

## Case Report

# Malabsorption Syndrome and Tropical Sprue in a Patient with Capillaria Infection

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**Abstract :** A 52-year-old male complained of a four-year history of diarrhea. He had severe diarrhea and lost 10 kg of weight during the previous eight months. Physical examination revealed moderate wasting with mild oedema on both legs. His serum cholesterol, calcium, total protein, albumin, globulin, sodium and potassium levels were depressed. Both serum folate and vitamin B<sub>12</sub> levels were within the normal limits. A G-I follow through study revealed irregularity of distal jejunum and mid-ileum. Intestinal biopsy showed shortening and widening of ileal villi, and that the submucosa was infiltrated with lymphocytes, eosinophils and plasma cells. Because of these findings coupled with the fact that no ova and parasites were detected in the stool, this patient was diagnosed as a case of tropical sprue. Tetracycline, flagyl and folic acid were given, but there was no clinical improvement. A segmental biopsy of the ileum showed *C. philippinensis* larvae in the crypts and surface mucosa. Mebendazole was given and the patient improved. Intestinal capillariasis is different from tropical sprue in that its pathology is usually in the jejunum while tropical sprue is in both the jejunum and ileum. Therefore, the serum vitamin B<sub>12</sub> level is usually normal in the former while both serum folate and vitamin B<sub>12</sub> levels are low in the latter.

**เรื่องย่อ :** กลุ่มอาการดูดซึมผิดปกติและโรคสปรูในเขตร้อน ในผู้ป่วยติดเชื้อแคปิลลาเรีย

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กลุ่มอาการดูดซึมผิดปกติหมายถึงกลุ่มอาการที่มีการดูดซึมอาหารได้น้อยกว่าปกติผู้ป่วยจะมีอาการท้องเดิน, เบื่ออาหาร, น้ำหนักลด, ท้องโต, อ่อนเพลีย และมีการขาดสารอาหาร. ได้รายงานผู้ป่วยด้วยโรค แคปิลลาเรีย มาโรงพยาบาล ด้วยอาการท้องเดินมีอาการดูดซึมผิดปกติ คล้ายๆ กับโรค สปรู ในเขตร้อน.

ผู้ป่วยชายไทยอายุ ๕๒ ปี มีอาการท้องเดินมา ๔ ปี ถ่ายอุจจาระวันละ ๔-๕ ครั้ง, มีอาการเบื่ออาหาร, น้ำหนัก ลดลง ๑๐ กิโลกรัมในระยะเวลา ๘ เดือน. ตรวจร่างกายพบว่า ผอมและซีด, ขาบวมทั้ง ๒ ข้าง. ตรวจเลือดพบว่ามี ฮีโมโกลบิน ๘.๕ ก./ดล. ปริมาณเม็ดเลือดขาวและเกล็ดเลือดปกติ. มี โภสเซอร์โรล, แกลเลียม, โซเดียม, โพแทสเซียม, โปรตีน รวม, แอลบูมิน และ โกลบูลิน ต่ำกว่าปกติ. การตรวจลำไส้เล็กด้วยเอ็กซเรย์พบว่า บริเวณ มิวโคสา ของ เจจูนัม และ อีเลียม ไม่เรียบเมื่อตัดเนื่องจาก อีเลียม มาตรวจพบว่า วิลโล มีขนาดสั้นลงและกว้างกว่าปกติ. มีเซลล์พวก ลิมโฟไซต์, อีโอซิโนฟิล และ พลาสมา เซลล์เป็นจำนวนมากได้ มิวโคสา. การเปลี่ยนแปลงเหล่านี้คล้ายคลึงกับโรค สปรู ในเขตร้อน. ได้ให้การ

