Abdominal Tuberculosis in Yemen

Original Article

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Fac Med Baghdad 2008; Vol.50, No.1
Received May 200 7
Accepted Dec. 2007

Summary:

Background*:*

tuberculosis is an endemic disease in Yemen. Abdominal Tuberculosis (AT) is the most common extra pulmonary manifestation of the disease.The clinical picture can be non specific.Laparoscopy is the most accurate diagnostic method but has its limitation depending on presentation.

The aim of this study was to present the common clinical manifestation and the different type of Abdominal TB,the surgical procedure used,the morbidity and mortality of the disease.

Patient and Methods*:*

This is a prospective study of 48 patients with Abdominal TB who were admitted to Kuwait University hospital in Sana'a-Yemen between Jan 2002-Dec 2004.fourteen patients (29%) were treated medically with Anti TB drugs.Thirty four patients (71%) required surgical Intervention for diagnosis and treatment.

Results *:*

Thirty two patients (67%) were female ,16 patients (33%) were male with a ratio of 2:1 .Fifty percent of patients were in age group 20-40.The most common symptom was Anorexia (94%) abdominal pain (92%) fever (90%).The most common signs were Abdominal mass ,ascitis and abdominal tenderness.Smeares and culture of ascitis fluid were negative for A.F.B. .

Out of the 34 patients who required surgical treatment ;17 patients (50%) had Tuberculous peritonitis,32% had tuberculosis of intestine, and 17%had tubeculous mesenteric lymphadenitis.Complication rate was 50%,and mortality was 9%.

Conclusions*:*

Diagnosis of Abdominal TB should be suspected in patients of abdominal pain with vague clinical presentation coming from endemic areas.not all patients present with ascitis and whene ascitis is present smears and culture are usually negative for A.F.B.

Laparoscopy has its limitation Surgery should be avoided unless complication occur and should be conservative.Tube drains can be used with no fear of TB Sinus.

Key words*:*

Abdominal Tuberculosis-pathological type – conservative surgery .

Introduction:

Historicaly the first documented case of ancient tubercular peritonitis dated back to 1843, when the disease presentation was describe [1] Abdominal Tuberculosis was a common disease in the first half of 20th century[1] .Autopsies of patients with pulmonary TB before the era of effective Anti TB drugs demonstrated intestinal involvement in 55-90% of fatal cases [2].It was after the discovery of the (Anti TB)drugs and the improvement in the standard living that the disease started to decline[3] .However in recent years the incidence

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of Abdominal tuberculosis has increased and became a major health problem in many under developed countries and a significant increase has occurred in developed countries especially in association with HIV infection [4,5,6] .

It was previously noted the frequent association between pulmonary TB and Intestinal TB but this no longer the case , less than 50% of patients with Abdominal TB now have abnormal chest x-ray [7,8].

The Intestine and peritoneum are mostly affected, and in early stage of the disease they imitate many other abdominal disease[9,10] .The sign and symptoms of abdominal tuberculosis are non specific and the current investigation of laboratory and radiological findings are also not sufficient for diagnosis to be made at early stage .Laparoscopy is the most specific diagnostic test for abdominal TB [11,12,13] .Surgical exploration is reserved for un certainty and complications as reported in most literature .The delay in diagnosis results in high rate of morbidity and mortality .

Tuberculosis is considered to be a major health problem in Yemen , which the WHO classifies it to be among the countries highly burdened by TB. it is estimated that the incidence of TB country wide is 16,960 new cases annually and more than 2500 patients die each year making it the fourth cause of death .In a country of about 20 million people ,the prevalence of tuberculosis reach above 33,000 [14].

Extra pulmonary forms of TB account for 10-15 percent of patients and may represent up to 50-70% of patients with AIDS [15] .

There is no detailed information about Abdominal Tuberculosis in Yemen. For that reason a study was conducted to present the most common clinical manifestation of Abdominal Tuberculosis which included Peritonium ,Intestinal ,mesenteric TB, in patients who attended our hospital describing the pathological types found at operation ,the type of surgery performed, the morbidity and mortality of this extra pulmonary disease.

Patients and Methods :

From Jan 2002 through Dec 2004, 48 patients with Abdominal Tuberculosis were diagnosed and treated at Kuwait University Hospital in Sana'a-Yemen.

Data were collected regarding their age , sex residency,medical history,family

history of tuberculosis and the physical signs at presentation were recorded.All patients had biochemical and haematological examination with x-ray and plain abdominal x-ray.U.S of abdomen was done to all patients except patients who need urgent surgery outside the working hours of the hospital.When ascitis was present sample was sent for direct smear for AFB ,culture ,biochemical &cytological exam.

