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Original Research Paper Surgery

"A DESCRIPTIVE STUDY ABOUT ABDOMINAL TUBERCULOSIS"

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ABSTRACT

BACKGROUND

The diagnosis of abdominal tuberculosis is obscure. Joseph Walsh in1909 remarked that "It is impossible to diagnose abdominal tuberculosis with any degree of certainty".Unfortunately this remains even today in situations where it is relatively common. The signs and symptoms are often vague and laboratory investigation and radiological findings are non-specific. Many cases go unnoticed until a surgically removed specimen is examined histopathologically. A majority of stenotic lesions of the bowel are of tuberculous in nature and has been found on the operating table has one of the common findings in cases of acute Intestinal obstruction.The term abdominal tuberculosis refers to tuberculous infection of the gastrointestinal tract. mesenteric lymph nodes, peritoneum and omentum, and of solid organs related to the gastrointestinal tract such as the liver and spleen.

METHODOLOGY:

This Descriptive study was done for a period of 3 years from Jan 2014 to Dec 2016 in Government Dharmapuri Medical College Hospital, Dharmapuri, Tamilnadu, India. The proforma contains the following details demography , presentation, lab reports, radiological reports and management of these patients ,which were recorded after the consent of the patients. Collected datas were analysed.

RESULTS:

Diagnostic laparoscopy was done in 28 patients of our study group which included the patients who did not have conclusive diagnosis after radiological diagnosis and also patients with radiological investigations supporting abdominal tuberculosis for further confirmatory evidence and tissue diagnosis. It showed a sensitivity of 92.8 % in our study group.

CONCLUSION:

Laparoscopy plays a very important role in the diagnosis of abdominal tuberculosis and it needs to be evaluated as initial diagnostic tool.

KEYWORDS : Abdominal Tuberculosis, Laproscopy

INTRODUCTION

Tuberculosis is a disease caused by the bacterium Mycobacterium species which is one of the commonest disease known to mankind. It is a well known fact that it has its reputation of being one of the greatest killer diseases. There has been a trend of increased incidence of tuberculosis in human race in the last three decades which can be partly attributed to increase in population, social deprivation and HIV infection.

The morbidity and mortality due to tuberculosis leads to a discovery of newer drugs and more emphasis on the disease. With improved socio-economic conditions and disease diagnosis in the western countries, Tuberculosis in the western countries impose little clinical problem. But in most developing countries like India, it remains to be a major health hazard and major health related mortality, morbidity both physically and psychologically. As we know, Tuberculosis is one of the important gastroenterological problems in Tropics.Gastrointestinal Tuberculosis is one of the earliest known diseases which still remain the disease with diagnostic enigma due to its perplexing protean clinical manifestations. Importance of the condition lies in the diversity of thepresentations and its wide spread effects on the body. It may present as acute,subacute or chronic forms and may give rise to malabsorption, more so when associated with stricture formation.

The symptoms and signs often quite vague and laboratory investigations and radiological findings are sometimes non conclusive. There is no single feature which is diagnostic for abdominal Tuberculosis. In case of any localized involvement of the structures of the abdomen the presenting clinical picture will mimic the disease of the organ only. In various studies about abdominal tuberculosis worldwide, the results show wide range in its disparity in the nature course of disease, in its diagnosis and management. We planned a study on abdominal tuberculosis to understand the nature of disease process and to evaluate the various laboratory and radiological investigations and to study the management of the disease.

AIMS & OBJECTIVES OF THE STUDY

1. To find out demographic profile of abdominal tuberculosis
2. To study the clinical presentations of abdominal tuberculosis.
3. To evaluate the diagnostic modalities of abdominal tuberculosis.
4. To discuss the medical and surgical modalities of treatment of abdominal tuberculosis

MATERIALS AND METHODS

STUDY AREA: Department of General surgery in Government Dharmapuri medical college Hospital, Dharmapuri

SAMPLE SIZE: 72 cases of abdominal tuberculosis

STUDY DESIGN: Descriptive study

STUDY PERIOD: Jan 2014 to dec 2016

METHOD OF SAMPLING: Convenient sampling

INCLUSION CRITERIA:

All patients who were diagnosed abdominal tuberculosis based on

Radiological and/or Laparoscopic evidence with or without histopathological evidence.

