

Original article:

Role of laparoscopy for the diagnosis of abdominal tuberculosis in patients with chronic pain abdomen

¹Dr Ashish Bhadana , ²Proff. Dr. N.S. Shekhawat*

PG resident, Head of Department

Department of General Surgery, National Institute of Medical Science , Jaipur, Rajasthan

Corresponding author*

Abstract

Background: Tuberculosis can involve any part of the gastrointestinal tract and is the sixth most frequent site of extra-abdominal involvement. Both the incidence and severity of abdominal tuberculosis are expected to increase with increasing HIV infection. Diagnostic laparoscopy in addition to giving a definitive diagnosis reduces the operating time, postoperative morbidity and hospital stay. Hence it is cost effective. Thus diagnosis of abdominal tuberculosis is largely dependent on histological confirmation by laparoscopy. The role of laparoscopy in ascertaining the diagnosis of abdominal tuberculosis needs to be studied.

Material & Methods: This is a descriptive analytical, Observational study done on 140 Patients who were complain of chronic abdominal pain in Department of General Surgery in National Institute of Medical Science and Research, Jaipur in between January 2017 to June 2018. A detailed clinical examination of 140 cases was recorded and analysed various other complains in addition to chronic pain abdomen like abdominal pain , vomiting, constipation, anorexia, weight loss, fever, history of gona formation and clinically tenderness, guarding and rigidity, abdominal lump and abdominal distension were asked for laproscopic exploration of all cases was performed after routine investigations sonography abdomen and CT scan during laproscopic surgery following observations were recorded in all cases.

Results: In our series out of 24 cases of abdominal tuberculosis, 20 cases were female. The male to female ratio is 5:1 and represent that maximum no. of cases belonged to the age group between 21 to 30 years (24.28%). In order of frequency other symptoms were loss of appetite (99%), constipation (80%), vomiting (65.71%) and weight loss (61.42%). Our study showed that the adhenolysis was done in 38 cases, out of which 2 cases was tubercular & rest was non-tubercular. Overall complication was seen in 12 cases, out of which 7 cases chest infection and 5 cases had wound infection.

Conclusion: Diagnostic laparoscopy has a definitive role in the management of patients with chronic pain abdomen and should be an important investigative tool in the armamentarium of all practicing surgeons.

Keywords: Diagnostic laparoscopy, Abdominal tuberculosis, Abdominal pain

Introduction:

Tuberculosis still remains one of the leading causes of death worldwide. According to WHO report 9.6 million people are estimated to have fallen ill with tuberculosis, of which 58% were in the South-East Asia and Western Pacific regions. India, Indonesia and China had the largest number of cases: 23%, 10% and 10% of the global total. Worldwide about 37% new cases of Tuberculosis went undiagnosed or were not reported.¹ Heavy burden on the limited health resources in a developing country like India. Often the clinical presentation is vague and nonspecific and the available diagnostic modalities fail to point the underlying pathology.

Tuberculosis bacteria reach the gastrointestinal tract via haematogenous spreads, ingestion of infected sputum, or direct spread from infected contiguous lymph nodes and fallopian tubes.

Extra pulmonary tuberculosis constitutes 10-20% of all patients with active tuberculosis. Abdominal tuberculosis which involves the bowels, peritoneum, lymph node or solid viscera, constitutes up to 12% of extra pulmonary tuberculosis. Only 15-20% patients of abdominal tuberculosis have active pulmonary tuberculosis.^{2,3} Abdominal tuberculosis tends to present with nonspecific feature and is difficult to diagnose in early stage. Imaging studies and Serological tests provide only indirect evidence of the underlying disease. AFB stain and culture of the ascites fluid give a very poor yield and are often not helpful.