CT Scan of abdomen done in 7 patients only since the clinical features and other diagnostic aids were not informative.Patients divided into two groups: group I: 24 patients(50%) presented with no abdominal signs which needed surgical intervention , and were admitted to the medical ward. 14 patients (29%) had a family history of Pulmonary Tuberculosis and presented with abdominal pain , loss of wt and fever and their chest x-ray showed sign of Pulmonary TB.They were started on Anti TB drugs (INH-PAS-ETB-PYZ).10 patients (21%) had abdominal pain with tenderness ,anorexia ,fever and ascitis, they were referred for diagnostic Laparoscopy which showed scattered tubercules biobsy was done and anti TB drugs started.

Group II : 24 patients were admitted to the surgical word since there were abdominal signs which required surgical intervention .The 10 patients who referred for diagnostic Laparoscopy were included in this group making a total of 34 patients.

A definitive diagnosis of Abdominal TB was made by histopathological examination of the material obtained by Laparotomy or Laparoscopy.Tube drains were used in cases where the appearance is that of purulent TB Peritonitis and after perforation of bowel or after resection.Patients who

under went surgery their operative findings, the type of surgery done ,post operative complication were recorded in a separate sheet. All data collected were analysed and presented in form of tables .

Results:

Out of 48 patients who were diagnosed to have Abdominal Tuberculosis there were 32 females (67%) and 16 male (33%), the ratio was 2:1 most of the patients were coming from rural regions .50% of patients were in the age group 20-40 .table(1).
The main clinical presentation were anorexia ,abdominal pain ,fever , abdominal distention ,ascitis,tender abdomen,abdominal mass table (2).
The duration of illness was between 1 week and 22 weeks.

Table (1): Distribution of patients according to age & sex

Age group years	Female	Male	No	%
1-9	2	1	3	6%
10-19	7	2	9	19%
20-29	8	3	11	23%
30-39	9	4	13	27%
40-49	4	2	6	13%
50-59	2	1	3	6%
60-69	2	1	3	6%

Table (2) The presenting clinical features

Symptoms	No	(%)	Signs	No	(%)
Anorexia	45	94%	Palor	28	58%
Abdominal pain	44	92%	Ascitis	15	31%
Fever	L43	90%	Tender abdomen	16	33%
Lethargy	42	88%	Abdominal mass	17	35%
			Palpable cervical lymph nodes	11	23%
Abdominal distension	39	81%	Hepato megaly	9	19%
Loss of weight	38	79%	Spleeno megaly	7	15%
Night sweat	37	77%	Jaundice	6	13%
Altered bowel habits	36	75%	Pleural effusion	3	6%
Nausia&vomiting	34	71%			

As for the Laboratory findings most of the patients had anemia with high ESR. Ascitic fluid analysis which was done to all patients who had ascitis the results of direct smear and culture were all negative for A.F.B.

Table (3) Laboratory Findings

	Result	No	%
Anaemia	**<10g/dl**	**29**	**60%**
ESR	**>30mm/h**	**32**	**67%**
WBC	**>10,000/cc**	**13**	**27%**
	<10,000/cc	**35**	**73%**
Ascitic fluid	**exudative**	**15**	**31%**
smear and culture of Ascitic fluid for AFB	**-ve**		
Sputum for AFB	**-ve**		

Imaging included chest x-Ray, plain x-Ray Abdomen US, CT of Abdomen. Table (4) shows the results of Imaging.

Table (4) Imaging results

Imaging	**Results**		**No**	**%**
Chest x-Ray	**Radiological features of pulmonary Tuberculosis**		**15**	**31%**
Plain x-Ray Abd	**Dilated small bowel**		**22**	**46%**
	Fluid Levels		**12**	**25%**
	Calcified mesenteric Lymph nodes		**-ve**	
Abdominal US	**Enlarged mesenteric lymph nodes not forming a mass**		**10**	**21%**
	Ascitis-free or loculated		**15**	**31%**
	Mass	**iLeo caecal**	**6**	**13%**
		Mesenteric	**6**	**13%**
		Colonic	**2**	**4%**
		Adenexial	**2**	**4%**
		Omentum	**1**	**2%**
Abdominal CT	**Thickening of small Intestine and mesentery mass.Ascites & lymphadenopathy in mesentery ,portaheptais and retro peritoneal**		**7**	**15%**

In this study 10 patients (21%) had evidence of enlarged mesenteric lymph nodes. 15 patients (31%) had evidence of free or loculated Ascitis,ileo-ceacal mass in 6 patients (13%) and mesenteric mass in 6 patients (13%) in 2 patients there was colonic mass in R side of colon and 2 patients had adnexial mass and 1 patients with omental mass.

