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INTESTINAL TUBERCULOSIS;
DIAGNOSTIC DILEMMA

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ABSTRACT... Objective: To find out the effective diagnostic algorithm (clinical features and investigations) for intestinal tuberculosis. **Design:** A retrospective study. **Place and Duration of Study:** B.V. Hospital Bahawalpur, June 2007 -2009. **Patients and Methods:** 100 cases of diagnosed abdominal tuberculosis were included in the study. Demographic variables, symptomology, investigations and management detail were recorded from the hospital record of surgical department of B.V. Hospital Bahawalpur. **Results:** Out of 100 diagnosed cases of intestinal T.B, 55 patients were male. 62 patients were bellow 30 years. Most Common presentation was obstruction (29 %), peritonitis (18%) Abdominal distention (20%) and Abdominal Mass (15%), Histopathology (97%) and laparoscopy (82%) were most sensitive. Operative procedure were right Hemicolectomy (26%), resection Anastomosis (23%), stricturoplasty (13%0, Ileostomy (9%), adhesiolysis (17%). Conservatively managed patients on anti-tuberculous therapy (ATT) were (12%). Wound infection and dehiscence (12%) were the common complications. Four patients died. **Conclusions:** All patients with prolonged history of weight loss, vague health and non specific abdominal symptoms and those who are under consideration for intestinal tuberculosis should follow the protocol comprising histopathology (laparoscopic/ USG guided / open), complemented by the diagnostic laparoscopy and radiological studies.

Key words: Abd. Kock's, Eliza, PCR, Laproscopy

INTRODUCTION

According to W.H.O nearly one third of the world population is at risk of acquiring tuberculosis[1]. In 1993, WHO declared tuberculosis as global emergency. It's among the tenth leading causes of death.

Abdominal tuberculosis accounts for 2% of cases of tuberculosis. It was once a common surgical disease all over the world but now rarely found in western world[2]. It can affect any part of body including pancreaticobiliary, gastrointestinal and lymphatic system etc[3]. In gastrointestinal tract, most commonly involved area is ileocecal region and terminal ileum, solid viscera involvement is rare[4].

Intestinal tuberculosis can have acute, chronic or acute on chronic presentation in form of intestinal obstruction, peritonitis or Mass Right Lower Quadrant. Abdominal tuberculosis is responsible for 3-20% cases of intestinal obstruction and for 5-7% cases of perforation[5]. The presenting clinical features of abdominal pain, fever, weight loss, altered bowel habbits, sweating, abdominal swelling are present with variable frequency in different patients[6].

Intestinal tuberculosis continues to challenge the diagnostic acumen of all experts as presentation is non specific and needs confirmatory evidence through ESR, biochemical investigations, radiology, ELISA and T- spot test etc.

Biochemical investigations like Adenosine deaminase levels in serum and ascitic fluids, Serum LDH level, and ascitic interferon levels are considerable.

Serum Adenosine deaminase[7] is the enzyme found in lymphocytes and is a marker for host response. Its levels >42 IU/L are significant. For levels >33 U/L in ascitic fluid have 100 % sensitivity. Serum LDH levels >90 U/L are present in patients with abdominal tuberculosis[8]. Interferon levels measures the severity of infection.

Serological tests are based on the detection of specific antibodies to myobacterial tuberculosis. ELISA enables rapid diagnosis as IgG component has high specificity for abdominal tuberculosis. TB nested PCR has the ability to detect as little as[8] fg of mycobacterium DNA or 1-2 Bacilli from a variety of sources[9,10,11]. Newer modalities are luciferase receptor assay and restriction fragment length polymorphism and T.spot test (bases on the reaction of sensitized helper T- cells). It got 98% sensitivity and 97% specificity.

In radiological evaluation, X- ray chest is the first investigation, as active pulmonary lesions may be present up to 60% of intestinal or Abdominal Kocks patients[12]. X-ray abdomen (supine) can shows air fluid levels and absent cecal or rectal gas shadows etc. Contrast studies show strictures, proximal gut dialation, narrowing of Ileum (Fleischer sign) and Fibrotic terminal ileum opening into contracted caecum(sterlin sign).

USG (abdomen) shows abdominal lymph nodes, ascites, Gut wall thickening, adherent bowel loops and mass of varied echogenicity centered on ileocaecal junction. It may show fluid collection between bowel loops (club sandwich sign)[13].

CT and MRI will also show detail of gut involvement[14]. CT Enteroclysis is being used for small bowl tuberculosis[15]. Diagnostic endoscopy offers the advantage of minimal invasion[16]. Laparoscopy when and where requires shows ascites, fibrous bands, Adhesions, cecal mass, lymph nodes and hyperemic structures[17]. Capsule endoscopy is a newer modality for small bowel tuberculosis.

