala-azar, who presented with long history of abdominal distension for 11months, fever for 9months, cough for a week and weight loss. Clinical examination revealed pallor, enlarged liver and huge splenomegaly. Investigations confirmed the diagnosis of kala-azar by the presence of L.D bodies in bone marrow smear. The patient is being treated with i.v Amphotericin B in Infectious Disease Hospital, Teku.

Key words: Abdominal distension, fever, pallor, splenomegaly, L.D bodies.

A 10year old female from Khotang was admitted in paediatric ward of Kathmandu Medical College Teaching Hospital with chief complains of abdominal distension for 11months which was painless, not associated with vomiting or bowel disturbances. Initially, there was no fever for 3 months. Since last 9months, she is having low grade, intermittent fever with frequency of twice in a day to once in three days, not associated with chills and rigor nor sweating. Then about 5 months back she has developed yellow discolouration of skin and eyes which gradually disappeared without any intervention. No history of itching of body or change in colour of stool. Her appetite and bowel habits have remained normal during the total duration of illness though she has lost approximately 50% of her weight. From about 10 days, she was also having cough. No history of travel out of her village ever. No history of any other known illness in past. Her sister who had always lived with her aunt and never visited Khotang had died of fever and generalized swelling of body 5months back.

On examination, her height was 115cm, weight was 18kgs, and head circumference was 48cm. All of these lie below 3rd centile for her age. Her vitals on admission were: temp= 101^0F, pulse rate= 140/min, resp. rate= 24/min and BP= 90/60 mm Hg. There was severe pallor and bilateral mild pitting pedal oedema but no ascites. There was neither jaundice nor lymphadenopathy. Systemic examination revealed crepitations in right lung. Per abdominal examination revealed enlarged liver palpable upto 5cm below right costal margin which was firm with sharp margin. It was nontender and had smooth surface with liver span of 11cm. There was a huge spleen palpable upto 11cm below left costal margin which was firm, nontender and smooth. There was no hum on auscultation over it.

Investigation results:
Haemoglobin= 5.1gm%, White cell count= 3200/cu.mm, Differential count P=34, L=66, ESR= 78mm in first hour, Blood Urea= 32mg/dl, Serum Creatinine= 0.7mg/dl, Blood sugar (R) = 127mg/dl, Platelet count= 105000/cu.mm, Bleeding time= 4 min, Clotting time= 10min 30 sec, Prothrombin time= 14sec, INR= 1.1, Reticulocyte count was 4.5%, SGPT= 14U/L, Alkaline phosphatase= 536 U/L, Na= 133meq/L, K= 3.4meq/L, Malarial parasite= negative and Widal test= negative. Urine and Stool test were within normal limits. There was no growth in blood culture.

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Peripheral smear showed pancytopenia with no abnormal cells. Sonography of abdomen showed moderate hepatomegaly (size of liver about 149mm in craniocaudal direction) and huge splenomegaly (size bigger than 202mm) with no free fluid or lymphadenopathy. Bone marrow aspiration smear showed hypercellurarity, M:E ratio of 0.5:1 and L.D bodies with impression of Kala-azar with Hypersplenism. Hence diagnosis of Kala-azar was made and the patient was referred to Tropical and Infectious Disease Hospital, Teku where she was treated with Amphotericin-B. The dose was initially 0.5 mg/kg and gradually increased to 1mg/kg. She was also given transfusion of one and half units of whole blood during treatment. She had improved clinically within 1week of starting therapy with haemoglobin of 8.2gm/dl and shrinking of spleen size by about 2cm.

