TUBERCULOUS PERITONITIS

Falih AL- Obaidy * M.B.Ch.B.,FRCS

Summary:

Background: *Tuberculous is (T.B)remains one of the important infections wide especially in the developing countries & still on important cause for morbidity & mortality.*

Aim: *to find out the role of diagnostic laparoscopy in the quick & definitive diagnosis of T.B. peritonitis & to differentiate it from a similar presentation of abdominal malignancies .*

Subject & Methods: *A forty patients with proved tuberculous peritonitis have been reviewed retro & prospectively.*

Their age range was between 20 - 39 years, 62.5% were females, abdominal distension & pallor were a common clinical findings 92.5% & 90% respectively, and 42.5 % of the patients have their complaints for 2 - 3 months, while history of pulmonary tuberculosis was present in 22.5% of the patients only.

Results: *In 50% of the patients there were no important findings on chest X ray. Ascitis was positive in 82.5 % of patients on abdominal sonography, while on diagnostic laparoscopy in 45% of patients the findings were ascites with peritoneal & bowel adhesions.*

Conclusion: *in conclusion there are patients to be recommended to avoid missing T.B. peritonitis as a curable conclusion & avoid the great delays in the diagnosis.*

J Fac Med Baghdad
2005; Vol. 47, No.3
Received April 2002
Accepted May 2005

Introduction

Tuberculosis (T.B) remains one of the important infection world wide especially in the developing counties & still an important cause for morbidity & mortality.

Even in developed countries, T.B re-emerge again since the eighties as a major health problem according to WHO reports due to a new multiple factors including HIV infections, migration, poor socio-economic conditions, urbanization & elderly patients [1,2].T.B peritonitis is a form of abdominal Tuberculosis that can involve the omentum, intestinal tract, liver, spleen, female genital organs in addition to the parietal & visceral peritoneum[3]. Generally the onset is quite insidious with more than 70% of patients having had symptoms for more than four months before definitive diagnosis the most common symptoms are constitutional & include fever, anorexia, weakness, malaise, weight loss & abdominal distension, caused either by ascitis or partial obstruction more than half of the patients have dull diffuse abdominal pain, the abdomen or examination usually diffusely tender in the majority of patients however the classical doughy abdomen is rarely found[4,5]. T.B peritonitis should be suspected in high risk patients e.g. Patients with family history of tuberculosis, diabetic patients, patients undergone gastrectomy, immune compromised & patients with renal failure[5].

*Assistant Prof. General Surgery , Baghdad Med. College.

The most promising approach involves the use of polymerase chain reaction (PCR) which can detected as few as 10-100 bacteria in the sample[6]. Definitive diagnosis of T.B peritonitis depends mainly on tissue diagnosis, so the aim of this study is to find out the role of diagnostic laparoscopy in the quick & definitive diagnosis of this uncommon clinical problem & to differentiate it from a similar presentation of abdominal malignancies.

Patients and Methods:

A forty patients with proved tuberculous peritonitis have been reviewed retro and prospectively for the period between December 1995 to June 1999. Those patients received in the gastro - intestinal center most of them referred from other hospitals in Baghdad or other provinces.

After their admission a detailed history & physical examination had done for them with the appropriate general investigation.

Other specific tests for ascitic fluid including biochemical for protein & sugar contents & for cytology. A chest X-ray with abdominal sonography for all these patients.

A 36 patients of them had undergone diagnostic laparoscopy with biopsy in the operating theatre under general anesthesia. While two patients were underwent diagnostic laparatomy with biopsy prone to be abdominal tuberculosis. Two patients with ascitis & suspicious lesions in the liver undergone needle biopsy for the liver prove to be tuberculous lesions.

Results:

A 40 patients admitted to the gastro-intestinal center in Al-Shaheed Adnan Hospital were reviewed retro and prospectively.

They were 15 males & 25 females with a total mean age of 37.5 years. The maximum incidence was at the age range 20-39 years for both males & females, which include 21 patients (52.5%). (Table 1)

Abdominal distension with pain was the most prevalent presenting feature (Table 2)

Other features e.g. fever, jaundice, weight loss, general weakness, palpable abdominal masses, and hepato - splenomegally among other clinical findings. (Table 2, 3).

