TROPICAL SPRUE: A REVIEW (PART-II)

S K MEHTA, P S KAMATH*

Department of Gastroenterology,
Postgraduate Institute of Medical Education and Research, Chandigarh 160 012
(Continued from Vol. 2, No 1 1983)

*Present Address:
Department of Medicine, St. John's Medical College, Bangalore 560 034

Clinical Features of Tropical Sprue (Table 1)

Tropical sprue can affect all age groups including children. In cases of epidemic tropical sprue, a definite time of onset is usually noted with passage of large, bulky, frothy stools associated with nausea, anorexia, fullness of the abdomen and on occasion vomiting and pain severe enough to suggest intestinal obstruction. Symptoms of multiple nutritional deficiencies may also occur. In contrast, in endemic tropical sprue the onset and the symptoms are much less dramatic and symptoms of multiple nutritional deficiency are uncommon. The symptoms seen in our patients are given in a tabular form.

The physical findings are varied with almost no abnormal signs at one end of the spectrum to emaciation, vitamin deficiency and pedal edema at the other end. Xerostomia conjunctivae due to vitamin A deficiency seen in up to 75% of cases cannot be attributed to tropical sprue alone. Cutaneous hyperpigmentation is seen in 40% of cases, possibly due to an alteration in melanin and is responsive to vitamin B12 and folate therapy. Peripheral neuropathy has also been documented clinically, histologically and by nerve conduction studies.

Investigations (Figure 2 & Table 2)

The upper gastrointestinal barium series was abnormal in 28-35% of our cases, the abnormalities consisting of flocculation (seen at 45 minutes with non flocculent barium), dilatation, segmentation and thickening of the mucosal folds. The abnormalities, however, depend on the severity of the disease. The jejunal biopsy was normal in 26-38% of our cases. The commonest abnormality was partial villous atrophy though subtotal villous atrophy was also rarely seen. The hematological abnormalities

<table>
<thead>
<tr>
<th>Table 1: Clinical Features Of Tropical Sprue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
</tr>
<tr>
<td>Diarrhoea</td>
</tr>
<tr>
<td>Abdominal pain/discomfort</td>
</tr>
<tr>
<td>Weight loss</td>
</tr>
<tr>
<td>Weakness</td>
</tr>
<tr>
<td>Dyspnea on exertion</td>
</tr>
<tr>
<td>Edema feet</td>
</tr>
<tr>
<td>Vomiting</td>
</tr>
<tr>
<td>Anaemia</td>
</tr>
<tr>
<td>Fever</td>
</tr>
<tr>
<td>Glossitis/Cleidois</td>
</tr>
<tr>
<td>Burning feet/paresthesia</td>
</tr>
<tr>
<td>Stunted growth</td>
</tr>
</tbody>
</table>

—indicates that no mention was made in the paper.

Fig. 2: This figure gives a step-wise approach to the diagnosis of tropical sprue. At each step particular features are looked for and an assessment is made.
seen are iron deficiency and megaloblastic anemia with a predominantly normoblastic bone marrow, the cause of the megaloblastic anemia being lack of folate or vitamin B₁₂, or both. Isolated vitamin B₁₂ deficiency may also be seen. There is no relationship between values of the serum concentration of folate or B₁₂ and the duration of symptoms.

The steatorrhea in tropical sprue is usually mild (6-12 g/24 hrs). 5 hr urinary D-xylene is estimated after administration 5 g of D-xylene. The normal D-xylene excretion is more than 1.2 g using 5 g of D-xylene. However, a 25 g dose of D-xylene which tests the intestinal reserve in mild cases is suitable in bringing out the absorptive defect in tropical sprue. Breast hydrogen estimation after oral syrup has been evaluated in tropical sprue and the results are promising. Malabsorption of vitamin B₁₂ as assessed by absorption of Co⁷⁷ vitamin B₁₂ is observed in 50-100% of cases. The lactose tolerance test is frequently abnormal. The comparative features of the various studies pertaining to clinical findings and investigations are given in Tables 1 and 2.

**Differential Diagnosis**

Tropical sprue has to be differentiated from other diseases causing malabsorption. Parasites known to cause malabsorption as well as other conditions which can be diagnosed on histology or on radiology have to be ruled out. Cases of hypogammaglobulinemia which are often missed should be kept in mind.

**Treatment**

The various modes of therapy for tropical sprue are difficult to evaluate critically as spontaneous improvement without therapy can be seen in 30% of patients in epidemics. The improvement in these patients occurs in periods ranging from 3 months to 3 years. The two present modes of therapy used are antibacterial drugs and folie acid.

**Antibacterial drugs:** The aim in giving antibacterial drugs is to break the bacterial overgrowth—mucosal injury—malabsorption cycle. Poorly absorbed sulphonamides such as sulphaguanidine given for a period of six months have been found to be effective.

The standard therapy consists of a 4-8 week course of 1 g oral tetracycline daily given in divided doses along with folie acid 10 mg daily, a schedule with which we have had excellent results. Long term tetracycline therapy given for even over 6 months may not be effective in some cases. Treatment of tropical sprue with oral antibiotics is usually not associated with return of appetite or weight gain during the treatment period even though intestinal function is sometimes improved.

**Folic acid:** The earliest evaluation of folic acid as a mode of therapy for tropical sprue was almost 50 years ago when massive doses of parenteral liver extract were used to obtain remissions. Folic acid therapy is associated with return of appetite and weight gain within 2 weeks of administration even in the absence of significant improvement in intestinal function. Our policy is to give 10 mg folie acid daily for a period of between 6 to 12 months. A combination of folate and tetracycline often results in a rapid reversal of the abnormal structural features found in the jejunal biopsies, which may become normal within 2 weeks of starting therapy.

**Other Treatment Modalities**

If vitamin B₁₂ deficiency is present it is given 1000 µg (intramuscularly) per week. Once the vitamin B₁₂ stores are replenished as seen by normalization of the hemogram and the serum B₁₂ levels, the patients can be put on an oral maintenance dose of vitamin B₁₂ 100µg daily.

A high protein diet is recommended as also monitoring of the fluid and electrolyte status and in severe cases their intravenous replacement. Glucocorticoids have been used but the jejunal morphology did not show improvement. The drawbacks of this study were that the criterion for diagnosis of tropical sprue was at least one abnormal absorption test, the control and the study groups were not matched or randomised, the study was not double blind and the data lacked statistical support.

**Course and Prognosis**

The course of the disease is variable from days to years, with exacerbations and spontaneous remissions. The
disease may progress through various stages and the multiple deficiency state may take years to develop. In epidemics, the mortality without therapy is 80% yearly deaths are due to fluid and electrolyte losses while late deaths are the consequences of anemia and infection. Therapy with antibacterial agents and folic acid is useful, but because of the spontaneous remissions that occur during the course of the disease, it is difficult to evaluate critically.

(Completed)

References

2. Booth CC. The first description of tropical sprue (William Hildrey) Gut 1964; 5: 45-50
43. Klipstein FA, Enterotoxigenic and subclinical malabsorption in the tropics. Lancet 1979; i:277-8