

## EVIDENCE OF PROTEIN-LOSING ENTEROPATHY IN STRONGYLOIDIASIS

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### S U M M A R Y

The Authors present a case of Strongyloidiasis with intestinal loss of proteins and malabsorption. The patient's rapid recovery and the return of serum albumin to normal values, shortly after the treatment for parasitosis, led us to believe that the cause of the loss of proteins was due to infestation by *Strongyloides stercoralis*. During the 90 days treatment period, the excretion of  $^{51}\text{Cr}$  tagged albumin, varied from 5.3 to 0.9% per day, while albuminemia went from 1.5 g% to 4.1 g%. The relative nutritional importance of this parasite in endemic areas was discussed.

### I N T R O D U C T I O N

A massive infestation by *Strongyloides stercoralis* is sometimes accompanied by malabsorption or may lead to death<sup>2, 3, 4, 7</sup>.

Hypoalbuminemia was also recorded in severe strongyloidiasis leading to suspect the possible existence of serum protein loss through the digestive tract invaded by the parasite<sup>1, 13</sup>. However, there is still no Laboratory evidence to prove this hypothesis.

This paper provides this evidence by reporting a case of severe strongyloidiasis with hypoproteinemia and loss of albumin through the digestive tract. The latter, quickly returned to normal after treating the parasitic disease with thiabendazole.

### C A S E R E P O R T

C.F.B., a 32 years old unmarried male, farm hand, from the State of Paraná was admitted to the Hospital das Clínicas on April 26, 1971. For sixteen months prior to admission, the patient had been having bouts

of diarrhea, with four to five daily bowel movements. He noticed progressive weakness and a month later edema of the legs. The frequency of bowel movements varied up to ten times per day. He now noticed facial edema.

*Past History* — His family and past history were unremarkable.

*Systems Review* — Essentially negative.

*Physical Examination* — Poor general condition with pale mucous membranes, no cyanosis or jaundice. Edema of the face and legs (+ +). Weight 60 kg, height 1.72 m. Blood pressure 120/80 mm of Hg, pulse 100/minute, temperature 37°C. Thorax negative. Abdomen slightly protuberant with slight ascitis (+).

*Laboratory Findings* — The results of additional examinations before and after treatment are shown in Table I.

The variations in serum albumin during the period studied are found in Table II.

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TABLE I  
Laboratory findings before and after treatment

	Before treatment	After treatment
R.B.C.	3.400.000 mm <sup>3</sup>	4.200.000 mm <sup>3</sup>
Hemoglobin	9.5 g/100 ml 59%	13.4 g/100 ml 84%
W.B.C.	8.000 mm <sup>3</sup> Eos (10%)	8.600 mm <sup>3</sup> Eos (3%)
Albumin	1.9 g/100 ml	4.1 g/100 ml
Globulins	2.3 g/100 ml	2.7 g/100 ml
Fat excretion (Kamer)	29.3 g/day	5.1 g/day
Stool examination for parasites (Baermann)	Numerous larvae of <i>S. stercoralis</i>	negative
Biopsy of jejunum	No specific jejunitis	normal
X Rays	Thickening and irregular pattern of the mucous membrane of the small bowel	normal
Albumin <sup>51</sup> Cr	5.3% of the dose per day	0.9% of the dose per day

TABLE II  
Variations in serum protein during the 90 days period of treatment

	Albumin g/100 ml	Globulins g/100 ml	Total g/100 ml
Before treatment	1.5	2.3	3.8
15 days after	1.9	2.3	4.2
30 days after	1.8	2.2	4.0
50 days after	1.9	2.3	4.2
65 days after	2.6	2.4	5.0
95 days after	4.1	2.7	6.8

The fecal excretion of Albumin <sup>51</sup>Cr was estimated as plasma cleared through the intestinal wall (Fig. 1) the technique being already related <sup>5, 8, 9, 10, 11, 12</sup>. Normal values are always on the range of 1% of the administered dose per day.

