

ORIGINAL ARTICLE

The Importance of Laparoscopy in diagnosing Abdominal Tuberculosis

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Abstract

Background: Tuberculosis (TB) is a common disease world wide, affecting one third of the whole population especially in developing countries. Rate of the cases vary depending on numerous factors such as age, sex, race, socioeconomic status and geographic location, which are important in the prevalence of the disease.

Gastrointestinal TB remains one of the commonest and most difficult disease globally as far as diagnosis is concerned

Methods: This retrospective study was conducted on 20 patients in General Surgery Ward, at Dr. D.Y. Patil Hospital and Research Centre, Pune for a period of 1 year who were diagnosed as Abdominal Tuberculosis. Diagnostic Laparoscopy followed by biopsy was done in all the patients and aimed at finding the possible role of diagnostic laparoscopy in patients with high degree of suspicion for diagnosing and resorting to early anti-tubercular treatment as well as avoiding laparotomies as a surgical intervention in cases of abdominal tuberculosis.

Results: In the following study, 20 patients of abdominal tuberculosis underwent diagnostic laparoscopy followed by biopsy. Most common symptom was pain abdomen and most common affected organ was ileo-caecal junction. Only 50% cases required intraoperative procedures such as adhesiolysis and stricturoplasty and Resection and anastomosis

Conclusions: Diagnosis of abdominal tuberculosis is always a dilemma and presents as a challenge due to its non-specific clinical presentations.

Laparoscopy is safe, reliable, minimally invasive and effective in cases presenting as a diagnostic dilemma.

Keywords: Abdominal Tuberculosis, Diagnostic Laparoscopy, Minimally invasive

INTRODUCTION

Tuberculosis (TB) is a common disease world wide, affecting one third of the whole population especially in developing countries. Rate of the cases vary depending on numerous factors such as age, sex, race, socioeconomic status and geographic location, which are important in the prevalence of the disease ^[10,11].

It has been reported that up to 5% of TB patients may have abdominal tuberculosis and of these, 25-60% may have peritoneal involvement ^[2]. Active pulmonary TB in association with abdominal TB has been reported to range from 20-50% ^[7].

Presentation of abdominal TB mimics other abdominal pathologies and hence leads to undue delay in diagnosis and treatment and further increases overall morbidity. Abdominal TB can present with varying signs and symptoms like vague abdominal pain, abdominal mass, ascites and intestinal obstruction ^[1]. Once symptoms of bowel obstruction or peritonitis appear, antitubercular drugs are of little use and surgery is inevitable ^[1].

A large number of cases were diagnosed on exploratory laparotomy due to unavailability of less invasive procedures and delayed or acute presentations. Advent of laparotomy as a diagnostic and therapeutic tool has lead to it becoming the investigation of choice in cases suspected to be abdominal TB

This retrospective study aims at finding the possible role of diagnostic laparoscopy in patients with high degree of suspicion for diagnosing and resorting to early anti-tubercular treatment as well as avoiding laparotomies as a surgical intervention in cases of abdominal tuberculosis.

MATERIAL AND METHODS

Patients diagnosed as abdominal tuberculosis on laparoscopy during the period of February 2021- January 2022 in General Surgery Ward, at Dr. D.Y. Patil Hospital and Research Centre, Pune were enrolled in this study. Data was acquired from the record section based on age group, gender, presenting symptoms and signs along with haematological, radiological, intra-operative and histopathological findings.

RESULTS

A total of 20 patients were diagnosed as abdominal tuberculosis in the study. Age group ranged widely from 18 years to 70 years old (mean age : 39.8 years) [table no.1], with a female to male ratio of 1:3.[table no2].

All patients presented with more than one symptom of which commonest being pain in abdomen (85%), loss of weight and appetite (65%), evening rise of fever (50%), altered bowel habits (30%) and acute pain on abdomen(15%).[table no.3]. On clinical examination, most frequently found sign was abdomen tenderness(35%), followed by abdominal distension (25%) , doughy abdomen (20%) and ascites and guarding/rigidity (15%) and visible peristalsis(10%) [table no.4].

