A CASE OF INTESTINAL PARASITOSIS DUE TO ANIMAL HOOKWORM

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SUMMARY

A previously unrecorded Venezuelan infection with Ancylostoma braziliense (or A. ceylanicum) was discovered in a 20-year-old male originally from Caracas. Main features included pallor, malaïse, diarrhea, epigastric ache and pronounced weight loss (13kgs). Close and frequent contact with domestic dogs was noteworthy. Four months earlier patient developed an unspecified skin eruption after a barefoot exposure in a local river. More recently, one month ago, he was hospitalized and treated for intestinal amebiasis. White blood cell count was 28600/mm³ with 51.5% eosinophils. The Baermann test revealed one adult male hookworm with a single pair of teeth in the buccal capsule. Typical hookworm eggs and Charcot-Leyden crystals were found in fecal samples. Oral thiabendazole therapy (25mg/kg/day for 10 days) induced clinical improvement and reduced the white blood cell and eosinophil counts to 8800 cells/mm³ and 11% eosinophils. Definite species identification of A. braziliense or A. ceylanicum could not be achieved having recovered only one specimen. In other countries, human infection by these species has been reported, mainly with A. ceylanicum, both accidentally and experimentally. This parasite, found in human feces, is of a species common to animals.

Case Report

A 20 years old male from Caracas, Venezuela, consulted with a one-month history of watery diarrhea, epigastric stomachache and a significant weight loss (13kg). Initial laboratory: white blood cell count (WBC) of 16000/mm³ with toxic granulation, 4% eosinophils and Giardia duodenalis in stool examinations. As his WBC count increased to 20000/mm³ he was hospitalized, suspecting appendicitis. Endoscopy and upper abdominal echosonogram were unre markable, and stool re-examination demonstrated Entamoeba histolytica cysts. WBC increased to 26000/mm³ with fluctuating eosinophilia (8-58%). Clinical improvement with antibiotics and antiamebics did not abolish all symptoms, being referred to the Amebiasis Laboratory, Department of Parasitology, Escuela de Bioanálisis, Facultad de Medicina, Universidad Central de Venezuela. The patient reported remaining mild discomfort, stomach ache and watery diarrhea, and was found pale and moderately ill. Laboratory data showed: hemoglobin 14.2g/dl, hematocrit 41.3%, MCV 90.3, MCH 31.1, MCHC 34.5, WBC 28600/mm³, platelets 39500/mm³, neutrophils 20.5%, lymphocytes 21%, eosinophils 50.5%, basophils 0.5%, monocytes 2.5%. Anysocitosis. Stool examination included direct method, Willis, Baermann, Lugol, Harada-Mori culture and Ziehl-Nielsen for protozoa’s. After three days, one mature male specimen of Ancylostoma was detected by Baermann’s method, followed on next day by Charcot-Leyden crystals and typical hookworms eggs. By the third day of thiabendazole therapy (25mgs/kg/day) clinical improvement was induced, and on the eighth day WBC decreased to 8800/mm³ and eosinophils to 11%.

Discussion

Several species of the Ancylostoma genus (A. caninum, A. braziliense and A. ceylanicum) are frequent intestinal invaders of canines and felines. Percutaneous larval entry in humans triggers cutaneous larva migrans (CLM), a tortuous trajectory of pruritic erythematous papules, mostly on upper and lower extremities, erratic migration, and a progression of about 2 to 5 cm/day. It behaves as a self-limited process that generally disappears with topical therapy (Rey, 2001).

MULTINATIONAL CLINICAL AND EPIDEMIOLOGICAL INVESTIGATIONS (New Guinea, Thailand, Malaysia, etc.) revealed invasion and adaptation of A. ceylanicum to the human intestine, preceded sometimes by cutaneous lesions (Anten and Zuidema, 1964). Maplestone (1933) inoculated A. braziliense to volunteers, inducing intestinal infections preceded by itching papules. Haydon and Bearup (1963) reproduced a similar clinical picture by infecting three people with A. ceylanicum larvae derived from a Solomon Islands habitant. As larval inoculation was expanded (Wijers and Smit, 1965), so did information about the clinical spectrum. In the early stages (6h) linear streaks of pruritic
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RESUMO

Uma infecção humana por Ancylostoma braziliense (o A. ceylanicum) anteriormente não registrada na Venezuela foi encontrada em um homem de 20 anos de idade procedente de Caracas. As manifestações clínicas eram: aparência pálida, mal-estar, diarreia, dor epigástrica e perda de peso (13kg). Como antecedente epidemiológico de importância refere contacto permanente com perros, presença de erupção cutânea quatro meses atrás, posterior a baño no rio, e hospitalização um mês antes, sendo tratado por amibiasis intestinal. Laboratorio: Hemoglobina 14,2g/dl, leucócitos, 28600/mm³, eosinófilos 31,5%. O teste de Baermann revelou um ancilostomídeo adulto com um único par de dentes na cápsula bucal. Ovos de Ancylostoma spp. típicos e cristais de Charcot-Leyden foram encontrados em mais exames coproparasitológicos. Terapia com tiabendazol (25mgs/kg/dia por 10dias) induziu melhora clínica e reduziu as células brancas de sangue e contagem de eosinófilos (8800/mm³ e 11%). Identificação de espécie definitiva de A. braziliense o A. ceylanicum não se conseguiu chegar em resultados conclusivos. Em outros países tem sido detectados vários casos de infecção intestinal em humanos produzida por estas espécies, principalmente por A. ceylanicum, de maneira acidental e experimental. O parasita encontrado em este paciente é uma espécie própria de animais.
The teeth visualized in the buccal capsule identified the Ancylostoma genus. Both A. braziliense and A. ceylanicum possess only one pair, but exhibit different morphological characteristics in the buccal capsule and the copulatory bursa (Velázquez and Cabrera, 1968). A sample slide was sent for verification to the Universidade Federal de Minas Gerais, Brazil, but the single available specimen lacked the necessary features to determine the culprit specie.

Accurate quantification of the parasitic load was unattainable. The day following the finding of the parasitic load was unattainable. The day following the finding of the parasite, hookworm eggs confirmed the existence of more specimens, but suggested a low load. The patient was treated successfully, but did not provide additional adequate samples. In experiments with dogs, the number of fecal eggs is proportional to the amount of inoculated larvae (Carroll and Grove, 1984b). Possible differences in the clinical features of spontaneous infections and induced larval administration both in humans or animals must be considered. Thus, the present case exemplifies the recognized divergence between clinical severity and extent of parasitic load (Bearup, 1967).

A systematic search for previous reports of this specific specie in human infestations in Venezuela was unsuccessful. In 1904, Rangel described ‘Ankilostomiasis in Venezuela’ in anemic cases (Rangel, 2006). Much later, compilations carried out in 1957 from the Vargas Hospital, Caracas, revealed infections by N. americanus and A. duodenale. Since neither report refers morphological descriptions of the adult parasite’s buccal capsule, the species involved remain unknown (Pérez Giménez et al., 1957).

This fortuitous finding should stimulate gastroenterologists, parasitologists and medical technicians to perform detailed evaluations of fecal samples in cases with digestive complaints, leukocytosis and eosinophilia. There is ample proof that cohabitation or contact with untreated pets or domestic animals may induce some human zoonosis. We found in human feaces a parasite species common in animals.

REFERENCES


Figure 1. Specimens found is stool. a and b: copulatory bursa with rays and spicules, c: buccal capsule with one pair of teeth.