#### DISCUSSION

The reasons we considered the parasite as the cause of serum protein loss from the digestive tract were: the massive infestation by strongyloides with hypoproteinemia, absen-

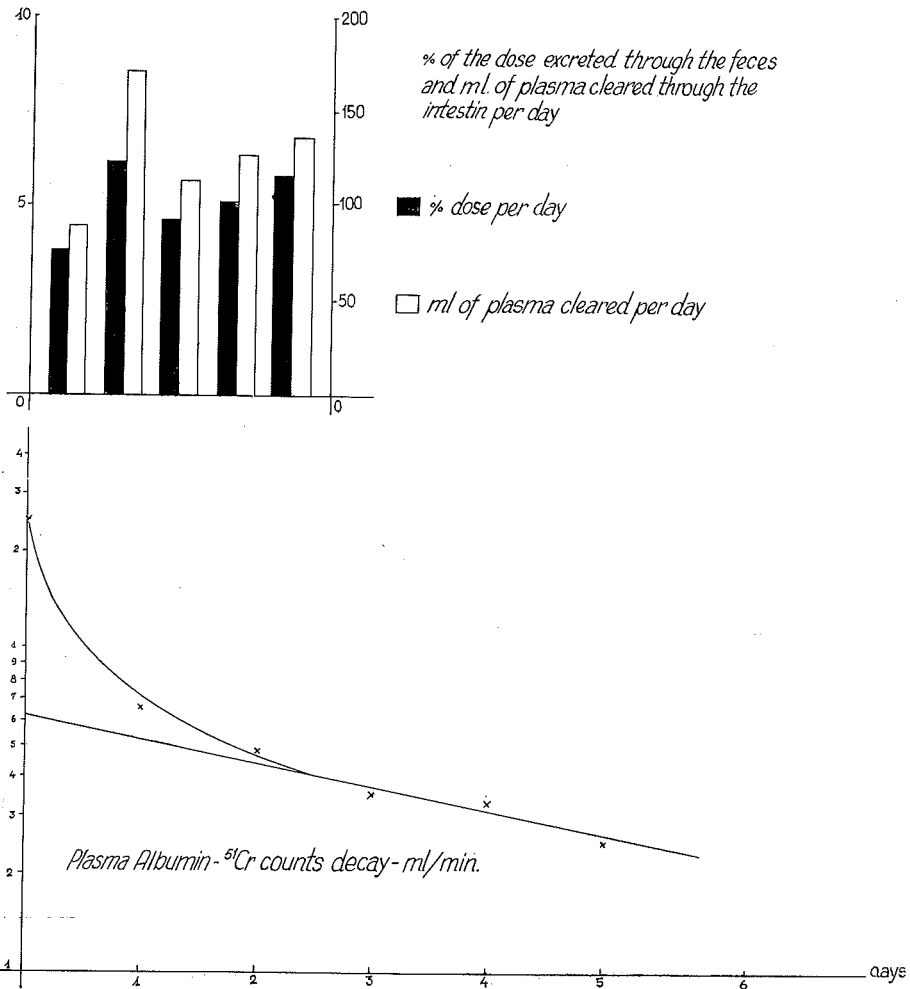


Fig. 1

ce of any other symptoms and pertinent data suggestive of other causes, and the finding of intestinal excretion of albumin reaching average daily values of 5.3% of Chromium 51 tagged albumin with return to normal within 90 days of the beginning of treatment of strongyloidiasis (Table II).

The prompt reversal of the serum protein values to normal (Table I) and the total normalization of the digestive excretion of albumin (<sup>51</sup>Cr), emphasize the importance of this parasitic disease in the decreased availability of protein where the infestation is endemic<sup>1, 13</sup>. In endemic areas strongyloidiasis may be an additional factor preventing the utilization of proteins obtained in the

diet. The protein diet in these areas is already poor.

Considering the severe loss of serum protein in this patient associated with malabsorption syndrome referred in the literature, it is easy to understand the nutritional importance of this parasitic disease in some regions.

Even though evidence is lacking, we believe that the loss of serum protein through the digestive tract, must be connected with characteristics of parasitic enteritis<sup>6</sup>. The X-rays and biopsy of the small intestine support this evidence (Fig. 2).

The role and the quantitative significance of enteric protein loss, and its implications



Fig. 2 — X Ray — Mucous coarsening and irregularity

with nutritional aspects specific in those regions where strongyloidiasis is common, deserve further study.

#### RESUMO

##### *Perda intestinal protéica na estrogiloidíase*

Os Autores apresentam um caso de estrogiloidíase com perda intestinal de proteínas e má absorção. A rápida recuperação do paciente e a elevação da albumina sérica a valores normais, em prazo curto após o tratamento da parasitose, levaram à convicção de que a perda de proteínas tivesse como causa a infestação por *Strongyloides stercoralis*. No prazo de 90 dias, desde o início do tratamento, a excreção de albumina marcada pelo Cromo 51 variou de 5,3% para 0,9% por dia da dose administrada, enquanto que a albuminemia passou de 1,5 g/% para 4,1 g/%. Os aspectos relativos à importância nutricional dessa parasitose nas áreas endêmicas foram comentados.

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