The duration of the patient's complaints varies from one to six months. (Table 4) Past medical history for these patients shows; pulmonary T.B in 9 patients, diabetes mellitus 3 patients & one patient with liver cirrhosis. (Table 5). 12 patients were smokers & 2 patients were alcoholic.

Chest X-Ray shows in 11 patients lesions suggesting pulmonary T.B., while pleural effusion found in 9 patients, but in 20 patients they have no significant radiological sign. (Table 6)

The result of laboratory investigation showed in 11 patients the Hb level was below 10 gm / dl W.B.C. between (4000-10.000/mm3) in 38 patients, ESR (40-79 m / hr.) in 24 patients (Table 7).

The biochemical tests of the ascitic fluid showed in twenty patients (50%) the glucose concentration between 40-59 mg/dl, while the protein content in 14 patients (%) was 3-4.9 mg/ml (Table 8) .

Abdominal sonographic finding in 33 patients (82.5%) shows sign of free fluid in the peritoneal cavity while hepato & or splenomegally in 18 (45%) of patients. (Table 9).

The laparoscopic finding done for 36 patients out of the total (40) patients.

Showed in 18 patients free fluid with multiple adhesions. In 12 patients in

addition to that there were scattered whitish nodules all over with omental without bowel thickening with adhesions without ascitis found in 2 patients.,only. While female genital organs involvement with peritoneal nodule in 2 patients. Peritoneal nodules with liver involvement in another 2 patients. For all of the patients undergone diagnostic laparoscopy biopsy usually taken for diagnosis. (Table 10).

Table (1): Distribution of the study sample by socio-demographic characteristic

Variable		Number	%
Age in years (mean = 37.5, SD= 16.2)	< 20 years	3	7.5
	20 – 39	21	52.5
	40 – 59	9	22.5
	60 +	7	17.5
Gender	Male	15	37.5
	Female	25	62.5
Residence	Baghdad	24	60
	North of Iraq	9	22.5
	South of Iraq	7	17.5
Total		40	100%

Table (2): Distribution of patients by their chief complaints.

Variables	Number	%
Abdominal distension	29	72.5
Abdominal pain	15	37.5
Fever	8	20
Jaundice	5	12.5
Weight loss	4	10
Others (abdominal mass, generalized weakness & acute abdomen)	3	7.5
Total	40	****

**** Note: percentages do not add 100% since a patient can present with multiple symptomatology.

Table (3): Distribution of patients by positive physical signs.

Variable		Number	%
Abdominal distension Positive		37	92.5
Pallor Positive		36	90
Jaundice Positive		3	7.5
Abdominal mass Positive		3	7.5
Palpable lymph nodes (axillary) Positive		1	2.5
Abdominal tenderness	Absent	19	47.5
	Localized	11	27.5
	Generalized	10	25
Palpable organomegally	Absent	23	57.5
	Hepato-megally	9	22.5
	Hepato-splenomegally	8	20
Abdominal ascites	Not detected	2	5
	Mild	14	35
	Moderate	15	37.5
	Severe	9	22.5
Fever		27	67.5
Generalized wasting		37	92.5

Table (4): Duration of chief complaint.

Duration of chief complaint in months	Number	%	Mean	SD
One or less	15	37.5	2.6	2.6
2 – 3	17	42.5		
4 – 6	6	15		
7 +	2	5		
Total	40	100 %		

Table (5): Distribution of the study sample by the presence of important conditions in their past history.

Past medical history	Number	%
Pulmonary TB	9	22.5
Diabetes Mellitus	3	7.5
Liver cirrhosis	1	2.5

Note: number of patients = 40.

Table (6): Distribution of the study sample by important CXR findings.

CXR findings	Number	%
No important abnormalities	20	50
A lesion suggesting TB	11	27.5
Pleural effusion	1	22.5
Total	40	***

***Note: Percentages do not add to 100% since a patient can have both lesion & effusion on CXR.

Table (7): The results of clinical laboratory investigations.

