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Cryptosporidiosis in a Child with Acquired Immunodeficiency Syndrome: A Case Report

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ABSTRACT

Cryptosporidiosis is caused by the coccidian parasite Cryptosporidium and has a tendency to cause diarrhoea with dehydration in immunocompetent and immunocompromised individuals. Here we describe the clinical course of a 4 year old male child who was HIV(Human immunodeficiency virus) reactive and improvement was seen after a course of Nitazoxanide.

Key Words: Cryptosporidium, Diarrhoea, Acquired immunodeficiency syndrome

INTRODUCTION

Cryptosporidiosis is an infection with the coccidian parasite Cryptosporidium and is a significant opportunistic disease among HIV-infected individuals and [1]. In developing countries like India, 2-19% of diarrheal diseases can be attributed to Cryptosporidium. It is spread through the fecal-oral route, often through contaminated water [2]. The age group most commonly affected is children from 1 to 9 years old [3]. Cryptosporidium causes prolonged diarrhoea in HIV patients regardless of the age group [4]. Here we present a case of chronic diarrhoea in a four year old male child with Acquired Immune Deficiency Syndrome (AIDS) and mile stone delay.

CASE HISTORY

A 4 year old known HIV positive boy with milestone delay had diarrhoea and vomiting for one week. He experienced ten episodes of watery, non-bloody diarrhoea per day. He had similar illness in the past but stool examination was not done. His parents were also HIV positive. The child was on Anti-retroviral therapy (ART) but on irregular treatment.

Table 1: Clinical conditions associated with the illness

Disease	Duration	Treatment
Oral candidiasis	One year	Fluconazole, Candid mouth paint
Fissure in ano	Six months	Supportive
Cerebral palsy	From birth	Physiotherapy
Tuberculosis	At 8 months of age	Completed Anti tuberculosis therapy
Diarrhoea	For past one week, on and off for past one year	Azithromycin, Ofloxacin

His vital signs showed blood pressure to be 86/54 mm Hg, pulse rate of 120 beats per minute and respiratory rate of 16 per minute. The laboratory investigations revealed Serum sodium-130 mmol/L), Serum potassium-4.5mEq/L,Chloride-111mEq/L,Bicarbonate-13 mmol/L, Serum calcium-8.4 mg/dl, Blood glucose-98 mg/dl. The total count was 20800 cells/mm^3(56% neutrophils, 36% lymphocytes, 7%monocytes, 1% eosinophil, 1% basophil). The hemoglobin level was 8.2 g/dL, platelets 468,000/mm^3 and red blood cell count-4.1 million /mm^3. The urine routine examination showed no albumin, no sugar and 1-2 pus cells per high power field. There was no growth in blood and urine culture.

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The stool wet mount examination showed numerous spherical and refractile oocysts about 5 micrometer diameter. Modified Acid fast bacilli staining showed pink coloured oocysts of Cryptosporidium with distinct oocyst walls. Giemsa staining revealed the presence of purple coloured oocysts. Hot safranin staining showed pink coloured oocysts.

The child was treated with intravenous fluids, zinc supplements and a course of Nitazoxanide. The stool episodes reduced after treatment. The parents were advised to continue ART to the child for immune reconstitution. Health education was provided to the parents regarding hygienic practices and importance of regular ART.

DISCUSSION

Cryptosporidiosis is caused by the enteric pathogen Cryptosporidium, a genus of protozoan parasites in the phylum Apicomplexa [5]. There are more than 26 known *Cryptosporidium* species which can be differentiated by morphology, host specificity and molecular biology studies [6]. The majority of human cryptosporidiosis worldwide are mainly caused by two species C. parvum and C. hominis.[7].Cryptosporidium spp. is increasingly being recognized as an important pathogen causing diarrhea in children nowadays, with the highest morbidity and mortality reported in children less than 5 years in developing countries [8].It can affect both immunocompetent and immunocompromised individuals, resulting in watery diarrhea and extreme dehydration [9]. Cryptosporidiosis is a potential threat to HIV-infected individuals with a risk of infection of around 10% in developed countries. Patients can have chronic watery diarrhea lasting for more than two months and shed oocysts in stool during the entire period [10,11]. Early childhood infection with Cryptosporidium can result in delayed growth and cognitive decline[12]. Cryptosporidium was first recognized as a human parasite in 1976, in a three year-old child with enterocolitis. But it became recognized as an important human pathogen after the HIV pandemic in the 1980s [13]. The first case of cryptosporidiosis in a homosexual man with AIDS was reported back in 1982 [14]. Since then, there have been many reports of Cryptosporidium as an important pathogen in AIDS. Currently, Cryptosporidios is listed as an AIDS-defining illness (Clinical Category C) by the Centers for Disease Control and Prevention [15]. The infection in HIV infected individuals is life- threatening and involves infections of the gastrointestinal tract in addition to hepatobiliary and respiratory tract infections [16,17].

CONCLUSION

This case is important because it highlights the mother to child transmission of HIV. In pediatric populations, prevalence data are still underestimated, due to the absence of advanced laboratory diagnostic tools. In the poorest areas, Cyptosporidiosis, enhanced by malnutrition, causes growth failure and further immune derangement, leading to wasting and enhancing children mortality.

With the widespread use of ART, Cryptosporidiosis is no longer the dangerous condition it once was in AIDS patients, it continues to be a dangerous threat to AIDS patients in developing countries where ART is not available. The case report shows that health education should be provided to HIV positive parents regarding antenatal screening, regular ART, hygienic practices to cut down the prevalence of HIV and HIV related diseases.

Abbreviations:

HIV-Human Immunodeficiency virus
AIDS-Acquired immunodeficiency Syndrome
ART-Anti retroviral therapy

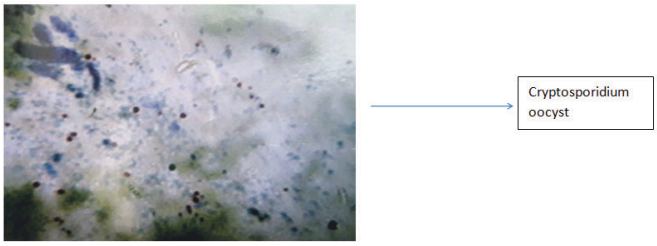

Figure 1: Modified Ziehl Neelson staining of Cryptosporidium oocysts.

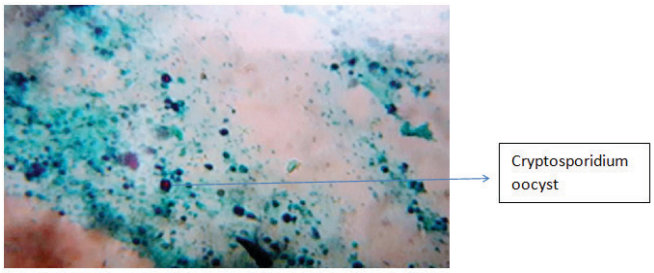

Figure 2: Hot safranin staining of Cryptosporidium oocysts.

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