Many surgeons have had the challenging experience of facing an unsolvable chronic abdominal pain and with uncertain diagnosis or staging of intra abdominal tumours. History taking, physical examinations, biochemical tests & sequences of advanced noninvasive imaging studies might provide some help but are often insufficient for an accurate diagnosis. Imaging studies cannot provide an accurate diagnosis of the aforementioned chronic abdominal conditions. Nevertheless exploratory laparotomy has inevitably Hence Diagnostic Laparoscopy is indicated in any situations when inspection of abdomino-pelvic organs will help to establish a diagnosis and for further subsequent management. Diagnostic laparoscopy is a minimally invasive surgical procedure that allows the visual examination and documentation of intra abdominal organs in order to detect any pathology. Elective diagnostic laparoscopy refers to the use of the procedure in chronic intra abdominal disorders. Diagnostic laparoscopy is safe, well tolerated and can be performed in an inpatient setting under general anaesthesia. Diagnostic laparoscopy in addition to giving a definitive diagnosis reduces the operating time, postoperative morbidity and hospital stay. Hence it is cost effective.

Laparoscopy can identify abnormal findings and improve the outcome in a majority of patients with chronic abdominal pain, as it allows surgeons to see and treat many abdominal conditions that cannot be diagnosed otherwise.^{4,5} Thus diagnosis of abdominal tuberculosis is largely dependent on histological confirmation by laparoscopy. The role of laparoscopy in ascertaining the diagnosis of abdominal tuberculosis needs to be studied.

Material & Methods:

This is a descriptive analytical, Observational study done on 140 Patients who were complains of chronic abdominal pain in Department of General Surgery in National Institute of Medical Science and Research, Jaipur in between January 2017 to June 2018.

INCLUSION CRITERIA:-

- Every patient admitted with complaint of chronic pain abdomen (>21 days).
- Patient admitted with sub-acute intestinal obstruction.

EXCLUSION CRITERIA:

- Cases which are operated in emergency operation theatre

Material method-

All cases of chronic pain abdomen admitted in surgery department of more than 3 weeks duration with constant or intermittent pain were subjected for clinical examination including detail history taking and physical examination out of 160 cases only 140 cases were subjected for laparoscopic examination

and are included in the work 20 cases were excluded either because they were unfit for laparoscopic surgery or unwilling for the procedure.

A detailed clinical examination of 140 cases was recorded and analysed various other complaints in addition to chronic pain abdomen like abdominal pain, vomiting, constipation, anorexia, weight loss, fever, history of gona formation and clinically tenderness, guarding and rigidity, abdominal lump and abdominal distension were asked for laparoscopic exploration of all cases was performed after routine investigations sonography abdomen and CT scan during laparoscopic surgery following observations were recorded in all cases

- Difficulty in creating the port because of adhesions
- Difficulty in exploration because of peritoneal adhesions
- Recording of peritoneal status including pelvic cavity for any nodule or tubercles
- Exploration of small intestine from DJ to ileocaecal junction for A. dilated loops B. Collapsed loops C. Intestinal wall thickening D. Inter loop adhesions E. Serosal inflammation of ilium F. Mesentric lymph nodes
- Assessment of omentum with regards to A. Thickening of omentum B. Shrinkage of omentum C. Nodules in omentum Exploration of whole peritoneal cavity and organs like liver, spleen or any associated pathology
- Recording of presence of interloop fluid and its aspiration and examination for biochemical and serological tests
- In the case of lymphadenopathy dissection of lymphnode and removal of lymphnode for biopsy.
- In case of intestinal strictures resection and anastomoses was performed and specimen was send for histopathological investigation.

Results:

In our series out of 24 cases of abdominal tuberculosis, 20 cases were female. The male to female ratio is 5:1 (graph 1) and represent that maximum no. of cases belonged to the age group between 21 to 30 years (24.28%), second largest age group was 31 to 40 years (20%) (table 1).

The commonest complaint of patients of abdominal pain, in this series 100% patients have pain abdomen. Pain was generally diffuse vague and uncharacteristic.

In order of frequency other symptoms were loss of appetite (99%), constipation (80%), vomiting (65.71%) and weight loss (61.42%) (table 2).

In USG whole abdomen out of 140 cases in 8 cases no abnormality were detected, in which 5 cases were tubercular and 3 cases were non-tubercular.

USG suggestive of appendicitis in 3 cases, all were non-tubercular. Dilated bowel loops were seen in 52 cases, in which 40 cases were non-tubercular and rest 12 cases were tubercular (graph 2).

Our study showed that the adhenolysis was done in 38 cases, out of which 2 cases was tubercular & rest was non-tubercular. Appendectomy with lymph node biopsy was done in 19 cases, 7 cases were tubercular and 12 cases were non-tubercular (table 3).