TABLE NO.1 DISTRIBUTION ACCORDING TO AGE		
AGE IN YEARS	NO. OF CASES	PERCENT
Below 20	2	10
21-30	6	30
31-40	5	25
41-50	2	10
51-60	2	10
Above 60	3	15
TOTAL:	20	100

TABLE NO.2 DISTRIBUTION ACCORDING TO SEX		
SYMPTOM	NO. OF CASES	PERCENT
Pain in abdomen(acute)	3	15
Pain in abdomen (chronic)	17	85
Evening rise of fever	10	50
Loss of weight	13	65
Loss of appetite	13	65
Altered bowel habits	6	30

TABLE NO.3 DISTRIBUTION ACCORDING TO SYMPTOMS		
SEX	NO.OF CASES	PERCENT
MALE	15	75
FEMALE	5	25
TOTAL	20	100

TABLE NO.4 DISTRIBUTION ACCORDING TO SIGNS		
SIGNS	NO. OF CASES	PERCENT
Abdominal distension	5	25
Tenderness	7	15
Ascites	3	35
Doughy abdomen	4	20
Visible peristalsis	2	10
Guarding / rigidity	3	15

TABLE NO.5 TYPE OF PRESENTATION		
PRESENTATION	NO. OF CASES	PERCENT
Acute	3	15
Sub-acute	5	25
Chronic	12	60

TABLE NO.6 DISTRIBUTION ACCORDING TO HAEMATOLOGICAL VALUES					
TLC			ESR		
Category	No. of cases	%	Category	No. of cases	%
Below 4000	3	15	<15mm/hr	11	55
Above10000	17	85	>15mm/hr	9	45
Total	20	100	Total	20	100

Out of the 20 cases, 12 had chronic presentation, 5 sub-acute and 3 acute cases [table no.5]. There were two laboratory parameters considered, total leukocyte count (TLC) and erythrocyte sedimentation rate (ESR). Most patients presented with an elevated TLC (leukocytosis) while elevated ESR was seen in 55% of the cases [table no.6] .

TABLE NO. 7 ACCORDING TO RADIOLOGICAL FINDINGS					
USG	NO. OF CASES	%	CECT	NO. OF CASES	%
Wall thickening	19	95	Wall thickening	19	95
Mesenteric lymph nodes	9	45	Lymph nodes	12	60
Ascites	4	20	To and fro peristalsis	5	25
Ileo-caecal mass	1	5	Strictures	4	20

Radiological findings most commonly revealed wall thickening of involved segment of bowel (95%) , followed by lymphadenopathy (60%) , to and fro peristalsis suggestive of adhesive obstruction (25%), strictures (20%), ascites (20%) and in one case, an ileo-caecal mass[table no. 7].

TABLE NO.8 INTRAOPERATIVE FINDINGS		
SITE AND TYPE	NO. OF CASES	PERCENT
Peritoneal	3	15
Ileal	2	10
Ileocaecal	8	40
Mesentery and lymph nodes	7	35

TABLE NO.9 PROCEDURES PERFORMED		
PROCEDURE PERFORMED	NO. OF CASES	PERCENT
Adhesiolysis	6	30
Stricturoplasty	2	10
Resection and anastomosis	2	10
Biopsy	20	100

Most commonly affected abdominal organ was the ileo-caecal junction (40%) , followed by mesentery and its lymph nodes(35%) , peritoneum (15%) and isolated ileal lesion in 10% cases.[table no.8].