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รักษาด้วยยา เคดระซัคกลิน, ฟลาจิล และกรด โฟลิก, อาการของผู้ป่วยไม่ดีขึ้น. ได้ตัดลำไส้เล็กส่วน อีเลียม มาตรวจ พบ ตัวอ่อนของ แคปิลลาเรีย ฟิลาปีเนนสิส. ให้การรักษาด้วย เมเบนดาโซล, ผู้ป่วยมีอาการดีขึ้น. โรคนี้ต่างจาก โรค สปรูใน เชนรอน ที่มี วิตามินบี ๑๒ ใน สิริ้ม ปกติ, เพราะพยาธิสภาพมักเกิดในบริเวณ เจจูนัม ซึ่งอาจทำให้มีการด โฟลิก ใน สิริ้ม ต่ำกว่าปกติได้. แต่จะไม่มีผลต่อ วิตามินบี ๑๒ ซึ่งดูดซึมใน อีเลียม. ส่วนผู้ป่วยโรค สปรู ในเชนรอนจะมีทั้งกรด โฟลิก และ วิตามินบี ๑๒ ใน สิริ้ม ต่ำไปพร้อมๆ กันแทบทุกราย.

The malabsorption syndrome refers to a clinical condition associated with impaired digestion and/or absorption of ingested foodstuffs. Patients usually present with diarrhoea, anorexia, weight loss, abdominal distention, muscle wasting and malnutrition. As the small intestine is the only significant site of absorption of nutrients, when it becomes diffusely or severely diseased, malabsorption may therefore occur. Mucosal abnormalities of the small intestine found in coeliac disease and tropical sprue have been incriminated as the major cause of malabsorption syndrome. We report herein a patient with capillaria infection who presents with malabsorption syndrome mimicing tropical sprue.

# CASE REPORT

A 52-year-old male came to Pramongkutklao Hospital complaining of a four-year history of diarrhoea, consisting of 4-5 yellowish watery stools per day. The patient had

severe anorexia and had lost 10 kg of weight during the previous eight months. Physical examination on admission revealed moderate wasting; the man was slightly pale with mild oedema of both legs. There was neither hepatosplenomegaly nor abdominal masses. His abdomen was slightly distended but no ascites were detected. His complete blood count revealed Hb 8.5 g/dl, Ht 26%, WBC  $5.0 \times 10^9/l$  with a differential count of PMN 45%, lymphocytes 45% and monocytes 10%. The erythrocytes showed hypochromic macrocytic, poikilocytosis and anisocytosis. Platelet count was  $150 \times 10^9/l$  with some giant platelets. Urinalysis showed no abnormality. Numerous stool examinations by the simple smear and concentration methods for ova and parasites were negative. Cultures of stool grew normal enteric organisms.

The blood chemistries showed decreased values in blood urea nitrogen (2.9 mM/l), cholesterol (2.1 mM/l), calcium (1.4 mM/l), total pro-

**Table 1.** Serum folate, vitamin B<sub>12</sub> and vitamin B<sub>12</sub>-binding proteins in four patients with capillariasis.

	Cases			
	1	2	3	4
Serum folate (ng/ml)	8.4	1.5	3.6	0.3
Serum vitamin B <sub>12</sub> (pg/ml)	357	680	821	1097
Serum UBBC (pg/ml)	1083	1176	1839	634
Serum TBBC (pg/ml)	1440	1856	2660	1731
Transcobalamin (%)				
TCI	15	42	19	24
TCII	46	29	54	57
TCIII	39	29	28	19
Transcobalamin (pg/ml)				
TCI	165	498	343	155
TCII	495	338	989	359
TCIII	423	340	508	121



tein (36 g/l) albumin (9 g/l) and globulin (27 g/l). Serum sodium and serum potassium were also depressed (120 mM/l and 2.8 mM/l, respectively). Blood sugar and creatinine were normal. Serum folate and vitamin B<sub>12</sub> levels were found to be within the normal limits, i.e., 8.4 ng/ml and 357 pg/ml, respectively, as shown in Table 1 (case number 1).

Bone marrow aspiration revealed hypoplastic cellularity, erythropoiesis was present (20%) with few megaloblasts; granulopoiesis was present with normal maturation and increased eosinophils. Lymphopoiesis was present with normal maturation and adequate megakaryocytes. Iron pigment was found to be 4+ with increased mature histiocytes.