Laboratory investigations	Number	%
Blood hemoglobin concentration (in gm/dl) (mean = 10.5, SD = 1.8)		
< 10	11	27.5
10 – 11	16	40
11.1 – 15	13	32.5
WBC count (in cell/HPF) (mean = 6000 and SD = 1876)		
< 4000	1	2.5
4000 – 10000	38	95
11000	1	2.5
ESR (in mm/hour) (mean = 68 and SD = 21.7)		
25 – 39	2	5
40 – 79	24	60
80 +	14	35
Total serum protein (TSP in gm/ml) (mean = 6.9 and SD = 0.5)		
5.4 – 5.9	2	5.3
6 – 6.9	10	26.3
7 – 7.8	26	68.4
Total	40	100%

Table (8): Results of ascitic fluid analysis.

Type of ascitic fluid analysis	Number	%
Glucose concentration (in mg/dl) (mean = 73.5 and SD = 16.4)		
40 – 59	5	15.6
60 – 79	16	50
80 - 115	11	34.4
Protein (in mg/ml) (mean = 4.1 and SD = 1.5)		
1.4 – 2.9	7	21.8
3 – 4.9	14	43.8
5 – 6.8	11	34.4
Total	32	100%

Table (9): Finding of abdominal Ultrasonography.

Findings	Number	%
Ascites	33	82.5
Organomegally	18	45
Peritoneal adhesions & bowel thickening	9	22.5
Liver involvement	7	17.5
Pleural effusion	4	10
Abdominal mass	3	7.5
Other findings (Hydronephrosis)	2	5
Abdominal lymph nodes	1	2.5
Total	32	100%

Table (10): Findings of abdominal laparoscopy.

Findings	Number	%
Ascitis + adhesion of peritoneum & bowel	18	45
Ascites + whitish nodules + omental thickenings	12	30
Bowel thickenings + adhesions of the viscera + no ascitis	2	5
Peritoneal nodules + genital involvement	2	5
Peritoneal nodules + hepatic involvement	2	5
Total	36	

Discussion:

The main problem of abdominal T.B. is in its early diagnosis, since its clinical presentation are range & ill defined & may mimic other disease specially intra - abdominal malignancies associated with ascitis. The awareness of this clinical condition is the most important step in its early diagnosis.

The findings of acid fast bacilli (AFB) in the ascitic fluid or histological diagnosis are the only ways to reach the definitive ensure. Antituberculosis therapeutic trials used to be one way to ensure the problem of abdominal T.B.[7] Comprising our results with other studies.

In this study the age range of most of the patients were in the third & fourth , decades of life with more females than males (25 females to 15 males) of child bearing age which is consistent with other studies [8,10].

The clinical features presented by our patients e.g. abdominal pain & distension due to the presence of free fluid in the peritoneal cavity detected in 92-5% of these patients which is almost the same as other studies [7,9,10,U]. The duration of symptoms at the time of diagnosis was varying from one to six months, in one report they found in more than 70% of their patients having had symptoms for more than four months before the definitive diagnosis other features e.g. fever, weight loss, general weakness, pallor are often found in other studies [12].

Evidence of pulmonary T.B. on chest X-Ray was found in 1 lpatients (27.5%) & pleural effusion in 9 patients (22.5%) of our patients, which lower than other results who found (80%) of this patients show pleural effusion or pulmonary infiltration [11]. Other studies found ascitic pulmonary T.B. in 15 - 20% of this patients [7].

Ascitic fluid analysis shows that the mean glucose content was 73.5 mg/dl. Which is higher than other report who found the glucose content -is around 30mg/dl, while the protein content in 25patients (78.2%) were more than 3gm /dl ranging between 3-6-8 gm/dl while other reports found an exudate in 94.4%of their patients [12]. The sonographic findings of abdominal T.B. are variable Ramaiya -L-found free or loculated fluid collection intra abdominal abscesses, ileocaecal mass, enlarged mesenteric lymph nodes, mesenteric or omental thickening adherent loops of bowel are among the findings on abdominal sonography [13]. Other reports in 40 patients with peritoneal T.B. they record other sonographies findings as sliced bread appearance in dry T.B. in 8 cases & in the remaining 32 patients with ascitis from a freely floating bands with or without net work in 20 cases &" lotus petals "like sign in 12 cases [13,14].

