W. HUSSAIN, A. M.KHAN, M. Z. ALI, A. RASHID, A. IKRAM (PAKISTAN)

African Trypanosomiasis: A Unique Experience at UN Mission in Liberia

African Trypanosomiasis is a serious public health problem in certain regions of Africa. Many cases remain undiagnosed due to lack of diagnostic facilities. The disease is curable; fatal if untreated. We report a middle aged African individual with nonspecific symptoms diagnosed as a case of African Trypanosomiasis.

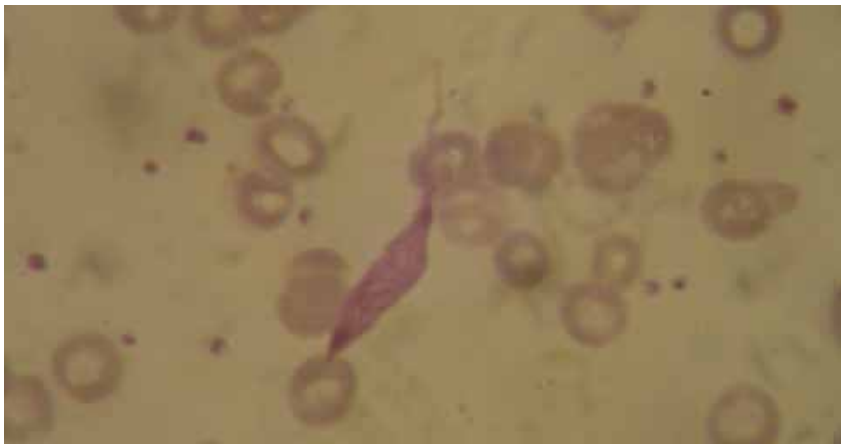
Introduction

African Trypanosomiasis (sleeping sickness) is caused by Trypanosoma brucei, a hemoflagellate protozoan parasite, transmitted to human by an insect vector Tsetse fly (Glossina spp) found in some parts of rural Africa. Two subspecies are responsible for human disease; T. brucei rhodensiense in East Africa and T. brucei gambiense in West Africa. Morphologically, both are indistinguishable but differ in clinical course and geographic distribution, the East African species causing a more rapidly progressive disease as compared to West African sleeping sickness. The disease is reasonably well controlled at present, with about 10,000 cases occurring annually with over 95 % cases from Congo, Angola, Sudan, Chad, Central African Republic and northern Uganda[1]. Still, most cases remain undiagnosed and unreported due to lack of proper laboratory facilities and technical expertise.

We present a case of African Trypanosomiasis from Liberia in a middle-aged individual having nonspecific symptoms. The importance of the case is that the disease can be suspected and diagnosed in patients with nonspecific symptoms as well, thereby cured at early stages thus not only reducing morbidity and mortality in civilians as well as UN peace keepers but also decreasing the reservoir of the disease.

Case Report

A 56-years-old man, resident of Maryland county-Harper, Liberia, businessman by profession, presented at the medical reception centre of Pak-Field level II hospital, Harper with complaints of headache, body aches, intermittent fever and night time sleep disturbance for the last month. There was no history of flee bite, boil, ulcer, skin rash or itching. He was not diabetic or hypertensive. History revealed extensive traveling to other African countries including Ghana, Cote De Ivoire and Guinea during the last three years. He has previously been treated as a case of typhoid fever at a local hospital.



▲ Fig. 1: Leishmain stain of peripheral blood film showing trypomastigote form of Trypnosoma brucei.

On examination, he was looking weak but well oriented in time, place and person. He was afebrile with pulse 70 /min, blood pressure 140/100 mmHg and respiratory rate 18 breaths/min. There were no visible boil, ulcer or enlarged lymph nodes. Examination of chest, heart, abdomen and CNS was unremarkable. Blood complete picture revealed haemoglobin 11.3 gm/dL, other indices were within normal limits, ESR was 40 mm at the end of 1st hour. Urine routine examination, chest X-ray, ultrasonography of abdomen and pelvis did not reveal any abnormality. On site typhoid IgG/IgM rapid test and thick and thin blood films for malaria parasite were also negative. Serum Widal test revealed a titre of < 1/20 for each of TO, TH, AO, BO antibodies.