Small-bowel radiographs revealed normal duodenum, jejunum and ileum. G-I follow through study showed irregularity of the distal jejunum and mid-ileum. Sigmoidoscopy was normal. Intestinal biopsy by Crosby-Kuglar capsule of the ileum showed shortening and widening of villi, submucosal infiltration with lymphocytes, eosinophils and plasma cells. These changes were similar to those reported in patients with tropical sprue.

The patient was treated with tetracycline, flagyl and folic acid. One month later, he returned with more frequent, watery, voluminous stools with markedly offensive odour. His WBC was  $11.4 \times 10^9/l$  with PMN 42%, lymphocytes 44%, monocytes 7%, eosinophils 5% and basophils 2%. Treatment with tetracycline was given continuously, but there was no clinical improvement. A segmental biopsy of the ileum performed for pathological examination disclosed *Capillaria philippinensis* larvae in the crypts and surface mucosa. Mebendazole (400 mg/day) was immediately started and continued for 21 days. After treatment, the stool became firm and the patient improved in the appetite and gained weight.

## DISCUSSION

The clinical manifestations of this patient were severe watery diarrhoea with abdominal

distention, pitting oedema on both legs, muscle wasting and weakness. Malabsorption in this patient was well demonstrated by findings of low Hb, Hct, serum cholesterol, calcium, total protein with albumin and globulin fractions. His low serum protein with low albumin concentrations and oedema of both legs were suggestive of a protein-losing enteropathy. This patient also had serum electrolytes derangement, i.e., severe sodium depletion and hypokalemia.

As the G-I follow through study showed, there was irregularity of the distal jejunum and mid-ileum; the intestinal biopsy demonstrated shortening and widening of villi with cellular infiltration of the lamina propria. No ova or parasites were detected in the feces. The provisional diagnosis of this patient was tropical sprue.

Tropical sprue is a disease of unknown aetiology characterized by shortening and thickening of the villi of the small intestine and cellular infiltration of the lamina propria, malnutrition and the subsequent development of multiple nutritional deficiencies. Malabsorption of folic acid, vitamin B<sub>12</sub> and fat are well documented. Low serum folate level has been reported in 87% of patients with tropical sprue.<sup>1</sup> Almost all patients with tropical sprue also have impaired absorption of vitamin B<sub>12</sub>, as a result of morphologic changes in the lower intestine and bacterial sequestration.<sup>2</sup> Intestinal biopsies taken from healthy volunteers in Thailand were abnormal and indistinguishable in every way from those encountered in tropical sprue.<sup>3</sup> Tropical sprue, frequently seen among foreigners residing in Thailand, is only rarely seen in Thai; only one well-documented case of a Thai with tropical sprue has been reported.<sup>4,5</sup> Therefore, it was unlikely that this patient had tropical sprue.

Intestinal capillariasis is quite a new disease in Thailand and only some cases have been reported.<sup>6</sup> In untreated patients, the symptoms are abdominal pain, intermittent and voluminous diarrhoea, vomiting, weight loss, weakness, malaise, oedema, anorexia and cachexia. The pathological changes usually occur in the jejunum. The villi were flattened, the mucosal glands di-



lated and the lamina propria infiltrated with plasma cells, lymphocytes, macrophages, eosinophils and neutrophils.<sup>7</sup> Sometimes all stages of the parasites, eggs, larvae and adults have been found in the jejunum in the biopsy or autopsy specimen.<sup>8</sup> There is a malabsorption of fats and sugars and a protein-losing enteropathy develops. Results in the present study indicate that some patients with capillaria infection have low serum folate (<3 ng/ml) but all cases have normal serum vitamin B<sub>12</sub> levels. This could be due to the fact that mucosal changes occur only in the

jejunum which is the site of folic acid absorption where vitamin B<sub>12</sub> is absorbed in the ileum. This is different from tropical sprue which is one of the few disorders where both serum folate and vitamin B<sub>12</sub> deficiency co-exist. A study during the period 1978 - 1986 in Thailand showed that 10 out of 18 patients (56%) with malabsorption syndrome had intestinal parasites and two patients (11%) were infected with capillaria.<sup>9</sup> These findings indicate that in patients with chronic malabsorption syndrome of unidentified aetiology should be investigated for capillaria.

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