EXCLUSION CRITERIA:
All patients who were in paediatric age group.

OBSERVATION

Table: 1 SEX DISTRIBUTION:

Male	Female	Total
47	25	72

Table:2 AGE DISTRIBUTION:

Age	Male	Female	Total
<20	4	5	9
21-30	9	5	14
31-40	22	7	29
41-50	6	4	10
>50	6	4	10
Total	47	25	72

Table: 3 CLINICAL PRESENTATION OF ABDOMINAL TUBERCULOSIS:

S.No	Clinical Presentation	No of Pts
1	Intestinal obstruction	24
2	Peritonitis	12
3	Abdominal distension	16
4	Abdominal mass	10
5	Non specific symptoms	10
	Total	72

Table:4 LABORATORY INVESTIGATIONS:

S.No	Laboratory Investigations	No of pts investigated	Positive	Sensitivity
1	Lymphocytosis	72	43	59.71%
2	ESR	72	65	90.2%
3	Ascitic fluid	22	10	45.4%

Table:5 RADIOLOGICAL INVESTIGATIONS DONE:

S.No	Radiological Investigations	No of pts performed	Positive	Sensitivity
1	X-Ray Chest	72	12	16.6%
2	USG	72	34	47.2%
3	CT scan	45	32	71.1%
4	Barium Meal	9	6	66.6%
5	Barium Enema	5	2	40%

Table:6 SENSITIVITY OF COLONOSCOPY AND DIAGNOSTIC LAPROSCOPY:

S.No	Radiological Investigations	No of pts performed	Positive	Sensitivity
1	Colonoscopy	8	2	25%
2	Laproscopy	28	26	92.8%

Table:7 MANAGEMENT OF ABDOMINAL TUBERCULOSIS IN OUR PATIENTS

Surgical	Medical
35	37

Table:8 TIME OF SURGICAL MANAGEMENT:

Elective	Emergency
27	8

Table:9: DETAILS OF SURGICAL PROCEDURE:

S.No	Procedure	Elective	Emergency	Total
1	Right Hemicolectomy	7	2	9
2	Laprotomy and adhesiolysis	7	-	7
3	Laprotomy with stricturoplasty	6	2	8
4	Laprotomy with Limited resection	3	2	5
5	Laprotomy , Primary closure & Diversion Ileostomy	1	2	3
6	Laprotomy & Drainage	2	-	2
7	Anal canal dilatation	1	-	1
		27	8	35

RESULTS

The total number of cases who were diagnosed to be of abdominal tuberculosis in our study period was 72 patients. The male and females in our study group include 47 and 25 respectively. The sex ratio was 1.9:1 between males and females. (Table 1, Fig 1). There was a higher incidence of abdominal tuberculosis in the age group between 31-40 years of age in both the genders followed by the patients between 21-30 years of age. (Table 2, Fig 2). The clinical manifestations varying from Acute intestinal obstruction to non specific illness, with acute intestinal obstruction was a initial clinical presentation in one third of the patients, abdominal distension in 16 patients, features of peritonitis in one sixth of patients, mass in the abdomen in 10 patients, and non specific symptoms in 10 patients. (Table 3, Fig 3).

All the patients underwent routine laboratory investigations like total blood count and Erythrocyte sedimentation rate (ESR). Lymphocytosis was found in 59.71% of patients and raised ESR was found in 90.2 % of the patients in the study group. The ascitic fluid analysis which was done in 22 patients who presented with ascites showed the biochemical and microbiological parameters of tuberculosis in 10 patients. (Table 4, Fig 4). Three patients showed positive serology for HIV.

