CLINICAL DIAGNOSTIC CRITERIA FOR SUSPECTED ILEOCAECAL TUBERCULOSIS

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Background: Ileocecal Tuberculosis (TB) is difficult to diagnose clinically as getting histological specimens means resorting to surgery, which is often hazardous and complicated in sick, anemic and emaciated patients with malabsortion syndrome. The present study was undertaken as an attempt to devise clinical criteria for diagnosis of ileocecal TB without resorting to invasive surgery. **Methodology:** 52 patients with suspected ileocecal TB were assigned pre-determined criteria based on clinical signs, symptoms and simple laboratory investigations. Criteria for exclusion were also devised; patients were followed up for an average of 1.1 years. Clinical response was assessed by complete resolution of symptoms and signs within 3 months. **Results:** All 52 patients completed the study and all became symptom free within 3 months of treatment. All patients gained a minimal of 2 kg over 6 weeks and 32 patients gained more than 10% of body weight within 3 months; the difference in mean weights before and after 3 months treatment was highly significant (p<0.001). **Conclusions:** In patients with suspected ileocecal tuberculosis, predetermined clinical criteria can be readily applied for early diagnosis, without resorting to surgery and with excellent clinical response.

INTRODUCTION

Tuberculosis (TB) is a very old disease worldwide and extremely common in developing countries. Once seemingly under control, it has now made a comeback with a vengeance not seen before. In the western world and African subcontinent, AIDS has been identified along with easy travel across continents as a reason for this comeback, [1] but here in Pakistan where we have yet to encounter AIDS in proportions seen in the west, TB is still a killer disease that seems to take its toll in the lower and lower middle class populations.

For Pakistan, the TB burden, as estimated in a WHO report [2] which contains data obtained till 2004, is reported at an incidence of 181 cases/100,000 population/year while the smear positive incidence is reported as 81 cases/100,000 population/year; prevalence figures are reported as 329 cases/100,000 population/year. Mortality figures from TB are estimated at 40 deaths/100,000 population/year. It is likely that these figures are based mostly on cases of pulmonary TB, while extra-pulmonary TB cases may by and large remain undetected in most surveys.

The situation in neighboring Afghanistan is even more dismal. The WHO report for that country [3] gives an estimate of the TB burden till 2004 as an incidence of 333 cases/100,000 population/year, the incidence of smear positive cases as 150 cases/100,000 population/year, a prevalence of 666 cases/100,000 population/year and a mortality rate of 92 deaths/100,000 population/year.

In NWFP and Baluchistan, Afghan migration during the war may have attributed to rapid spread and recurrence, but rest of the country also does not show any respite and in NWFP, areas where there was no migration of refugees e.g. Kohistan still continue to represent a high percentage of Tuberculosis cases.

The EMRO WHO [4] gives an idea of the prevalence of this disease in the Eastern Mediterranean region; the number of notified cases in DOTS areas (Afghanistan, Bahrain, Djibouti, Egypt, Iran, Iraq, Jordon, Kuwait, Lebanon, Libya, Morocco, Oman, Pakistan, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, Emirates, Yemen and UNRWA) for 2005 were 321468 with Afghanistan contributing 25473 and Pakistan the leader at 163927 cases. Whether this indicates the success of DTS implementation or reflects the larger number of cases in Pakistan is a topic for debate, while it may still represent a fraction of the total cases of TB in Pakistan.

Extra pulmonary TB is again a very common disease globally [5,6,7] as well as in Pakistan with the abdomen as a major site. Previous studies stating that pre-operative diagnosis of abdominal tuberculosis is very difficult [8,9,10,11] needs to be corrected. Abdominal TB can affect the gastrointestinal tract, peritoneum, mesenteric lymph nodes, liver, spleen and pancreas. [12] The ileocecal region is the most common site involved, followed by jejunum and colon. Peritoneal TB almost invariably causes ascites and is diagnosed initially, and often solely, on a clinical basis in our country because surgical interventions for biopsy specimens often

lead to fistula formation with prolonged agony for patients and often with disastrous results. This set us upon a task to try to define a set of clinical symptoms and signs with simple laboratory investigations which are easily available even in the remotest part of Pakistan, to ensure a rapid diagnosis of ileocecal TB.

MATERIAL AND METHODS

Fifty-two consecutive patients with abdominal complaints suggestive of ileocecal tuberculosis presenting in Medical A unit of the Department of Medicine, Ayub Teaching Hospital Abbottabad, were studied over a period of 3 years between 1998 and 2001. Children from 5 years onwards were included in the study. Inclusion criteria were formulated based on a set of clinical features and simple laboratory investigations available at the Basic Health Unit (BHU) level. Specialized investigations like ultrasound abdomen and barium meal & follow through were done on subset of patients who could afford the cost and time.

Patients presenting with the following symptoms and signs were included in the study (Afzal's criteria for diagnosis of ileocecal TB):

A. Major or Symptom dominated.

B. Minor or Sign dominated.

If any patient had any of the three following symptoms and two signs or any of the following three signs and two symptoms, were included in the study and designated to major or minor criteria respectively.

