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**SUMMARY**

**We report a rare case of visceral leishmaniasis with concomitant post kala-azar dermal leishmaniasis as the initial presentation in a female patient from Baringo district, Rift valley province, Kenya.**

**INTRODUCTION**

Visceral Leishmaniasis or kala-azar is caused by species of *Leishmania donovani* complex. These are *Leishmania donovani donovani* in East Africa and Asia, *Leishmania donovani infantum* in the Mediterranean Basin and *Leishmania donovani chagasi* in Latin America. Post kala-azar dermal leishmaniasis is a sequel to infection by *L. donovani* and presents with nodular skin lesions. A combination of both diseases as a first presentation is very rare and we believe it's the first time such an occurrence is being reported here in Kenya.

**CASE REPORT**

A 16 year old girl from Baringo district was admitted to Center for Clinical Research (CCR), Kenya Medical Research Institute (KEMRI) as a referral from Karbanet district hospital in June 2001 with complains of general body weakness, skin rash and abdominal swelling. Her medical problem had started in February 2001 with malaria-like illness. She visited the local dispensary where she was diagnosed as a case of malaria and treated with anti malaria drugs. She however did not get better and the symptoms persisted and got worse. In March she noted that her abdomen was distended and soon after, developed a skin rash on the face. This time she visited a traditional healer who treated her with some herbs. Her condition continued to deteriorate to the extent that she opted out of school due the illness. She gave no history of previous attack of visceral leishmaniasis (VL) and her past medical history was not significant. On examination, she was sick looking, wasted and weighed 34 kg. She had fever, temperature of 38°C, was pale and she had pupular skin lesions on the face. Abdominal examination revealed splenomegaly of 15 cm below the costal margin but no ascites. Her other systems were essentially normal. In CCR, the following tests were done: Haemogram: Hb

5.8g/dl, WBC:  $3.6 \times 10^3/\text{mm}^3$  granulocytes 29%, lymphocytes 71%, eosinophils 0%, monocytes 0%, basophils 0%. Platelets-  $93 \times 10^3/\text{mm}^3$ , peripheral blood film, no malaria parasites were seen, prothombin test of 25 seconds, control 15.2 seconds. Blood chemistry: AST 51 U/L, ALT 24U/L, protein 116g/l, albumin 23.4g/l, globulin 83.5g/l, urea 3.8 mmol/l, creatinine 116µmol/l. Splenic aspiration could not be done due to prolonged prothombin time of 25 seconds compared to control of 15 seconds. Therefore a bone marrow aspirate was done and revealed amastigotes (3+)(1). Three slit skin smears of the facial lesions were also done and found to have amastigotes as well (1+). A diagnosis of visceral leishmaniasis with concomitant post-kala-zar dermal leishmaniasis (PKDL) was made (Figure1).

**Figure 1**

*Patient seen on admission with typical lesions of PKDL. Skin slit smears confirmed presence of amastigotes while a bone marrow aspirate confirmed VL*

**Figure 2**

*Patient seen at six months follow-up after successful treatment. Bone marrow smear were negative for leishmania amastigotes and PKDL lesions had cleared*

**Figure 3**

*Patient seen after one year of follow-up*

Patient was enrolled into a clinical trial at CCR, where a new oral drug for management of visceral leishmaniasis called sitamaquine is being evaluated(2). she received a dose of 2mg/kg body weight for 28 days. She responded well to treatment and fever settled within the first seven days of treatment. However the skin lesions persisted. Patient completed the course of treatment on day 28, and weighed 37.8kg compared to 34 kg pre-treatment weight, indicating a weight gain of 3.8 kg. Laboratory parameters improved markedly and the haemoglobin level at day 28 was 7.5 gm/dl compared to 5.8 gm/dl pre-treatment. The platelets count also increased to  $136 \times 10^3/\text{mm}^3$  from  $93 \times 10^3/\text{mm}^3$  before treatment. A splenic aspirate was negative for amastigotes but a skin slit smear still had amastigotes(1+) after completing her treatment. No additional treatment was given because in this study, the test of cure was day 42 when all investigations were repeated. The skin lesions started disappearing although slowly. On day 42, the patient weighed 40kg and a splenic aspirate done was negative for amastigotes. The PKDL lesions were few and two skin slit smears were also negative for amastigotes. Haemoglobin levels were 8.2gm/dl and platelets were  $141 \times 10^3/\text{mm}^3$ . The patient was discharged to

come again after six months for a follow-up assessment.

