

Polyparasitism Simulating Nephrotic Syndrome- A Resurgence Of Old Situation?: A Case Report

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Citation

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Abstract

We present a 12 year old female patient who was referred to the Welfare unit of the Wesley Guild hospital, Western Nigeria from a rural comprehensive health centre as a case of nephrotic syndrome. She had insidiously developed progressive facial and pedal edema. Subsequent investigation revealed that there was no proteinuria but severe mixed helminthic infestations with hookworm and ascaris. Her response to anti-helminthics and haematinics treatment was dramatic.

INTRODUCTION

Helminthiasis is an infestation of man by species of worms belonging to either the nematodes or the plathyhelminths. Examples of nematodes are ascaris, hookworms and pinworms, while examples of plathyhelminths are the tape worms and the flukes. A situation where a healthy, well-nourished child harbors a low load without clinical manifestations whatsoever, is known as helminthic infestation. Helminthic disease on the other hand, connotes heavy worm infestations that may be catastrophic enough to compromise the child's well being and nutritional status. ¹ The various aspects of human behavior and manipulation of the environment have a major bearing on parasitic transmission. Polyparasitism, which is infestation with two or more different worms, is particularly common in the tropical and sub-tropical countries where conditions of poor hygiene and sanitation coexist with environmental factors favoring the survival of the extra-human parasitic stages. ²

The effects of large numbers of worms in the gut include competition for nutrients, depression of appetite, colicky abdominal pain and abdominal distension. Intestinal obstruction may occur in intense infestations. ^{1, 2} Hookworms on the other hand, feed directly on villous tissue as well as ingesting blood. ^{1, 3} The worms change attachment every twenty four hours, there-by leaving multiple bleeding points. Majority of sick patients with hookworm infection are chronically affected and the pathological features are due to hypoalbuminaemia and anemia. ^{1, 3} Hypoalbuminaemia occurs as a result of combined loss of blood, lymph and protein. The protein loss exceeds red blood cell loss. A

limited capacity for albumin synthesis can be brought about by a combination of factors like anemia, loss of appetite and the inability to reabsorb amino acids from the albumin passing into the gut.

CASE HISTORY

A 12 year old female patient was seen at the Wesley Guild Hospital out-patient department during the senior staff and laboratory workers' strike with six months' history of abdominal pain, weakness, facial and pedal edema. The development of the edema had been noticed to be insidious. There was no dysuria, frequency, discolored or frothy urine. No history of vomiting and the appetite had been good. She started living with the grandmother in a village about two and a half years prior to presentation. The parents are civil servants living in Lagos which is the commercial nerve centre of the country and the former capital of Nigeria. The source of water supply in the village is from a stream while faeces disposal is to a nearby refuse dumping site. The patient agreed to walking bare-footed in the village especially while working in their garden where villagers use human excreta as fertilizer!

Examination revealed an ill-looking pale girl, who was afebrile with a temperature of 37 degree Celsius. There was facial and pedal edema but there was no ascites. The blood pressure was 90/60 mmHg and the weight was 32kg both readings were normal for age. It was not possible to investigate her in view of the strike action by the staff in the laboratory. The tentative diagnosis of nephrotic syndrome was made and she was continued on the oral frusemide that

was commenced from the referral centre. She was seen two weeks later when the strike was over and adequate investigations were carried out. She was then found to have no proteinuria! Other investigation results were: haematocrit: 22%; WBC 6,500/cmm; Neutrophils 40%; Lymphocytes 52%; Eosinophils 8%. Blood film showed hypochromia and microcytosis. Urine microscopy and sensitivity and serum electrolytes and creatinine were normal: HCO₃-26mmol/L, K-2.9mmol/L, Na-133Mmol/L, and Creatinine-35Umol. However, the urea and serum protein were found to be low (Urea-1.5mmol/L). Total serum protein-36g/L; Albumin-23g/L; Globulin-13g/L. Stool for ova and parasites showed heavy mixed ova of ascaris and hookworm. Ultrasound results showed that both kidneys were normal in size with smooth outline. The parenchymal echo texture was within normal limits and there was no ascites. Subsequently, the patient was treated with Mebendazole 100mg b.d. for 3 days in addition to oral administration of 40 mls of liquid paraffin daily for 3 days to prevent entanglement of the parasites and hence intestinal obstruction. She passed large number of roundworms that were estimated to be more than 500 over three days! She was also treated with haematinics which included iron. Following these treatment and high protein diet, she lost the facial and pedal oedema within ten days. Repeat stool examination two weeks later showed no more ova of worms. The final diagnosis was polyparasitism with ascaris and hookworm and not nephrotic syndrome.

DISCUSSION

It is known that most of the intestinal worms that affect man live unobtrusively in the gut and seem to do little or nothing to impair the health of the host. Signs and symptoms usually appear with heavy infections. ³ In the rural areas of the tropics many of the inhabitants harbor more than one intestinal worm. ^{1,2} That of hookworm is particularly common in the rural areas where members of the populace walk bare footed and use human excreta as agricultural fertilizers. ¹ Infestation with hookworm is less common now than what obtained over twenty years ago. This is because of urbanization and socialization. Majority of the rural populace have left their farming activities for other trades and businesses in the cities. They have also seen the importance of wearing shoes. This particular patient in question had been living with her grandmother since two and a half years before presentation and this is enough time to allow for chronic infection. ¹ From the same environment, a report was made of another patient who passed over 2000 worms. ⁴ The question arising from this report and the

present case study is are we having a resurgence of the old situation where a reasonable percentage of the rural populace is presenting with worm infestations especially that of hookworm? ³ People used to walk bare-footed then, thereby enhancing its transmission.

The haematocrit in this patient was low (22%) with very low total serum protein. The serum albumin and the urea were particularly low 23g/L and 1.5mmol/L respectively. These are features of severe and chronic hookworm infestation. The low serum albumin of 23g/L is much less than the expected lower limit of 35g/L. Also, the low serum urea implies low protein turn-over as it is found in protein energy malnutrition children. Edema in this patient can be explained by the low serum proteins. This can result in reduced oncotic pressure and hence oedema formation. Ascites has been observed in severe cases of hookworm infestation. ³ Anemia is a known complication of hookworm infestation and it is mainly microcytic and hypochromic as found in this patient. This is because between 0.03 and 0.34ml of blood is lost per worm per day. ² The 22 percent haematocrit of our patient could have been up to 30 percent and above if not for the hookworm infestation. The description of the worms passed in stool was in keeping with that of ascaris. The hookworms were not counted because of its small size the length is 5-13mm, ² The liquid paraffin given to prevent entanglement and hence intestinal obstruction was appropriate since it will serve as a lubricant. ⁵ Many reports have been received of children that developed this complication following treatment. ^{1, 2, 4}

Prevention of infestation can be attained by the provision of latrines in such communities. Efforts should also be made to ensure that they are used and maintained. Provision of adequate quantity of clean water to wash the hands after defecation, before preparing and eating food, and for washing soil contaminated fruits and vegetables are some of the other preventive measures. Reduction in community worm load can be achieved by mass chemotherapy with anthelmintics after a screening survey and education of the populace. ¹ Efforts should also be geared towards making our hospitals open to functional all the time. This is by putting an end to incessant strikes in our health institutions and public places in the third world. Thus, allowing for prompt diagnosis and treatment of diseases.

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