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HUMAN INFECTION WITH ISOSPORA HOMINIS.A CASE REPORT

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Key words: Human Isosporiasis.Iran.

Abstract

A case of Isospora hominis infection was revealed by stool examination using formol-ether concentration technique. The patient was a 26 year- old female from rural area of Babol, Caspian Sea littoral, with complaints of abdominal discomfort.

Introduction

Human Isosporiasis in Iran was first reported in 1961 by Hadgian who found a case of Isospora belli in a 5 year old girl from Teheran(8). Another case of I billi has been reported by Moatakef et al.in a 9 year old girl from Mashhad(19). Human infection with Isospora hominis has not yet been reported from Iran and the present brief communication is a report of the first case.

Case Report

The patient was a 26 year-old female from rural area of Babol,Caspian Sea littoral. She was introduced to the Protozoology Unit, School of Public Health, University of Teheran, for stool examination. She complained only from abdominal discomfort, but diarrhea was not present. The first stool specimen was obtained on 8 october 1983. Macroscopically, it was formed and normal in appearence. In direct examination Charcot-Leyden crystals were present

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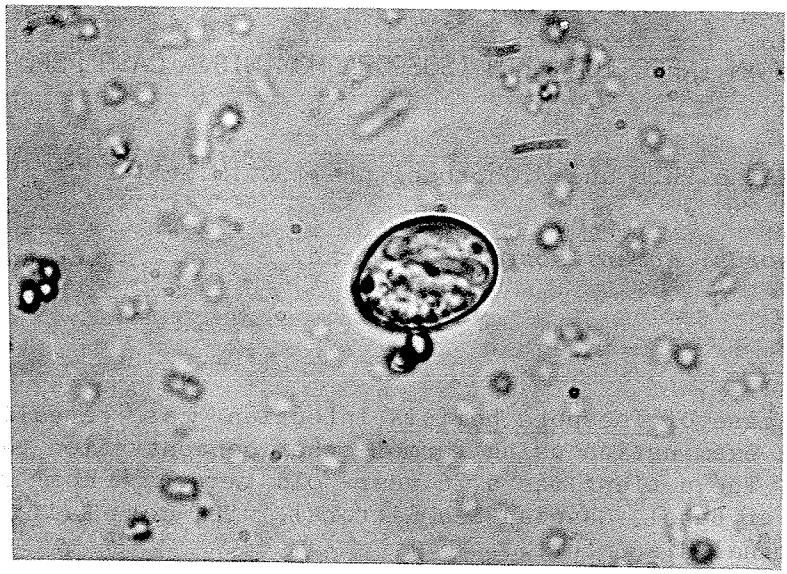

Fig 1 isospora hominis sporocyst containing 4 sporozoites, found in freshly passed human feces.

but no cyst or ova were seen. After concentration by the formol-ether technique scanty sporulated sporocysts containing four sporozoites were observed(fig 1). In addition scanty hookworm ova were also seen. The sporocysts were ovoid in shape and measured on average 14x10.5 micron.The patient was not treated and her second and third stool samples were examined on 13 and 19 october 1983 respectively. In both specimens sporulated sporocysts as well as hookworm ova and Charcot-Leyden crystals were present. In no instance entire oocyst containing two sporocysts were found. The patient did not return for follow op and treatment.

Discussion

Isosporiasis in man is an intestinal infection due to either I.belli or I.hominis. A third species , I.natalensis has been also found in man in Natal by Elsdon-Dew and Freedman(3). I.belli is considered host specific for

human,with transmission directly from person to person . The infection occurs by the fecal-oral rout following ingestion of sporulated oocysts, from which the sporozoites are liberated.The sporozoites invade intestinal epithelial cells and they undergo both, an asexual(schizogony) and a sexual(sporogony) cycle,resulting in unsporulated oocysts which are released and shed in feces (7). The endogenous life cycle of I.belli have been demonstrated by Brandborg et al. in a series of biopsies of the small intestine mucose in patients infected with the organism(1).

The life cycle and mode of transmission of I. hominis were unknown until 1972. At that time Rommal and Heydorn in some experimental works observed that following consumption of raw minced cattle muscle tissue infected with Sarcocystis fusiformis and raw minced swine muscle tissue infected with Sarcocystis miescheriana by volunteers,they passed fully sporulated sporocysts in their feces. From these studies they concluded that I.hominis is in reality the sporocyst of two different species of Sarcocystis , namely S.fusiformis and S.miesheriana (21). The studies of investigators(4,5,6,10,11,12,13,14,15,18, 20) revealed the whole life cycle of some species of the genus Sarcocystis. They have clearly demonstrated that some of the members of the genus Sarcocystis are two host coccidian parasites. Certain species of carnivorous, as well as man are the final hosts in which gametogony and sporogony development take place in their epithelial cells of the intestinal villi. The results of these stages are sporulated oocysts with very delicate wall, faciliating sporocyts to be released and shed in feces.Herbivorous or omnivorous are the intermediate hosts in which limited generations of schizogony take place in the liver and endothelial cells of the capillaries. Merozoites form the last generation schizonts give rise to the cyst stage in the striated and cardiac muscle and in neural tissue . Heydorn et al.(12), Proposed that Sarcocystis species should be given the name of the intermediate host followed by the name of the final host, since each of the intermediate host harbour different species of Sarcocystis. Accordingly man is the final host of S.bovihominis and S. suihominis. After consumption of raw or under cooked beef or pork containg sarcocysts, cystozoites are liberated

and enter intestinal epithelial cells, develop to gametocytes and produce sporulated oocysts, which release sporocysts into the feces. These are known as I. hominis sporocysts. The sporocysts are infective for the intermediate hosts, but not for the final hosts.

Although human infection with I.hominis has been reported by some investigators (2,3,9,16,17, 22, 23,) The reported cases are rare in comparison with those of I. belli. In our Protozoology Laboratory more than 1500 stool specimens are examined annually, nevertheless this was the first time that we observed I.hominis sporocysts among the thousands samples examined.

Since the sporocysts are small in size and usually rare in stool they have probably overlooked. For the identification of I.hominis sporocysts concentration methods careful microscopical examination and experience are required.

As the Moslem do not consume pork, the species of the Sarcocystis caused isosporasis in the above patient is most probably S.bovihominis.

Clinical symptoms of human isosporiasis are frequently absent or consist of mild mucous diarrhea. In some cases, severe diarrhea, nausea, headache, anorexia and low fever have been reported. There is no satisfactory drug for the treatment of human isosporiasis. Instances of effective treatment with pyrimethamine and sulfadiazine or trimethoprim-sulfamethoxatole have been reported(7).

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