All patients underwent Roentgenogram of chest which showed features of active and healed pulmonary lesions, pleural effusion in one sixth of the patients with sensitivity of 16.6% for diagnosis of tuberculosis. X-ray of abdomen done in all patients who showed features of intestinal obstruction, perforative peritonitis, and calcified lymph nodes. Ultrasonographic evaluation of abdomen which was done in all patients revealed features suggestive of tuberculosis in 34 patients (47.2%). The computed tomography (CT) of abdomen was done in 7 patients suspected to be having features of abdominal tuberculosis clinically and ultrasonography did not provide a conclusive diagnosis. Also CT of abdomen was done in 38 other patients who underwent ultrasonographic examination which did not provide a conclusive diagnosis or other diagnosis for further diagnostic evaluation. CT done in total of 45 patients concluded to be of abdominal tuberculosis in 32 patients. Barium meal and Barium enema done in 9 and 6 patients respectively for small bowel and large bowel lesions when indicated showed a sensitivity of 66.6% and 40% respectively. (Table 5, Fig 5). Colonoscopic examination done in 8 patients when large bowel lesions were suspected revealed tuberculous lesions in 2 patients. Diagnostic laparoscopy was done in 28 patients of our study group which included the patients who did not have conclusive diagnosis after radiological diagnosis and also patients with radiological investigations supporting abdominal tuberculosis for further confirmatory evidence and tissue diagnosis. It showed a sensitivity of 92.8 % in our study group. (Table 6, Fig 6).

Of the 72 patients in the study group, only 35 patients needed surgical interventions whereas 37 patients were managed with chemotherapeutic drugs (Table 7, Fig 7). Emergency surgical management was done in total of 8 patients which include Right hemicolectomy in 2 patients, stricturoplasty in 2 patients, limited resection in 2 patients, and perforation closure and covering ileostomy in the other 2 patients. 27 patients had undergone management electively after complete investigatory evaluation, the surgical procedures include right hemicolectomy in 7 patients, adhesiolysis in 4 patients, stricturoplasty in 6 patients, limited resection in 3 patients, abscess drainage in 2 patients, adhesiolysis and abscess drainage through laparoscopy in 3 patients, sealed perforation closure which presented with interloop abscess in a case. (Table 8,9 and Fig 8,9). Of the 72 patients only 54 had

histological evidence of abdominal tuberculosis.

DISCUSSION

In our study commonest age group affected was 2nd to 4th decade of life. Age incidence of present series is similar to reported by other workers [Adams and Miller,1946, Dutta Guptha1950,Sharma et al ,1972 B.K Bhansali,1968]. Pritam Das and Sukula .et.al 1978 , also reported same age group. The male and females in our study group include 47 and 25 respectively. The sex ratio was 1.9:1 between males and females Addison et al 1981 reported high incidence in males.

The clinical manifestations varying from Acute intestinal obstruction to non specific illness with acute intestinal obstruction was a initial clinical presentation in one third of the patients, abdominal distension in 16 patients, features of peritonitis in one sixth of patients, mass in the abdomen in 10 patients, and non specific symptoms in 10 patients. Badaoui E ,BerneyT , Kaiser L et al 2000,also reported similar presentation.

M P Sharma and Vikram Bhatia stated in their review article about the clinical presentation dominated by constitutional symptoms. 40-70% of patients present with fever, 80-95% with pain, 11-20% with diarrhea, 40 -90% with weight loss. N.Rangabashyam.et.al cited vague symptoms to be the predominant presenting symptoms. The abdominal pain accounts for in 77-94% of patients, followed by vomiting and abdominal distension.

Majority of patients in the present study had present with chronic symptoms. 8 out of 72 patients had presented with an acute abdomen and underwent emergency surgery for the same. J.M.Findly 1981 found that acute presentation was present in 13.5% patients. Commonest symptom is vague abdominal pain .Other commonsymptoms were vomiting, fever, loss of appetite and loss of weight. Pritam Das and Sukula had reported abdominal pain in 94% of cases Bockus et al 1964 emphasised abdominal pain , anorexia ,loss of weight as common presenting symptoms. Shukula 1970 and L.E Hugas also reported these symptoms as common presentation.