There was no complication was seen in 128 cases. Out of which 20 cases were tubercular. Overall complication was seen in 12 cases, out of which 7 cases chest infection and 5 cases had wound infection (table 4).

Discussion:

Chronic abdominal pain is a common problem dealt not only by the general surgeon but by all practicing physicians. Even after extensive non-invasive work up of such patients, the exact cause of pain abdomen is seldom known. Abdominal tuberculosis can mimic a variety of other abdominal conditions/diseases and only a high degree of suspicion can help in the diagnosis otherwise it is likely to be missed or delayed resulting in high morbidity and mortality.

Diagnostic laparoscopy makes it possible for the surgeon to directly visualize the contents of the abdominal cavity better than any other investigative modality. The aim of this study to detect the proportion of abdominal tuberculosis cases with chronic pain abdomen cases, using laparoscopy as a diagnostic tool.

In our study showed that the majority of cases were seen in 20-40 years of age group (44.28%) and overall male to female ratio was 4:1. **Pradeep Saxena et al (2016)**⁶ found most of the patients were between 30-50 years age group and female preponderance (64.03%). The disease can present at any age but is seen most commonly in young adults.⁷

In a study involving 34 patients by Klingensmith et al,⁸ the majority were women (85%). The average age in their study was 39years (Range 21-75years). Thanaponsathron et al,⁹ of 30 patients with chronic right lower quadrant pain, the average age was 27.5 years. Raymond et al¹⁰ for utility of laparoscopy in chronic abdominal pain involving 70 patients, the average age was 42 years.

In a study by Gouda M El- Labban and Emad N Hokkam¹¹ involving 30 patients, the average age of presentation was 36 years.

All the above studies show that the female sex was more commonly afflicted by chronic pain abdomen and the average age at presentation in our study is comparable with the aforementioned studies.

In many developing countries including India infectious disease like tuberculosis is a more common cause of chronic abdominal pain than cancer. In our study also tuberculosis of abdomen (40.35%) was the most common cause for chronic abdominal pain. Many other authors have in their studies reported abdominal Tuberculosis as common cause of chronic abdominal pain. Mallik et al (72%)¹², Al-Akeely MH (45.71%)¹³ and Sayed ZK (21.8%)¹⁴.

The commonest complain of patients of abdominal pain, in this series 100% patients have pain abdomen. Pain was generally diffuse vague and uncharacteristic. In order of frequency other symptoms were loss of appetite (99%), constipation (80%), vomiting (65.71%) and weight loss (61.42%). The commonest physical finding in the study was tenderness in 61.42% cases. Tenderness mostly either localized in RIF, umbilicus or generalized. Abdominal distension present in 49.28% cases. History of Gola formation in 36.42% cases and guarding and/or rigidity was present in 5% cases. In a series of 60 patients published by Chow et al the most common features were ascites (93

percent), abdominal pain (73 percent), and fever (58 percent).¹⁵ The classic doughy abdomen is associated with the fibro-adhesive form of tuberculous peritonitis and is rarely seen. Paajanen¹⁶ in 2005, concluded that by careful selection, for patients with chronic abdominal pain laparoscopy alleviates the symptoms in more than 70% of patients and it should be considered if other diagnostic tests are negative. S Rai et al¹⁷ recorded a 92 % diagnostic rate in their study to diagnose patients with abdominal tuberculosis.

In our study radiological studies USG, Enteroclysis and CT scan did showed strictures, adhesions, dilated bowel loops, bowel wall thickening, mass lesions and presence of ascites suggesting indirectly about abdominal pathology. But most of these findings are nonspecific and not helpful in reaching a conclusive diagnosis. This fact has been experienced by many authors in different studies on laparoscopy for chronic abdominal pain.¹⁸⁻²⁰

Lavonius M et al,²¹ in 1999, suggested that laparoscopy is a safe and useful procedure in the diagnosis and treatment of chronic abdominal pain. Raymond P,¹⁰ in 2003, concluded that laparoscopy has a significant diagnostic and therapeutic role in patients with chronic abdominal pain.

DJ Swank et al,²² in 2003, concluded that laparoscopic adhesiolysis cannot be recommended as a treatment for adhesions in patients with chronic abdominal pain.