However in our setups, no gold standard modality is deviced yet. A combination of symptomatology and diagnostic tools is required to device an algorithm for diagnosis of intestinal tuberculosis.

Most cases are diagnosed late and present with complications due to delay in diagnosis. The associated mortality and morbidity demand prospective research to find out the ways and procedures to reduce this. Few people advocate a trial of anti tuberculosis therapy for suspected cases on this ground[18]. Primary treatment is medical chemotherapy .Tuberculosis enteritis needs regimen for 9 months.

Different surgical regimens are applied after ineffectiveness of ATT, commonly adopted are adhesiolysis, stricturoplasty, Ileostomy and right hemicolectomy.However lapratomy should be performed only when complications develop or diagnosis remain unclear inspite of these diagnostic modalities. In any case recommended surgical procedures today are conservative and a period of pre operative drug therapy is controversial. Intestinal tuberculosis carries a good prognosis if promptly diagnosed and treated .Our study highlights the various clinical presentations of intestinal tuberculosis and ways and means to diagnose it.

OBJECTIVES

To find out the diagnostic algorithm (clinical features and investigations) for intestinal tuberculosis on the basis of which we can diagnose and treat the disease effectively.

PATIENTS and METHODS

Study settings

Surgical department of B.V.Hospital, Bahawalpur.

Study design

Retrospective study
Duration: June 2007 to June 2008.

Sample size

100 cases.

Sampling technique

Convenience

Inclusion criteria

All patients above pediatric age group of either sex (>12 years).

Exclusion criteria

Patients with other co morbidity e.g DM,CLD etc.
Patient with previous History of surgery.

Data collection procedure

A list of patients with their charts obtained from the hospital record(patient ward registers) who were diagnosed and treated as abdominal tuberculosis during a period of two years(June 2007 to June 2009).The demographic detail,presentation,lab reports and surgical notes of these patients were recorded on a predesigned proforma.

Data analysis

Data analysis was done by using Microsoft excel SPSS

version 10.

RESULTS

One hundred cases of Intestinal Tuberculosis were diagnosed at the surgical department of BVH Bahawal pur.

Age	Male	Female
< 30	34	28
> 30	21	17

Male to female ratio is 1.2:1. Most cases were. (68 patients) were below 30 years and 38 were above 30 year of age.

61 cases were hospitalized through emergency department of B.V.H. 28 cases were admitted through surgical OPD.11 cases were shifted from medical wards.83 cases were from peripheral and 17 were from urban area of Bahawal pur.

Most common presentation was intestinal obstruction (29) with peritonitis (18).abdominal distention (20) and abdominal mass (15) to follow:

Clinical presentation	No. of Patients
Intestinal Obstruction	29
Peritonitis	18
Abdominal Distention	20
Abdominal Mass	15
Vague ill health	08
Non specific symptoms like fever, nightsweats, anorexia, wt. loss, malaria	10

Tests were performed on the basis of when and where required.

- Histopathology of tissue (open/laparoscopic/ USG guided) was the most sensitive 97%.
- Diagnostic laparoscopy was the second most sensitive tool (82%).
- Serum tests like ELISA was done in doubtful cases.

Investigation	Sensitivity
Lymphocytosis	30%
ESR	77%
x-ray chest (PA) & abdomen (spine)	65%
USG	57%
Barium follow through	60%
CT scan	69%
ELISA	80%
Laparoscopy	82%
Biopsy (open/ laparoscopic)	97%
Ascitic fluid	53%

Procedure	Percentage
(R) Hemicolectomy	26%
Anastomosis in multiple structures	23%
Stricturoplasty	13%
Ileostomy	09%
Adhesiolysis	17%
Conservatively managed	12%

- Most frequent intervention was right Hemicolectomy (29 patients) and Anastomosis (25 patients) followed by Adhesiolysis, stricturoplasty (14 patients) and Ileostomy (11 patients).
- Wound infection and dehiscence was the commonest sequele (12 patients), three patients develop Anastomotic leakage.
- Four patients died. Three due to extent or complications of disease i.e. military TB and one due to side effect of ATT.

DISCUSSION

It is the sixth most common site of extra pulmonary

infection[19]. Whole of gastrointestinal tract can be involved but ileocecal region is the most frequent. Mycobacterium tuberculosis and bovis (ingestion) both are employed in the etiology of intestinal tuberculosis[20].

Most authors believe that there is no sex predilection and generally risk is equal. In our study male to female ratio is 1.2 to 1.It is in agreement to the study conducted by Uygur and Dobak in Turkey[21]. Although some authors evidenced female involvement predominantly.