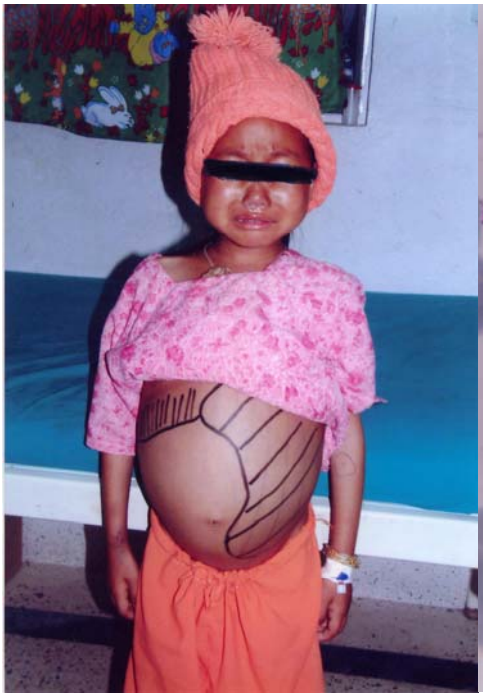

Fig. 1

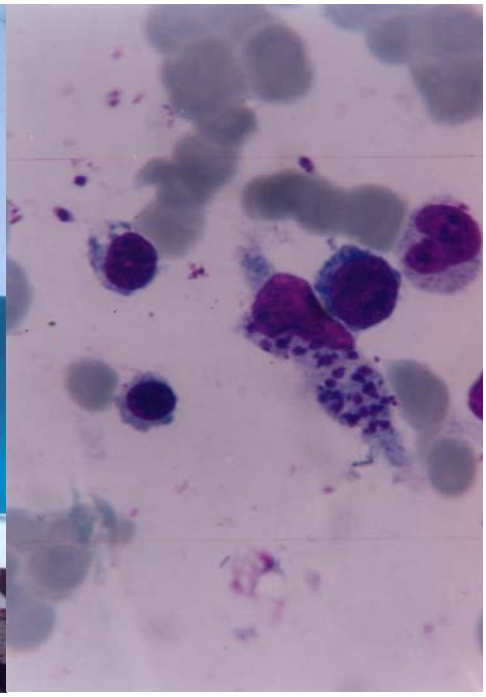

Fig. 2

Clinical features of Kala-azar

The incubation period is usually 2-4 months. The clinical features on presentation reflect the chronicity and severity of the infection. The cardinal features are fever, hepatosplenomegaly and pallor which are present in about 95% cases. Double peak of temperature in 24 hrs is considered highly suggestive of Kala-azar. The patient is not toxic and appetite is good. Sometimes there is epistaxis and bleeding from gums. Spleen enlarges progressively. Liver is also enlarged in 4/5th of cases. In chronic cases, there is anaemia, weight loss and emaciation. Patient may develop intercurrent infections of respiratory and gastrointestinal systems. A large number of patients develop darkening of the skin, especially on the face, hands and upper torso. If not treated, Kala-azar is 100% fatal. Sonography usually shows hepatomegaly and huge splenomegaly

Parasites can be demonstrated in splenic puncture in about 95% cases[2], bone marrow in up to 86% cases[2] and in liver aspirates and in Buffy coat preparations in about 70% cases[2]. They can either be seen in smear or cultured in NNN medium. Pancytopenia is commonly seen. Hypergammaglobulinemia, on which Aldehyde test is based on, also is commonly seen. Various serological tests are also available but they cannot differentiate asymptomatic, past or active infection. E.g.: K39 test. .

Treatment

Pentavalent antimony compounds like sodium stibogluconate and pentamidine had been the drug of choice for a long time. However, a three weeks course of intravenous Amphotericin-B is being used by National Program of Nepal for Kala-azar as the first choice drug. Clinically, improvement with

treatment can be seen as the spleen regresses, anaemia and leucopenia disappear and general condition improves. It should be noted that sometimes the spleen may even take about a year to regress completely.

Discussion

Kala-azar is a tropical infectious disease of reticuloendothelial system caused by amastigote form of leishmania donovani. Kala-azar is usually found below the altitude of 2000feet (609meters) from sea level. Sandfly is the vector whereas man is the usual reservoir. Sandfly is infected by sucking blood of patient of leishmaniasis. Parasites then proliferate in its gut and assume promastigote form. They are lodged in pharynx of sand fly and are then injected into a new host by its bite. Parasites then assume amastigote form and are engulfed by macrophages which are then carried by blood stream to distant organs like spleen, liver and bone marrow. There they cause marked hyperplasia of reticuloendothelial cells. Mortality is 100% if not treated.

Kala-azar is prevalent in southern plains of eastern and central regions of Nepal especially in 13 districts bordering with Bihar. It was first reported in Nepal in 1980. A total of 23,842 cases have been reported with about 515 deaths during the period 1980-2003. The case fatality rate varied from 0.23 to 13.16. About 1500 cases are reported yearly. Government aims to control Kala-azar by 2015 by reducing cases below 1 per 100000 people and decreasing morbidity by 10% every year[1].

The patient was from Khotang, which is a district of Eastern Nepal at an altitude of 2608 feet (794.91meters).

Conclusion

This case is being reported not because it is of Kala-azar but because it is a case of Kala-azar from non-endemic area. Kala-azar is an important tropical disease in Nepal. It should be considered in any patient presenting with long duration of fever and hepatosplenomegaly with anaemia whether or not from an endemic area for Kala-azar. Demonstration of parasite is a must to begin treatment and is completely treatable disease is diagnosed correctly and on time.

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