Table no.9 shows the commonly required intra-operative procedures in cases of abdominal tuberculosis diagnosed on laparoscopy



Figure 1 Ileum with strictures



Figure 2 segmental resection



Figure 3 multiple mesentric lymphnodes



Figure 4 Intra operative image showing proximal ileal perforation



Figure 5 Ileo-ascending anastomosis

DISCUSSION

In this study, there were 20 patients diagnosed with abdominal tuberculosis. There were 15 males and 5 females with a male to female ratio of 3:1 and the age range being 18-70 with mean age being 39.8 years. In a study conducted by **Uzunkoy et al** the male to female ratio was 4:7 with a mean age of 39 years (age range 18-65) ^[3]. In another study by **Faizollah et al**, majority of the patients diagnosed laparoscopically to have abdominal kochs were females i.e 18 of 28 patients and a male to female ratio of 5: 9, both of which are contrary to our study ^[6]. The small sample size in this study might be considered as a limitation to get proper epidemiological data

Abdominal Koch's cases present with vague symptoms and signs. In a study by **Kiran et al** pain was the most common presenting symptom (82.5% cases) which is in accord with our study showing 15% cases of acute abdominal pain and 85% cases

with chronic abdominal pain. In similar studies by **Bhansali et al** and **Govinda et al**, pain was the most common symptom observed in 100% and 89.5% cases respectively^[9]. Another study by **Muneef et al** however, shows fever as the most common presenting symptom i.e. 73%^[4]

In a study by **Sheer TA et al**, ascites was seen in 96% cases and abdominal distension in 95% cases^[8]. Similar findings were observed in a study by **Faizollah et al** with 70% cases with ascites and 78% cases with abdominal distension^[6].

Pain abdomen (35%) is the most common sign observed in our study followed by abdominal distension (25%).

The cornerstone of TB diagnosis is the culture of involved microorganism, molecular diagnostic methods such as PCR and recently emerged GENE Xpert. Histopathological examination is an appropriate method for diagnosing TB and ruling out malignancy or any other cause. Laparoscopy provides minimally invasive access to obtain sample for HPE.

Tuberculosis can involve any part of the gastrointestinal tract and is the sixth most common site for extra pulmonary TB. It has been known to be caused due to reactivation of silent foci which spreads by the haematogenous route. However, it should be noted that abdominal tuberculosis can be found as primary infection with no pulmonary tuberculosis.

Intestinal TB usually has three gross pathological forms: Hypertrophied, Ulcerative or Strictureous^[12]. Ileo-caecal TB is always a hypertrophied lesion and presents with acute intestinal obstruction.

Rathi et al claim that the commonest area affected is the ileo-caecal region^[5]. In this study, it has been found that ileo-caecal, mesenteric, peritoneum and ileum are the most commonly affected sites. Peritoneum and ileo-caecal are commonly infected sites and manifest as granulomas, caseation and fibrosis due to various contributing factors such as stasis, abundant lymphoid tissue, increased rate of absorption at this site and closer contact of bacilli with ileum mucosa^[13].

Peritoneal TB presents with varied symptoms determined by wet and dry clinical phases^[14,15]. The wet phase corresponds to early phase and symptoms associated with it are usually abdominal distension secondary to intra abdominal ascites, abdominal pain and weight loss^[14]. The dry phase is characterized usually by adhesions and follows the wet phase. In our study almost 40% patients showed adhesions intra operatively which signifies a delay in admission^[14].

In earlier times, laparotomy was the common surgical intervention required for diagnosing and treating abdominal tuberculosis. Recent times and with high degree of suspicion, laparoscopy is opted for as a minimally invasive surgical intervention.

In our study, all patients underwent diagnostic laparoscopy after thorough history, examination and investigations were suggestive of abdominal TB. Biopsy along with intraoperative picture proved the diagnosis in all cases. Only 50% cases required intraoperative procedures such as adhesiolysis and stricturoplasty and Resection and anastomosis. There were no complications in any of the laparoscopies and all patients were started on anti-tubercular therapy.

CONCLUSION

Diagnosis of abdominal tuberculosis is always a dilemma and presents as a challenge due to its non-specific clinical presentations.

Laparoscopy is safe, reliable, minimally invasive and effective in cases presenting as a diagnostic dilemma. CT, TB PCR, GENE XPRT and culture of ascitic fluid are

the most useful tools of diagnosis ^[6,17]. Diagnostic laparoscopy with tissue biopsy and Histopathological examination provided rapid and correct diagnosis of abdominal tuberculosis ^[16]. Prompt diagnosis allows us to start early anti tubercular therapy and hence reduces morbidity and mortality due to this disease.

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