Arya PK and Gaur KJBS,¹⁸ in 2004, concluded that role of diagnostic laparoscopy as a safe and one of the most fruitful investigative tool in undiagnosed lower abdominal pain. Nafeh MA et al,²³ in 1992, performed laparoscopy in 200 patients with undiagnosed ascites and concluded that laparoscopy was an effective tool in diagnosing tuberculous peritonitis.

S Rai et al¹⁷ recorded a 92 % diagnostic rate in their study to diagnose patients with abdominal tuberculosis. **Pradeep Saxena, Saurabh Saxena**⁶ concluded that laparoscopy is safe and helpful in the diagnosis of peritoneal as well as intestinal tuberculosis. In patients suspected to have abdominal tuberculosis early laparoscopy may be useful to establish a histological diagnosis with acceptably low morbidity (<5%).

Conclusion:

Laparoscopy has an effective diagnostic accuracy and therapeutic efficacy in the management of patients who present to us with chronic abdominal pain, especially in whom conventional methods of investigations have failed to elicit a cause for the pain. Laparoscopy is safe, quick and effective modality of investigation for chronic abdominal pain.

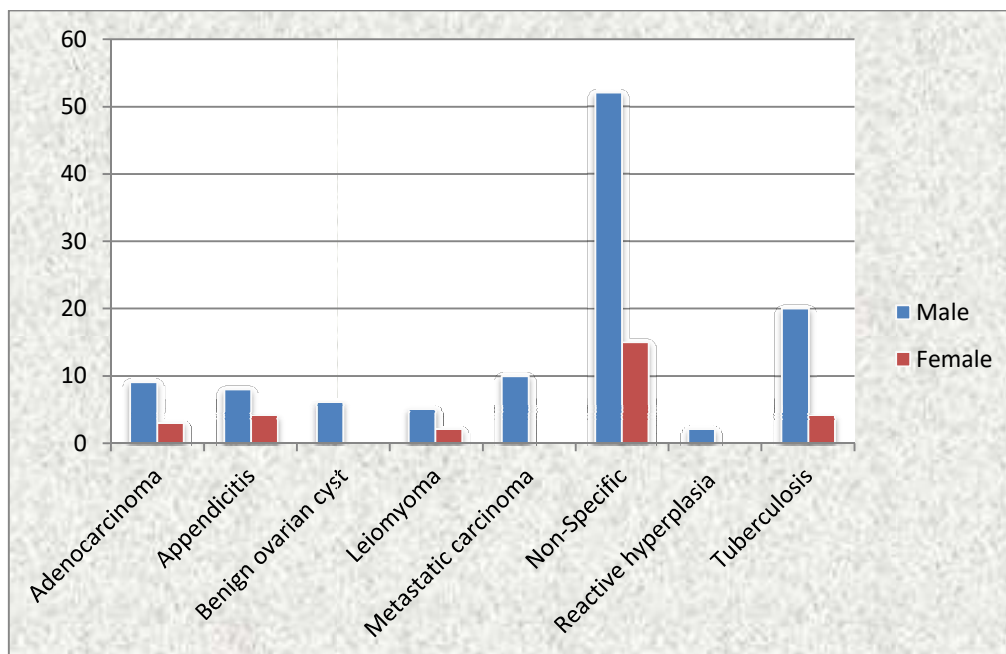
Diagnostic laparoscopy has a definitive role in the management of patients with chronic pain abdomen and should be an important investigative tool in the armamentarium of all practicing surgeons.

References:

1. Global tuberculosis report, 2015, 20th edition, WHO, executive summary,1-3. Available at: http://www.who.int/tb/publications/global_report/e.
2. Chug SN, Jain V. Abdominal tuberculosis, current concepts in diagnosis and management, Chapter 102, API Medicine, 1-9, Available at http://www.apiindia.org/pdf/medicine_update_2007/102.pdf.
3. Sharma MP, Bhatia V. Abdominal tuberculosis, Indian J Med Res. 2004;120:305-15.