Any patient present with vague abdominal pain, vomiting , loss of appetite , loss of weight and not fitting with any other clinical diagnosis , diagnosis of abdominal tuberculosis should be considered.

Routine laboratory tests have limited value in the diagnosis of abdominal TB. Although the mantoux test is freely available, its value in the diagnosis active TB remains uncertain. Lymphocytosis was found in 59.71% of patients and raised ESR was found in 90.2 % of the patients in the study group.

Radiological studies

Chest X-ray:

Evidence of tuberculosis in a chest Roentgenogram supports the diagnosis of abdominal tuberculosis but a normal chest X-ray does not rule it out. Sharma *et al* studied 70 cases of abdominal tuberculosis and found evidence of active or healed lesions on chest X-ray in 22 (46%). X-rays were more likely to be positive inpatients with acute complications (80%). In Prakash's series of 300 patients, none had active pulmonary tuberculosis but 39 per cent had evidence of healed tuberculosis. Tandon *et al* found chest X-ray to be positive in only 25 per cent of their patients. Hence, about 75 per cent cases do not have evidence of concomitant pulmonary disease. Plain X-ray abdomen may show enteroliths, features of obstruction *i.e.*, dilated bowel loops with multiple air fluid levels, evidence of ascites, perforation or intussusception. In addition, there may be calcified lymph nodes, calcified granulomas and hepatosp le nom egaly.

In our study group, out of all 72 patients, of chest x ray in 12 patients (16.67%) ,9 patients showed features of healed pulmonary tuberculosis whereas active pulmonary lesions found in 3 patients in contrast to the above literatures. 83.4% of patients in our study group did not have any evidence of concomitant pulmonary tuberculosis. Chest X- ray gives evidence of old or active pulmonary tuberculosis but rather they provide the indirect suspicion of abdominal tuberculosis.

30 patients in our study group out of 72, had evidence of features of intestinal obstruction, perforation, and ascites. None of the features in abdominal X-ray gave diagnostic evidence of abdominal tuberculosis but rather they provide the features of various presentations of abdominal tuberculosis. X ray abdomen though plays an important role in evaluation, but do not provide the diagnostic conclusion of abdominal tuberculosis.

Ultrasonography

Ultrasonography is a cheap and valuable investigation in the evaluation of abdominal tuberculosis when the clinical features have suspicion of abdominal tuberculosis. They are particularly useful in cases of abdominal mass (Coacoon), lymph nodes, ascites and dilated bowel loops. USG was found to be 47.2% of patients in our study group whereas other study groups from Uvqur et al showed sensitivity of 57% and Dobok G et al viewed a sensitivity of 54.2%. Ultrasonography is a non expensive diagnostic tool which can be used as initial radiological diagnostic modality.

Computed tomography:

CT of abdomen has high sensitivity than USG for diagnosis of cases with diffuse lymphadenopathy, low density lymph node with multilocular appearance following intravenous contrast, High density ascites, and mottled low density masses in the omentum thickening of the Bowel wall adjacent to mesentery and also with hepatic pseudo tumors. CT abdomen has a sensitivity of 71.1% in 45 patients in which CT was done which was marginally comparable to the observations of Dobak G et al who experienced a sensitivity of 69%.

Colonoscopy

Colonoscopy is an excellent tool to diagnose colonic and terminal ileal involment but is still often underutilized in many of the institutions. Mucosal nodules of variable sizes (2 to 6 mm) were found in 2 of the 8 patients in which the colonoscopy was performed. Colonoscopy has its limitations in its indications and observer variant.