Keeping in view the endemicity, a peripheral blood film for Trypanosoma was prepared using concentration technique (centrifugation and preparation of blood film from buffy coat). The Leishmain stain of blood film revealed the trypomastigote form of Trypanosoma brucei showing a long cylinder body, central nucleus and undulating membrane with long flagellum arising from the

ملخص

داء المثقبيات الأفريقي هو مشكلة خطيرة تهدد صحة العامة في بعض مناطق أفريقيا. فلا تزال العديد من الحالات بدون تشخيص نظرًا لعدم وجود مرافق تشخيصية. والجدير بالذكر أن هذا المرض قابل للشفاء؛ ولكنه يؤدي إلى الوفاة إذا لم يُعالج. ووارد في تقريرنا مواطن أفريقي بمنتصف العمر يعاني من أعراض غير محددة تم تشخيصه على أنه حالة من حالات داء المثقبيات الأفريقي.

概述

非洲锥虫病在非洲某些地区是严重的公共卫生问题。许多情况下，由于缺乏诊断设备而不能确诊。该疾病可以治愈；若不治疗会致命。我们报导了一例非洲锥虫病确诊病例、伴有非特异性症状的中年非洲个体。

RÉSUMÉ

La trypanosomiase africaine est un problème de santé sérieux dans certaines régions d'Afrique. De nombreux cas ne sont pas diagnostiqués en raison d'un manque d'installations de diagnostic. La maladie est curable, mais elle est mortelle lorsqu'elle n'est pas traitée. Nous décrivons un individu africain d'âge moyen porteur de symptômes non spécifiques diagnostiqué comme cas de trypanosomiase africaine.

ОБЗОР

Африканский трипаносомоз является серьёзной проблемой общественного здравоохранения в некоторых регионах Африки. Многие случаи заболевания не диагностируются из-за нехватки средств диагностики. Болезнь излечима, но приводит к смертельным исходам, если её не лечить. Мы рассматриваем случай с пациентом среднего возраста в Африке, у которого были обнаружены неспецифические симптомы и поставлен диагноз африканского трипаносомоза.

RESUMEN

La tripanosomiasis africana es un grave problema de sanidad pública en algunas regiones de África. Muchos casos no se diagnostican por falta de instalaciones apropiadas. Se trata de una enfermedad curable, pero que resulta mortal si no se trata. Publicamos el caso de un sujeto africano de mediana edad con síntomas inespecíficos diagnosticado como tripanosomiasis africana.

kinetoplast located at the posterior end (Fig 1).

To rule out central nervous involvement, lumbar puncture was performed. CSF examination did not reveal a trypomastigote form or an increase in cell count or proteins. With fianal diagnosis of African Trypanosomiasis (1st stage), patient was given injections of Pentamidine (Lomidine) 4 mg/kg/d intramuscularly for ten days. Follow up blood films were negative for Trypomastigote form. He was discharged with advice for regular follow ups of blood films at six monthly intervals for up to two year to rule out any relapse.

Awareness lectures / presentations regarding the disease and its prevention were regularly delivered to locals and especially troops for prevention.

Discussion

Over 35 million people occupying the "Tsetse fly belt" of Africa are at risk of developing sleeping sickness[2,3]. The causative agent, found in mammalian blood as elongated trypomastigote, evades host antibody response by developing series of genetically controlled surface coats resulting in successive waves of parasite each with a different coat[4]. The clinical course has two stages: in the first, the parasite is found in the peripheral circulation while in the second stage, it invades the central nervous system. After an infective bite, most patients develop fever, headache, muscle/joint aches and enlarged lymph nodes within one to two weeks. Some patients may also develop rash or a large sore at the site of bite. CNS involvement results in 'sleeping sickness syndrome' comprising changes in personality, increased day time sleepiness with disturbed night sleep, and progressive confusion, coma and death if untreated[5]. East African sleeping sickness is a rapidly progressive disease causing mental deterioration, neurological problems and death within months. While West African sleeping sickness is a slowly progressive disease, CNS involvement occurs in 1 – 2 years and death usually occurs within three years, but this period may be prolonged for up to 6 – 7 years.