4. Paaajanen H, Julkunen K, Waris H. Laparoscopy in chronic abdominal pain: A prospective nonrandomized long-term follow-up study. *J Clin Gastroenterol* 2005;39:110-4.
5. Mueller MD, Tschudi J, Herrmann U, Klaiber C. An evaluation of laparoscopic adhesiolysis in patients with chronic abdominal pain. *Surg Endosc* 1995;9:802-4
6. Pradeep Saxena, Saurabh Saxena. The role of laparoscopy in diagnosis of abdominal tuberculosis. *Int Surg J*. 2016 Aug;3(3):1557-1563.
7. Sharma AK, Aggarwal LD, Sharma CS, Sarin YK. Abdominal tuberculosis in children: Experience over a decade. *Indian Paediatr* 1993; 30: 1149-53.
8. Klingensmith ME, Soybel DI, Brooks DC: Laparoscopy for chronic abdominal Pain .*Surg Endosc*: 1996; 10(11): 1085-7.
9. Thanapongsathron W, Kanjanabut B, Vaniyapong T, Thaworncharoen S. Chronic right lower quadrant abdominal pain: laparoscopic approach. *J Med Assoc Thai*. 2005 Jun;88 Suppl 1:S42-7.
10. Raymond P, Onders MD, Elizabeth A, Mittendorf MD: Utility of laparoscopy in chronic abdominal Pain. *Surg* : 2003; 134(4): 549-54.
11. Gouda M El-labban and Emad N Hokkam, The efficacy of laparoscopy in the diagnosis and management of chronic abdominal pain. *J minim Access Surg* 2010 Oct – Dec; 6 (4): 95-99.
12. Malik AM, Altaf Hussain TK. Yield of diagnostic laparoscopy in abdominal tuberculosis: is it worth attempting? *Surgical Laparoscopy, Endoscopy and Percutaneous Techniques*. 2011;21(3):191-3.
13. Al Akeely MH. The impact of elective diagnostic laparoscopy in chronic abdominal disorders. *Saudi J Gastroenterol*. 2006;12:27-30.
14. Sayed ZK, Verma RA, Madhukar KP, Vaishampayan AR, Kowli MS, Vaja C. Role of Diagnostic Laparoscopy in Chronic Abdominal Pain. *Int J Sci Stud*. 2015;3(4):31-5.
15. Chow KM, Chow VC, Hung LC, et al. Tuberculous peritonitis-associated mortality is high among patients waiting for the results of mycobacterial cultures of ascitic fluid samples. *Clin Infect Dis* 2002; 35:409.
16. Paaajanen, Hannu, Julkunen, Kristiina, Waris, Heidi, Laparoscopy in Chronic Abdominal Pain: A Prospective Nonrandomized Long-term Follow-up Study, *Journal of Clinical Gastroenterology*, Feb 2005, 39(2), p. 110-114.
17. S Rai and W M Thomas, Diagnosis of abdominal tuberculosis: the importance of laparoscopy; *J R Soc Med*. 2003 December ; 96 (12) :586-588.
18. Arya PK and Gaur KJBS: Laparoscopy: A tool in diagnosis of lower abdominal pain. *Indian J Surg*: 2004; 66:216-20.
19. Krishnan P et al: Laparoscopy in suspected abdominal tuberculosis is useful as an early diagnostic method. *ANZ Journal of Surgery*: 2008; 78: 987-9.
20. Sanai FM, Bzeizi KI. Systemic review: tuberculous peritonitis-presenting features, diagnostic strategies and treatment. *Aliment Pharmacol Ther*. 2005;22:685-700.
21. Lavonius M, et al: Laparoscopy for chronic abdominal Pain. *Surg Laparosc & endosc*: 1999; 9: 42-4.

22. Swank DJ, Swank-Bordewijk SCG, Hop WCJ, et al: Laparoscopic adhesiolysis in patients with chronic abdominal pain: A blinded randomized controlled multi- centre trial. Lancet 2003; 361:1247-51.
23. Nafeh MA, Medhat A, Abdul-Hameed AG, Ahmad YA, Rashwan NM, Strickland GT, Tuberculous peritonitis in Egypt: the value of laparoscopy in diagnosis, Am J Trop Med Hyg. 1992 Oct;47(4):470-7.