CT Scan showed thickening of intestine and mesentery mass,Ascitis and lumphadenopathy .The findings in US and CT are not specific for TB, similar findings of US & CT were found in Abdominal TB in other studies [31,32] .Out of 34 patients who were on the surgical ward Emergency Laparatomy was done for 15 patients (44%) Elective Surgery for 9 patients (26%).Laparoscopy 10 (29%).Table (5). 2 patients 6% presented as acute abdomen and on Laparatomy there were wide spread tubercules affecting the parietal peritoneum and the serosal surface of the viscera .10 patients who had ascitis Laparoscopy was done and showed widespread tubercules a biobsy was taken.

One patients 3% presented with abdominal mass and Laparotomy revealed an encysted type of ascitis. 2 females patients (6%) presented with lower abdominal mass with intestinal obstruction Laparotomy recvealed purulent tuberculous peritonitis with adnexial mass.Two patients 6%

presented with Int .obst and Laparotomy revealed extensive fibrous adhesion and they had no previous surgery ,so that all different types of Tuberculous peritonitis made 51% of the presentation of Abdominal Tuberculosis. 6 patients 21% presented with abdominal mass no ascitis ,Laparotomy revealed Tuberculous mesenteric lymphadenitis.6 patients (17%) presented with abdominal mass with intes.obst. Laparotomy revealed an ileo-ceacal TB with tubercules on serosal surface. 2 patients 6% had mass in R side of abdomen &Laparotomy revealed mass in the ascending colon . 1 patint had stricture in small bowel causing Intes.obstruction.Two patients 6% presented with acute abdomen Laparotomy showed perforation in terminal ileum with tubercules on serosal surface of the bowel .All of the patients who had Laparotomy or Laparoscopy,the histopathological result confirmed tuberculosis.

All patients were given the anti TB regime INH+RMP+ETB+PZA. The type of abdominal TB and surgical procedures used with number of patients and percentage is presented in table (5).

Table (5) Pathological Type of Abdominal TB Surgical Procedure used

Type of Abdominal TB	Surgical procedure	No	%	
Tuberculous peritonitis Acute Tuberculous peritonitis	Laparotomy & Biopsy of area of Tuberculous	2	6%	
Ascitis	Laparoscopy& Biopsy	10	29%	
Encysted type of Ascitis presented with Abd mass	Laparotomy- drainage & Biopsy from diseased area-drain was left	1	3%	51%
Purulent Tuberculous peritonitis with Adenaxeal mass with Intestinal obstr	Laparotomy-evacuation ofpus-Biopsy-Adhesolysis& drain was left	2	6%	
Extensive fibrous Adhesions with Intest obst	Laparotomy-division of bands	2	6%	
Tuberculosis of Intestine iLeo caecal TB- presented with Abdominal mass with Intestinal obstruction	Laparotomy- Right hemicolectomy	6	17%	32 %
Mass in proximal colon	Laparotomy- Right hemicolectomy	2	6%	
Stricture in small bowel causing Intest obst	Laparotomy- Resection with end to end anastomosis	1	3%	
Perforation in small bowel causing peritonitis	Laparotomy- Resection with iLeo stomy	2	6%	
Tuberculous mesenteric lymph adenitis presenting with Abdominal mass	Laparotomy- Biopsy of Lymph node	6	17 %	17 %
Total number of patients who had Laparotomy & Laparoscopy		34		

Table 6

Post operative complications		
	No of patients	%
Wound infection	7	21%
Entercutanous Fistula	2	6%
Post op paralytic ileus	3	9%
Wound dehiscence	1	3%
Pulmonary complication	4	12%
Total	17	51%

Out of 34 patients who had surgery (17 patients 51%) had post of complication (table 6).The 2 patients who had Entercutaneous fistulae did not show any sign of healing on conservative measures and needed further surgery to excise the affected segment with end to end anastomosis.

Post operatively 3 patients died and the cause of death was sepsis leading to multi organ failure giving a mortality rate of 9%.

Discussion:

In the developing countries TB continues to be important, social, economic and health problem .

Abdominal TB is the most common extra pulmonary tuberculosis and this included TB of the peritoneum, intestine, mesenteric lymph nodes and solid organs related to gastrointestinal tract such as the liver and spleen [16,17,18,19]

In our study the most common age group who developed abdominal TB were between 20-40 (50%)and 67%of the patients were females. Similar results were found in a study in India by Ali U et al [20] .

In another study in Iran ,87% of the patients were females [21] .