Definitive diagnosis depends upon demonstration of trypomastigotes in the blood, lymph node/primary lesion aspirate, bone marrow or CSF. Gimesa/Leishmain's stain of thick/ thin blood films and buffy coat concentration method are recommended for parasite detection[2]. Multiple slides should be prepared with multiple blood examinations to rule out trypanosomiasis. We were successful in our very first attempt in identifying the organism; following proper technique was the main reason. All patients must undergo CSF examination to determine CNS involvement as trypomastigotes can be demonstrated in centrifuged sediments. The WHO criteria for CNS involvement includes increased protein in CSF and white cell count of > 51. Serologic techniques like Card agglutination trypanosomiasis test, ELISA, IHA and IFA are available but have not proven to be useful for routine diagnosis, as local population already showelevated levels due to exposure to non-infectious animal trypanosomes.

For T. brucei rhodensiense, Suramin 1 g intravenously on day 1, 3, 5, 14 and 21, is a drug of choice in the haemolymphatic stage, while Melarsoprol 2 - 3.6 mg/kg/day for three days (3 courses; 7 days apart) is suggested for CNS disease. For T. brucei gambiense, Pentamidine 4 mg/kg/d intramuscular or intravenous, for 7-10 days in the haemolymphatic stage and Eflornithine 400 mg/kg/d in 4 doses for 14 days is recommended in patients with CNS involvement[5,6]. In our case, timely diagnosis followed by petamidine treatment for ten days proved effective.

Patients should be followed up every six month for two years to detect any relapse. As there is no prophylactic vaccine or drug, prevention and control mainly depends upon decreasing the reservoir; searching for, isolating and treating patients with the disease; controlling the tsetse fly vector by traps or screens, usage of insecticides and insect repellents, avoiding contact with bushes, wearing long sleeved shirts and pants.

To conclude, most cases of African Trypanosomiasis remain undiagnosed and unreported not only due to lack of diagnostic facilities but also due to non specific symptoms early in the disease. Therefore, the disease should always be kept in mind for differential diagnosis in endemic areas not only to reduce mortality but also to decrease reservoirs, helping prevention and control. ■

References: *ref@mci-forum.com*

AUTHORS

Dr Wajid Hussain

Fellow College of Physicians & Surgeons (Pakistan)

2000 – 2001	*House Officer, Civil Hospital, Karachi (Medicine, Cardiology and Surgery)*
2002 – 2003	*Regimental Medical Officer, Combined Military Hospital, Panoaqil*
2003 – 2004	*Regimental Medical Officer Pakistan Rangers Punjab*
2005 – 2007	*Grading in Pathology at Armed Forces Post-graduate Medical Institute*
2007 – 2009	*Graded Pathologist, Armed Forces Institute of Pathology, Rawalpindi, Senior Registrar Department of Microbiology*
2009 – 2011	*Consultant Clinical Microbiologist at Combined Military Hospital, Hyderabad*
2011 – 2012	*Consultant Clinical Microbiologist at PAKMED Level II Hospital, Harper, Liberia*
Since 2012	*Consultant Clinical Microbiologist at H.H Sheikh Khalifa Bin Zaid Hospital (CMH) AK, Rawalakot*

Address for the authors:
Consultant Clinical Microbiologist,
H.H Sheikh Khalifa Bin Zaid Hospital
(CMH) AK, Rawalakot, Pakistan
Mobile: 0092-333-5434076
E-mail: drhussainmemon@yahoo.com

CO-AUTHORS

Ahmed Mushtaq Khan
Major, Consultant Surgeon, CMH Rawalpindi. E-mail: jangman13@yahoo.com

Muhammad Zeeshan Ali
Major, Consultant Radiologist, CMH Multan. E-mail: zeeshanali1769@gmail.com

Abdul Rashid
Lt Col, Commanding Officer, CMH Risalpur. E-mail: doctorrashid381@gmail.com

Aamer Ikram
Colonel, Consultant Microbiologist & Head of Dept, AFIP Rawalpindi.
E-mail: maahin1@yahoo.com