Symptoms: (present for 4 weeks)
1. Diarrhea alone or alternating with constipation, less than 6 loose motions per day of more than one month duration.
2. Generalized abdominal pain, especially which increases after meal, of more than one month duration.
3. Fever, low grade, of more than one month duration.
4. Vomiting after meals.
5. History of weight loss.

Signs: (including investigations)
1. Doughy abdomen.
2. Generalized abdominal tenderness, especially in the right iliac fossa.
3. Haemogloblin (Hb) less than 12 g/dl.
4. Erythrocyte sedimentation rate (ESR) more than 18 mm/ 1st hour.
5. Positive sclavo.

Each major criterion was given two points and each minor criterion one point to develop a final score (Afzal's score).

Patients with any of the following signs or symptoms were excluded from the study, as these symptoms are in general more typical of non-tuberculous inflammatory bowel disease, infective bowel conditions and malignancies.
1. Bloody diarrhea with or without mucus.
2. Tenesmus.
3. More than 6 loose motions per day
4. Proctalgia
5. Buccal ulceration.

Patients who fulfilled the criteria were started on Anti tuberculosis treatment for a period of 9 months. Four drugs (Rifampacin, Ethambutol, INH and Pyrazinamide) were given for first 3 months and 3 drugs (Rifampicin, Ethambutol, and INH) for the next six months.

This was a descriptive case series with prospective clinical data collection to assess whether these criteria, when applied to patients presenting with signs and symptoms suggestive of ileocecal tuberculosis, can be useful diagnostic tools.

Data were entered into computer program SPSS version 11.0 for analysis. Relevant calculations were done for qualitative and quantitative variables. Differences between groups were tested by the Chi Square test (for qualitative data) and the Student's T-test (for quantitative data); $p = 0.05$ was considered significant.

RESULTS

All 52 patients completed the study and the response to therapy was initially evaluated after 3 months; patients were followed up for 13 months till completion of treatment. Demographic data are provided in Table 1. There were 20 (38.5%) males and 32 (61.5%) females (1:1.6). Ages of patients ranged from 5 to 65 years with a mean age of 26.74 ± 16.42 years. The mean age of males was 32.52 ± 20.73 years, while the mean age of females was 23.12 ± 12.04 years, this difference being statistically significant (p=0.043). The majority of patients (30, 57.7%) were in the age groups of 5-25 years followed by the age group of 26-35 years (10, 19.2%).

Presenting complaints of patients are given in Table 2.

Moderate diarrhea was present in 34 (65.4%) patients, moderate abdominal pain in 42 (80.8%) patients, moderate fever in 41 (78.8%), moderate vomiting in 16 (30.8%) and moderate weight loss in 43 (82.7%) patients. The duration of symptoms ranged from 2 to 36 weeks, with majority of patients having duration of up to 8 weeks (30, 57.8%); the mean duration was 11.3 ± 8.1 weeks.

Table 1: Demographic data of patients (n = 52).

Variables	Cases	Percentage
Gender		
Male	20	38.5
Female	32	61.5
Age (years)		
05 – 15	17	32.7
16 – 25	13	25.0
26 – 35	10	19.2
36 – 45	03	5.8
46 – 55	05	9.6
56 – 65	04	7.7
Mean Age (years)	26.4 ± 16.42	
Male	32.52 ± 20.73	
Female	23.12 ± 12.04*	

*p=0.43 for the age difference by gender.

Table 2: Presenting complaints of patients (n =52).

Complaints	Cases	Percentage
Diarrhoea		
Mild	01	1.9
Moderate	34	65.4
None	17	32.7
Abdominal Pain		
Mild	01	1.9
Moderate	42	80.8
None	09	17.3
Fever		
Mild	07	13.5
Moderate	41	78.8
None	04	7.7
Vomiting		
Mild	02	3.8
Moderate	16	30.8
None	34	65.4
Weight Loss		
Mild	06	11.5
Moderate	43	82.7
None	03	5.8
Duration of symptoms		
< 8 weeks	30	57.7
8.1 - 16 weeks	11	21.2
16.1 – 24 weeks	09	17.3
24.1 – 36 weeks	02	3.8

Clinical signs and investigative findings are shown in Table 3.

Normal abdomen was found in 26 (50%) patients and a moderately doughy abdomen was found in 23 (44.2%) patients. Moderate abdominal tenderness was however present in the majority (43, 82.7%) patients; three of these patients (5.8%) also had a palpable abdominal mass. ESR ranged from 7.0-160 mm/1st hour; it was raised in the majority of patients with only 7 (13.5%) patients having an ESR = 20 mm/1st hour; mean ESR was 48.25 ± 30.16 mm/1st hour. Hemoglobin levels ranged from 3.7-12.0 g/dl with a mean Hb of 9.12 ± 2.05 g/dl; 22 (42.3%) patients had Hb levels = 9.0 g/dl and 30 (57.7%) had Hb levels between 9.1-12 g/dl. The Sclavo test was positive in 30 (57.7%) patients and negative in 22 (42.3%) patients.