Ascitic fluid examination:

The ascitic fluid in tuberculosis is straw coloured with protein >3g/dl, andtotal cell count of 150-4000/ µl, consisting predominantly of lymphocytes (>70%).The ascites to blood glucose ratio is less than 0.9650 and serum ascites albumin gradient is less than 1.1 g/dl. In our study group laboratory and microbiological evidence done in 22 patients revealed features of tuberculosis in 10 patients. Ascitic fluid microbiological evidence needs 6-8 weeks of period for organism growth and it has its diagnostic limitation.

ADA levels were determined in the ascitic fluid of 49 patients by Dwivedi *et al*. The levels in tuberculous ascites were significantly higher than those in cirrhotic or malignant ascitis. In coinfection with HIV the ADA values can be normal or low. Falsely high values can occur in malignant ascitis. High interferon- γ level in tubercular ascites have been reported to be useful diagnostically. Combining both ADA and interferon estimations may further increase sensitivityand specificity.

Laparoscopic findings:

Bhargava et al studied 87 patients with high protein ascites, of which 38 were diagnosed as having tuberculosis. They found visual appearances to be more helpful (95% accurate) than histology, culture or guinea pig innoculation (82% and 37.5% sensitivity respectively). Caseating granulomas may be found in 85-90 per cent of the biopsies.

In our study group where 28 patients underwent diagnostic

laparoscopy, 26 patients had features diagnosis of tuberculosis based on visual appearances. Tissue diagnosis taken for confirmation showed caseating granulomas in 23 patients. Laparoscopy plays a very important role in the diagnosis of abdominal tuberculosis and it needs to be evaluated as initial diagnostic tool.

Management:

On discussing about the surgical management of abdominal tuberculosis, Surgery is reserved for mechanical complications of tuberculosis or when medical therapy fails. Emergency surgery is indicated in the presence of acute complications such as free perforation of the bowel and severe intestinal haemorrhage. The most common indication for surgery is intestinal obstruction secondary to stricture formation. Predictors for surgical intervention are long strictures (12 cm or more in length) and multiple areas of involvement Other indications for surgery are bowel adhesions, intra-abdominal abscess due to a confined perforation, mesenteric abscess, and internal or external fistulas. Surgery is also appropriate if the diagnosis is in doubt and when malignancy cannot be ruled out with reasonable accuracy.15, 29,30

Surgical procedures:

In our study group, only 35 patients needed surgical interventions whereas 37 patients were managed with chemotherapeutic drugs . Most frequent interventions were right hemicolectomy (9patients), stricturoplasty (8patients), limited resection (5patients), adhesiolysis (7patients), laparoscopy intervention(3patients) and covering ileostomy(3patients). Similar observations were made by Balasubramaniam *et al*.

Surgical techniques for patients with bowel obstruction have evolved overtime. At one time, bypass procedures such as ileotransverse colostomy andenteroenterostomy were practiced commonly, but have now been abandonedbecause of complications such as blind-loop syndrome, malabsorption, and perforation. Similarly, radical bowel resection and extensive dissection ofmesenteric lymph nodes have fallen out of favour because ofcomplications,including the development of short-bowel syndrome. The procedure preferred for an ileocaecal mass is limited resection in place of the standard right hemicolectomy. Other procedures advocated are ileocaecoplasty and coloplasty for ileocaecal and colonic strictures. respectively.31-33 Drainage tubes are not recommended and, if used, should be removed early because of increased risk of abdominocutaneous fistulas if they are left in place for more than 7 days. All patients who underwent surgery were given anti tuberculous drugs postoperatively.

CONCLUSION

Abdominal Tuberculosis is a diagnostic enigma due to its vague clinical manifestations. The diagnosis can remain inconclusive even after laboratory and radiological evaluation. To diagnose tuberculosis a high degree of clinical suspicion is the prime needed. Laparoscopy has a very significant role in establishing diagnosis in doubtful cases. Most patients with peritoneal tuberculosis can be diagnosed by laparoscopy, since the peritoneal appearances are fairly distinctive for tuberculosis.

The recommended surgical procedures today are conservative. Post operative conventional anti tubercular therapy for at least 6 months isrecommended, but preoperative anti tubercular therapy is still controversial.

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