The presenting clinical features were generally in line with those of other reports but with difference in the percentage .The most common presenting symptoms were Anorexi 94%,Abdominal pain 92% , Fever 90%,

Weight loss 79%, Palor 58%, Ascitis 31% ,Tender abdomen 33%, Abdominal mass 35% were the most common signs. These results in percentage are higher than those reported in other studies. Ibrahim M et al [22] in a study of 75 confirmed Abdominal TB attending King Kalid Guard Hospital Kingdom of Saudia Arabia refered to the most common presenting symptoms were anorexia 84% ,abdominal pain 84% ,and weight loss 72%.Abdominal tenderness was the most common clinical finding ,followed by ascitis and abdominal mass (42%).Nasrin et al[21] Reported abdominal pain (89%)fever (59%) ,weight loss (59%) and ascitis

(27%).These difference in percentage may reflect the stage of disease when patients presented.

Our Laboratory finding Ascitis Fluid analysis and culture for AFB were –ve in all the patients.These findings are similar to other reports.Chowkm et al [23] demonstrated that paracentesis gives a low diagnostic yield. Direct smear for Ziehle-Neelsen stain is un helpful most of the time with reported sensitivity ranging from 0%-6% [22,23]

Culture of ascitis fluid takes time before results are available and negative results occurred in the majority of the tuberculous ascitis [24,25] .

To discriminate tuberculous ascitis from other causes of ascitis, recent reports indicates the diagnostic activity. Several retrospective studies had reported sensitivity and specificity exceeding 90% for this non-invasive test in endemic areas [26,27] .

The use of (PCR) Polymerase chain reaction analysis for mycobacterium tuberculosis has emerged as a valuable diagnostic aid since it has higher sensitivity and specificity than routine culture and results could beobtained in 48 hours [28] but unfortunately we could ,not performed the test because the kit was not available.

The results of imaging in our study showed that only 31% of the patients had evidence on chest x-ray of active pulmonary TB. The finding that a normal chest x-ray does not exclude abdominal TB has also been stated by other workers.- Uygur-Bayramicli et al[29] evaluated 31 patients with abdominal TB and found 11 patients (39%) had evidence of active TB .Tandon et al [30] found chest x-ray to be positive in only (25%)of their patients;75 % did not have evidence of pulmonary TB.These results are similar to our results.

Although the radiological finding of dilated bowel loops, fluid level, or distended bowels were present in good percentage of patients in this study but these finding are not specific for Abdominal TB.

The findings in US &CT of the abdomen were not specific for TB .Similar findings were found in abdominal TB in other studies [31,32] .

The results of this study showed 2 patients (6%) presented with acute abdomen and only at Laparotomy it was tubercules scattered on the parietal &visceral peritoneum. This type of acute presentation of TB Peritonitis is rare . Puruleunt tuberculous peritonitis was found in 2 female patients and this type of TB peritonitis is rare also [33] .

It is clear from this study and other studies that patients with Abdominal TB present with late complication of the disease namely Intestinal Obst with or without Abdominal mass. Excluding 10 patients who had the diagnosis done by Laparoscopy because they presented with ascitis the rest 24 patients 67% had the diagnosis made at Laparotomy.

Our results of 3 type of Abdominal tuberculosis showed that 17 patients (51%) had tuberculous peritonitis 11 patients (32%) had tuberculosis of intestine and 6 patients (17%) tuberculous mesenteric Uygure et al evaluated 31 patients who had Abdominal tuberculosis ,his result showed that 15 patients (48%) had Intestinal TB , 11 patients (35.2%) had TB peritonitis and 5 patients (16.8%) had TB mesenteric lymphadenitis. Yilmaz Akgun in a retrospective study of 43 patients with Abdominal TB his results showed peritoneal TB was detected in 20 patients (47%) Intestinal TB in 23 patients (53%).

The difference in the results of most common type of Abdominal TB can be explained depending on the pathogenesis of this disease and the stage of presentation . peritoneal involvement may occur from spread from lymph node, intestinal lesion or tuberculous salpingitis in women . Abdominal lymph node involvement and peritoneal tuberculosis may occur without gastrointestinal involvement in about one third of the cases.

A high complication rate of more than 50% is attributed to general ill health of patients and the advanced stage of disease at presentation.

Postoperative mortality of 9% was mainly due to postoperative sepsis causing multiorgan failure. A mortality

rate between 2%-21% has been reported in other studies on Abdominal TB.

Although the response to Anti TB drugs was good the main problem was that these drugs are given orally and after Laparotomy post operative paralytic ileus may remain 4-5 days during that time patients are not given the specific drugs. The Anti TB were given even before the result of Histopathology was available since visual appearance of the tubercules was strongly suggestive of Tuberculosis and all resected specimens on the biobsies proved to be tuberculosis histopathologicaly.

The use of tube draine in purulent TB peritonitis and after perforation of the bowel or after resection of the bowel did not lead to sinus formation .

In conclusion it became clear that the progress of the disease when not diagnosed early will lead to complication which will require Laparotomy for definitive diagnosis and doing a conservative surgery to reduce the complication rate since the disease will respond to the specific treatment in almost all patients.

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