Graph 1: Sex distribution of cases on the basis of histopathology

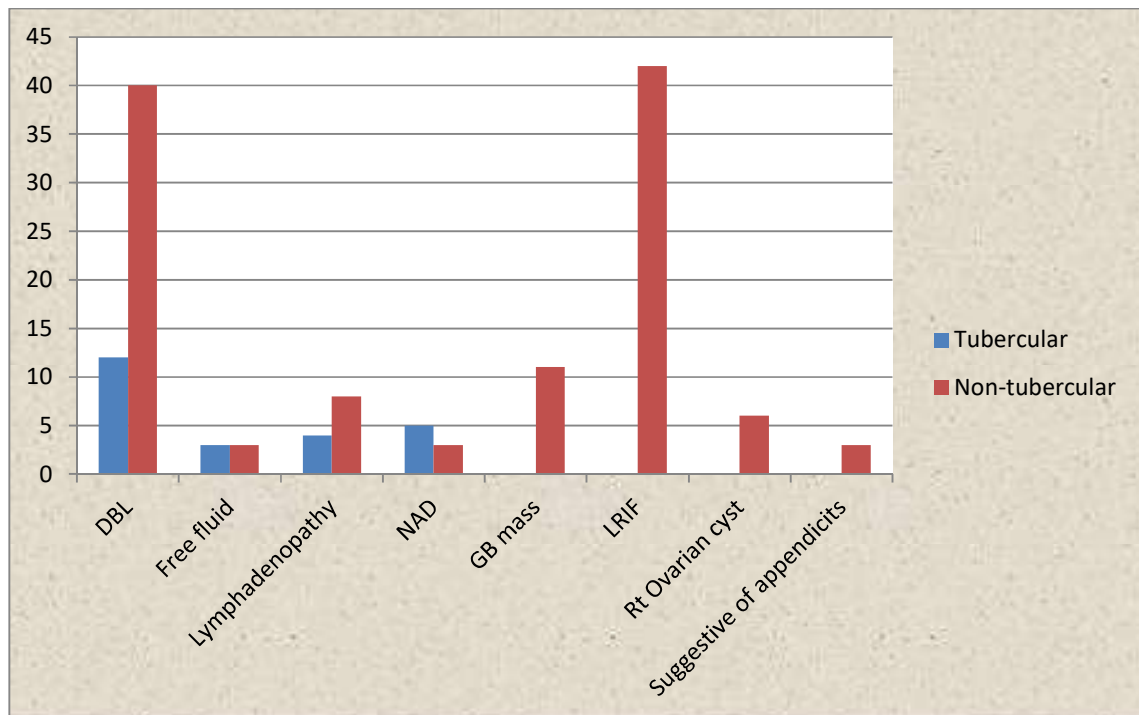
Table 1: Age-wise distribution of cases on the basis of histopathology

Age (yrs)	Tubercular	Non-tubercular	Percentage
20 or less	4	16	14.28%
21-30	4	30	24.28%
31-40	5	23	20%
41-50	4	7	7.85%
51-60	2	18	14.28%
61-70	3	12	10.71%
71 and above	2	10	8.57%
Total	24	116	100%

P=0.6112

Table 2: Distribution of cases on the basis of symptoms and physical findings

Symptoms	Tubercular	Non-tubercular	Total
Abdominal pain	24	116	140
Vomiting	18	74	92
Constipation	17	95	112
Anorexia	24	115	139
Weight loss	12	74	86
Fever	7	39	46
History of GOLA formation	6	45	51
Tenderness	12	74	86
Guarding/rigidity	1	6	7
Abdominal rigidity	7	49	56
Abdominal distention	9	60	69



Graph 2: Distribution of cases on the basis of USG abdomen

Table 3: Distribution of cases on the basis of Operative Procedures

Operative Procedures	Tubercular	Non-tubercular	Total
Adhenolysis	2	36	38
Appendectomy with lymph node biopsy	7	12	19
Biopsy taken	15	18	33
Hysterectomy with TSO	0	7	7
IA anastomosis	0	18	18
Rt Salpingo-oophorectomy	0	6	6
Stricturoplasty	0	19	19

Table 4: Complications

Complications	Tubercular	Non-tubercular	Total
No	20	108	128
Chest infection	2	5	7
Wound infection	2	3	5