Table 3: Clinical signs and investigation findings in patients (n = 52).

Signs & Findings	Cases	Percentages
Doughy abdomen		
Mild	03	5.8
Moderate	23	44.2
None	26	50.0
Tender abdomen		
Mild	06	11.5
Moderate	43	82.7
(with mass)	(03)	(5.8)
None	03	5.8
ESR (mm/1st hour)		
= 20	07	13.5
21 – 40	17	32.7
41 – 60	17	32.7
61 – 80	07	13.5
81 – 100	02	3.8
> 100	02	3.8
Mean ESR	48.25 ± 30.16	
Hb (g/dl)		
3 – 6	05	9.6
6.1 – 9	17	32.7
9.1 – 12	30	57.7
Mean Hb	9.12 ± 2.05	
Sclavo test		
Positive	30	57.7
Negative	22	42.3

Afzal's scoring system results are shown in Table 4. The scoring system adopted (Afzal's score) based on major and minor criteria provided a range of scores from 7-15, the modal score being 10 (26.9%); the mean score was 11.3 ± 1.98. The majority of patients scored between 10-12 points (28, 53.8%), followed by scores of 13-15 points (16, 30.8) and 7-9 points (8, 15.4%). The cutoff score of 10 points and above represented 44 (84.6%) of patients.

Table 4: Afzal's Scores of patients (n = 52).

Scores	Cases	Percentages
7 – 9	08	15.4
10 – 12	28	53.8
13 - 15	16	30.8
Mean Score	11.3 ± 1.98	

Ultrasound examinations were indicated and performed in 39 (75.0%) of patients. They were normal in 32 (82.0%) patients, showed gut loops in 2 (5.1%) patients, adhesions, obstruction, ascites, hepatomegaly and splenomegaly in one patient (2.5%) each, respectively.

Barium meal examination was performed in 15 (28.8%) patients, as indicated. It was normal in 11 (73.3%) and revealed ileocecal stricture in two (13.3%), narrow ileocecal junction and thickened mucosal folds with distended bowel loops in one patient each (6.7%).

Patients were weighed before and after 3 months of treatment; weight at presentation and weight gain after 3 months of Anti TB treatment were documented in 52 patients presenting with symptoms and signs suggestive of ileocecal TB (Table 5). Patients gained weights after three months of treatment, so that the mean weights before treatment (39.54 ± 12.88) and after treatment (43.83 ± 13.30) showed a significant difference (p <0.001).

Table 5: Pre and Post therapy body weight (n=52).

Variables	No. of cases (%)	
	Pre therapy	Post therapy
Body Weight (kg)		
10 – 20	04 (7.7)	03 (5.8)
21 – 30	09 (17.3)	06 (11.5)
31 – 40	11 (21.2)	11 (21.2)
41 – 50	19 (36.5)	13 (25.0)
51 – 60	06 (11.5)	13 (25.0)
61 – 70	03 (5.8)	05 (9.6)
71 - 80	-	01 (1.9)
Mean weights (kg)		
Before treatment	39.54 ± 12.88	
After treatment	43.83 ± 13.30*	

*p <0.001 for the difference in weights.

Anti tuberculosis treatment was given for a period of 9 months and patients were reviewed monthly for first 3 months and then every two months subsequently.

All patients were free of symptoms within a period of 6 weeks to three months. Elicitable signs and laboratory parameters all returned to normal within three months; diarrhea and fever were earliest to respond with abdominal pain being the last to settle.

DISCUSSION

Ileocecal tuberculosis has always been elusive to physicians, patients often ending in the surgical ward with acute or subacute obstruction, intractable vomiting and diarrhea and often chronic abdominal masses.

Clinicians with a high index of suspicion are able to diagnose these cases at an early stage, based on clinical signs and symptoms. In our study, weight loss, abdominal pain, fever and moderate diarrhea were the most common findings at presentation in patients (Table 2). Other studies report similar findings.[13,14,15]

Our study showed that clinical criteria, judiciously applied to patients presenting with features of ileocecal tuberculosis can be a major tool in the diagnosis of this disease; scoring by Afzal's scoring system (Table 4) provides a valuable diagnostic aid to the clinician with scores = 10 indicating a high degree of probability for the disease.

Barium meal studies probably have been considered as a gold standard for diagnosis of TB by most physicians globally and in our country.[16,17,18] Our study has shown that it is not helpful in early disease and seldom helpful in advanced disease. As only subset of 15 patients (28%) underwent barium meal study, only three showed a stricture and one revealed thick mucosal fold with distended gut loops.

Ultrasound study of abdomen was the least useful investigation as it was done in 38 patients and helpful in only 4, where only two scans showed adhesions and one showed matted loops of gut and one showed obstruction without any stricture.

Weight gain was astonishing with almost three quarter of patients gaining more than 10% of body weight within three months (Table 5). None of the patients included in the study discontinued treatment and all patients responded to treatment as assessed by the end of treatment, based on resolution of signs and symptoms and weight gain. All patients were followed up for an average of 4 months after discontinuation of treatment and no relapse was documented within that period.

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