

# *Isospora hominis* Fantham, 1917, in Puerto Rico<sup>1</sup>

A Report of the First Case Observed

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THE increasing number of reports on human coccidiosis from various parts of the world is gradually creating an interest in this disease as well as proving that it constitutes a definite clinical entity, caused by a specific protozoan parasite. According to Magath,<sup>2</sup> about two hundred and eight cases were recorded from 1915 to 1934. Nearly three fourths of them were soldiers from the eastern Mediterranean area during the First World War. Since then no less than seventy-eight other cases have been added to the literature.

The causative agent of human coccidiosis, *Isospora hominis*, is definitely of cosmopolitan distribution; as far as the New World is concerned, it has been reported from both North and South America. The parasite was first found in the West Indies by Kourí and Basnuevo<sup>3</sup> in Cuba, but Manson-Bahr<sup>4</sup> suggested it could likewise exist in other places of this area.

The case reported herein constitutes the first record of the occurrence of human coccidiosis in Puerto Rico.

## CASE REPORT

The patient was a white Puerto Rican male, aged 32, 6 feet tall, and weighing 190 pounds. Although he had complained of constipation, lassitude, and nightly flatulence for the past few years, when he became a member of the Agricultural Extension Service, his general condition had always been excellent. Over a year ago, he reported to the author for a fecal examination and was found to be passing numerous cysts of *Endamoeba histolytica*. Repeated examinations by the saline smear method failed to show any other parasites at that time. Six months later he was treated with chiniofon.

However, for the last eight months, the patient had complained of sudden, short attacks of diarrhea which, though not serious, were continuous. During the four weeks preceding September 7th of last

1. Received for publication November 3, 1945.

2. T. B. Magath, The coccidia of man. Am.J.Trop.Med., 15:91-129, 1935.

3. P. Kourí and J. G. Basnuevo, Un caso autóctono de coccidiosis humana. Rev. Parasit., Clín.y Lab., 2:97-98, 1936.

4. P. Manson-Bahr, The dysenteric disorders, 2d ed. (Baltimore: The Williams & Wilkins Company, 1943).

year, they had consisted of two or three daily movements with mucus and undigested food in the stools. Nightly flatulence was also more serious and offending during this period.

On September 5th, a general examination by a local physician demonstrated tenderness in the area of the gall bladder. The latter recommended a fecal examination, which was practiced on September 7th and proved positive for oocysts of *Isospora hominis*, both by the saline smear method and by the Faust zinc sulphate flotation technique. This diagnosis was corroborated by washing the feces several times in distilled water and allowing the sediment to remain in Petri dishes at room temperature for three days, when the sporulated oocysts were found. A second fecal examination three days later again demonstrated the presence of oocysts as well as eggs of *Schistosoma mansoni*.

The patient began treatment with fuadin the same day schistosomiasis was discovered. Weekly fecal examinations by the flotation method were positive for *Isospora* until the 8th of October. However, the next examination on October 15th, that is, thirty-eight days after the diagnosis was made, was entirely negative both for *Isospora* and for *Schistosoma*. During this time the patient received sufficient fuadin every four days to make up a total of 40 cc. The attacks of diarrhea and flatulence had disappeared, and he felt entirely well.

#### DISCUSSION

There is no doubt that this is a case of coccidiosis native to Puerto Rico. The patient has not been out of the Island for the last five years, but his professional activities have obliged him to travel part of his time throughout Puerto Rico. For the past three years, though, he has been confined more to his office. The author believes that the infection was acquired in Río Piedras, where the patient lives and works; the tendency of *Isospora hominis* infections to be short-lived supports this assumption.

Notwithstanding, it is very hard to state whether the appearance of the more intense symptoms during the four weeks previous to September 7th was due to *Isospora* or to *Schistosoma*. According to Connal,<sup>5</sup> human coccidiosis is characterized by the development of symptoms previous to the appearance of the oocysts in the stools. It is therefore possible, given the slight nature of the infestation with *S. mansoni*, that coccidiosis was acquired early in August of the

same year and that the recrudescence of intestinal disorders, following that period, may have been due to *Isospora*.

The study of the oocysts in the fresh excrement and, upon incubation, confirms the views of other students as to this parasite. The fresh organism (Fig. 1) is elongate oval, as commonly observed under the microscope. A great number of them may have a truncated end or a flattened side. The wall is thin and simple under perfect focusing, the double refractivity reported in the literature being exhibited only when focus and lighting are altered. The size of the oocyst is quite variable. Among 25 selected at random, their length varied between 23.5 and 32.5 microns, with a mean of 28.6 microns; the width between 9.05 and 14.5 microns, with a mean of 12.5 microns.

Sporulation took place rapidly at room temperature. Many oocysts showed two sporoblasts a few hours after passed (Fig. 2) and, in 24 hours, the process was complete. The oocysts persisted in the cultures, apparently in a viable state, up to 34 days, though by this time very few of them could be recovered.

Sporulated oocysts are quite resistant to external, unfavorable conditions. Magath<sup>6</sup> mentions the observations of some authors who found that they may be resistant to killing, fixing, and staining reagents. In our experience, sporulation was observed to proceed normally in the zinc sulphate solution (S. G.-1.18) in which they were floated. On one occasion, when the coverslip was pressed down tightly, the sporozoites were able to come out of their enclosure and moved about in this medium with a worm-like motion.

The action of fuadin in curing the infection can hardly be evaluated. This infection followed a normal course, and its disappearance could have been due rather to its typically short life.

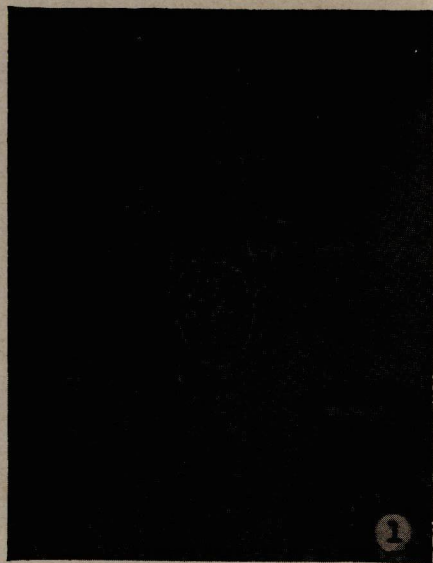
#### SUMMARY AND CONCLUSIONS

*Isospora hominis* occurs in Puerto Rico, as demonstrated by the discovery of a case in which the chances of infection were entirely local. The presence of *S. mansoni* obscured the possible effects of the coccidium on the patient, but there is the possibility that his recent intestinal disorders may be ascribed to this parasite. The course and general character of the infection were similar to those described by most authors, but the action of fuadin on the coccidiosis was questionable.

#### ACKNOWLEDGMENT

The author is indebted to Mr. Antonio Puras, of the Department of Pathology, for the preparation of the illustrations.

5. A. Connal, Observations on the pathogenicity of *Isospora hominis*. Tr.Roy.Soc.Trop Med.& Hyg., 16:223, 1922.



## LEGEND

Fig. 1. Oocyst of *Isospora hominis* as passed in stool; slightly out of focus to demonstrate its wall (x 776).

Fig. 2. Sporulated oocyst of *Isospora hominis* (x 776).

## LEYENDA

Grab. 1. Quiste de *Isospora hominis* según sale del intestino (x 776).

Grab. 2. Quiste de *Isospora* esporulado (x 776).