At six months follow-up, the patient had no complaints and was found to be in good general condition. She had added weight by 5kg from 40 kg on discharge to 45kg at 6 months follow up. The skin lesions had disappeared and she had no palpable spleen and a bone marrow aspirate was negative for amastigotes. Her haematological profile showed an increase of all parameters including the appearance of eosinophils. It was as follows: Hb 11.2g/dl, WBC  $5.0 \times 10^3$ , (granulocytes 38%, lymphocytes 57%, eosinophils 3% monocytes 2% basophils 0%). Platelets-  $153 \times 10^3/\text{mm}^3$ , peripheral blood film, no malaria parasites seen. Blood chemistry: AST 43 U/l, ALT 35U/l, protein 92.4g/l, albumin 30.5g/l, globulin 61.5g/l, urea 4.1 mmol/l, creatinine 106umol/l. A bone marrow aspirate was negative for amastigotes. The patient was therefore declared cured and discharged from the study as the follow up period in this study was six months. However due to the presence of skin lesions of PKDL in addition to VL, it was felt that the follow up period for this particular patient be extended to one year.

At one year follow-up, patient was found to be in good general condition and the facial lesions of PKDL had completely cleared. The spleen was not palpable and her weight at one year of follow-up was 44kg. A bone marrow aspirate was negative for amastigotes. The photographs of the patient seen at six months and at one year follow-up are seen (Figures 1 and 2).

**DISCUSSION**

Visceral leishmaniasis usually spread to man through the bite of a female sandfly vector of the genus *phlebotomous*. In Kenya, the endemic foci of visceral leishmaniasis or kala-azar include Baringo, Koibatek, Turkana, West Pokot, Kitui, Meru, Mwingi and Machakos districts. The disease often presents with fever, general malaise, weight loss and a distended abdomen caused by an enlarged spleen. Clinical signs include parlor and hepatosplenomegaly, while haematological parameters show a pancytopenic picture.

Post kala-azar dermal leishmaniasis is usually a sequel of infection by *L. donovani*. The disease is characterised by skin a lesion ranging from hypopigmented macules to nodules over the face and trunk mimicking the skin lesions of leprosy. Most patients with PKDL give a history of previous treatment of VL or a self-healing febrile illness compatible with VL. There are however a few patients who give no history of an attack of VL like this particular case. In Kenya, the disease occurs shortly after, or a few months after completing treatment. The attack rate is about 2-5% and patients respond well to the standard therapy (3). The standard treatment for PKDL in Kenya is similar to VL which is pentostam® 20mg/kg for 30 days, but the former requires a longer duration of treatment(4). PKDL patients are infectious to the sandflies and are thought to play a major reservoir role in disease transmission between epidemics (5).

Visceral leishmaniasis occurring concurrently with PKDL is a rare presentation, and this is the first time such a presentation is being reported in Kenya. It is even more rare for the two diseases to occur together as an initial presentation. However there are a few cases reported in the literature of recurrence of VL accompanied by PKDL mainly in India (6-8). In all these cases, VL was initially treated and cured then reappeared many years after most likely due to re-infection accompanied by lesions of PKDL. It is also important to note that this is the first case we are reporting from Kenya where an oral anti-leishmanial drug has successfully treated a case with PKDL.

Sub typing of the parasite genome has not been done to confirm whether the parasite that caused the two different clinical manifestations was the same but we plan to do it in the near future.

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