Our sonographic results show the presence of free fluid in 33 patients (82.3%) of patients, organomegally in 18 patients (45%), peritoneal adhesion & bowel thickening in 9 patients, liver involvement, pleural effusion &abdominal masses in other patients, these results are different from other reports because the ultrasonic results are from different sources with variable experience of the sonographist. The role of laparoscopic as a modern method of investigation prove to be a useful diagnostic tool in some cases to avoid the need of opensurgical exploration & it's the most convenient method in evaluating patients with abdominal fluid collection, it depends on visual as well as getting tissue for histological diagnosis. So it helps in differentiating abdominal T.B. from disseminated intra abdominal tumors. The laparoscopic findings in most of patients are: ascitis, multiple nodules in the peritoneal surface with adhesions & bowel thickening, liver & female genital tract involvement, thickening of the ileocaecal region. Our findings also reported in other similar studies [15> 16].

Conclusion:

In Conclusion there are patients to be recommended to avoid missing T.B peritonitis as a curable condition & avoid the great delays in the diagnosis.

1. T.B. peritonitis is still uncommon clinical problem & clinicians should be aware about its possibility in facing patients with vague abdominal complaints.
2. Non invasive investigation showed first to be used to decrease the list of differential diagnosis.
3. To differentiate between T.B peritonitis &disseminated abdominal malignancy, laparoscopy is the minimal invasive technique for definitive diagnosis with minimal sides effects.

References:

1. Micheal D.Iseman; Tuberculosis, Cecil text book of medicine, 20th ed,
Gordon N GilLJuha p. kokko, General L. mandell et al (eds). Philadalphia,
W.B. sannders Company .1996 p. 1684. I
2. Thomas M.Daniel; Tuberculosis,Harrison's principles of internal 13th ed,
Kurt J.Issaldacher,Eugene Brann wald, Jean D.W.Ison et al (eds)New
yourk ,MC Graw-Hill 1994-p710.
3. G.K. Crompton, C. Haslett, Tuberculosis; Davidson's principle and
practice of medicine ,17th ed. C.R.W.Edwards I.A.D. Bouchier, C.haslett,
Edinburgh , Churchill livingstone 1995,p358.
4. Sircar S, Taneja VA, Kansra V; Epidemiology and

clinical presentation of abdominal tuberculosis, Department of medicine, New Delhi.J. Indian med. Assoc.1990Sep.94 (9):324-4.

5. Farmer P; Social Inequalities and Emerging infectious disease. Harvard medical school, Department of social medicine, Boston, USA. Emerg. Infect. Dis. 1996 Oct-Dec.2 (4): 249-69.

6. Lischom-GB, Porter CC: Tuberculous peritonitis, Department of surgery, Army medical center, Honolulu, USA. Dis. Colon-rectum, 1996Apr.39 (4):394-9.

7. Marshall-JB; Tuberculosis of the gastrointestinal tract and peritoneum, AmJ.Gastroenterol.1993Jul.88 (7): 989-99.

8. Manohor-A; Simjee AE; Symptoms and investigations in tuberculous peritonitis. Gut. 1990. Oct; 31 (10) 1130-2.

9. Al-quorain-AA; Al-Ferihi-HM; Abdominal tuberculosis in Saudi Arabia, AM-J. Gastroenterol. 1993 Jan.88 (1): 75-9.

10. Nafeh MA;Medhat-A; Tuberculous peritonitis in Egypt, AM.J. Trop. med. Hyg 1992 Oct.47 (4): 470-7.

11. Anderw Jakubowski, Richard. K.Elwood; Clinical features of abdominal tuberculous ,J .inf .Dis. Vol.158 ,No.4.Oct.1998 page:687.

12. JameL; Joseph sung. : World congress of Gastroenterology Sep. 6-11- 1998. Vienna Austria.

13. Ramaiya-Li, Sonographic features of Tuberculous peritonitis, Abdominal Imaging. 1993.18 (1): 23-6.

14. K.Venkates, wala,Lakshmireddy, Study of abdominal tuberculosis Department of Gastroenterology, Kurmool medical college, Kurmool, A.P.India.

15. Jorge AD, Peritoneal tuberculosis. Endoscopy .1984.Jan 16 (1): 10-2.

16. Rodriguez-de-lope-c; San Miguel. Laparoscopical diagnosis of tuberculosis ascites. Endoscopy. 1982 Sep; 14(5): 178-9.