Kapoor[22] et all reported that two third of their patients with intestinal tuberculosis were between 21-40. We didn't find such observation in our study. Most of our patients were below 30 in accordance to a study conducted in Nepal by P Kishor and his colleagues[23].

In our study, majority of the patients were having acute presentation, the same pointed out by other researchers like Badaoui[5] and his colleagues, and were admitted through emergency department. Remaining came from medical wards or surgical outpatient department. Data revealed disease frequency in low socioeconomic groups as 83 cases were from far flung peripheral areas and only 17 were from urban areas of Bahawalpur.

Many articles suggest that commonest presentation of intestinal tuberculosis is with obstruction[24]. We got it with obstruction, peritonitis and lower abdominal mass etc. Innes DB[25] et all reported pain, anorexia and weight loss as the common presenting symptoms in contrary to the work in Taiwan. Chen WS, Leu Sy Hsuh et all, in Taiwan, found pain, weakness and distention as the dominant symptoms[26]. In our study we recorded abdominal pain the most frequent with abdominal distention, vomiting, fever, weight loss, altered bowel habits and ascites to follow. From diagnostic point of view, majority of our patients were with intestinal obstruction (29) and peritonitis (18) and it's comparable to other articles. However few of our patients presented with either with nonspecific symptoms or with vague health (having investigation based diagnosis).

ESR is a nonspecific positive tool in intestinal tuberculosis as evidenced by Quak SH[27] et all but it can be normal in histologically proven intestinal tuberculosis. we got clues from raised ESR and lymphocytosis in a few patients in our study, in agreement to the above said work. Less invasive modalities like ultrasound abdomen and CT scan of abdomen got 57% and 69% sensitivity, respectively, in picking abdominal mass (cacoon), lymph nodes, ascites and dilated gut in our work .Ultrasound is a cheap and valuable investigation when done with proper history and examination[28]. However CT scan was more valuable in cases of cacoon detection. This observation of our study coincides with the work of Uvqur and Dobak G[21,28].

Buxi TBS and Sud S reported the significance of barium contrast studies especially in case of strictures with gross proximal dilatation[29]. We got conclusive results in 60% of cases; however classical signs e.g. sterlin and flescher were seen only in 20% cases. Ascitic fluid aspiration, directly or ultrasound guided helped in 53% cases but ratio is low as compared to the study of Uzunkoy A and colleagues[30]. In doubtful cases, ELISA enabled the rapid diagnosis and the sensitivity was comparable to the international reports. In our study diagnostic laparoscopy was having very high accuracy (82%).It was having the added advantage of direct visualization and tissue biopsy. In our study laparoscopy was done in all case especially with positive nonspecific symptoms like weight loss, anorexia, sweating with non specific abdominal pain and having raised ESR and lymphocytosis.Newer studies supports our verdict. S Rai and WM Thomas[31] recommended diagnostic laparoscopy in all those cases where a history of weight loss is present over long periods, our study coincides the report.

Histopathology of the tissue was the ultimate diagnostic investigation with 97% accuracy and was done through laprotomy or laproscopically. Few cases converted to laprotomy during laproscopy due to dense adhesions .Tan KK,Chen K,Sim R. recently reported the significance of histopathology in atypical presentations of abdominal tuberculosis[32].

Cases diagnosed early (12 patients) were managed on ATT.Two month regimen with four drugs (isoniazid,

rifampicin, ethambutol and pyrazinamide) and then three drugs regimen other than pyrazinamide for seven months. Although a trial of ATT is advocated by Sharma YR and his colleagues in all cases with suspicion of intestinal tuberculosis[18]. In our study, most patients diagnosed late and came with complications of disease and underwent sugery.This policy was in agreement of a local study carried in N.W.F.P[33]. However suggestions by Akqun K et all were to perform laprotomy in those cases where diagnosis remains unclear in spite of these diagnostic modalities or in case of complications[34]. Most frequent interventions were right hemicolectomy (29 patients) and anastomosis (25 patients) followed by adhesiolysis (21 patients), stricturoplasty (14 patients) and ileostomy (11 patients). Wound infection and dehiscence was the commonest sequele (12 patients) three developed anastomotic leakage[35].

Four patients died. Three due to the extent or complications of the disease and one due to the side effects of ATT.

CONCLUSION

All patients with prolonged history of weight loss, vague health and non specific abdominal symptoms and those who are under consideration for intestinal tuberculosis should follow the protocol comprising histopathology (laparoscopic/ USG guided / open), complemented by the diagnostic laparoscopy and radiological studies.

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Nearly all men can stand adversity, but if you want to test a man's character, give him power.

Abraham Lincoln