ORIGINAL ARTICLE

Role of diagnostic laparoscopy in the diagnosis of abdominal tuberculosis

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ABSTRACT

Introduction: Tuberculosis, a disease of mankind since time immemorial still continues to be a global health concern. In addition, the prevalence of drug-resistant tuberculosis is increasing worldwide. Tuberculosis (TB) has an incidence of 211 cases per 100,000 population and adds about 2.8 million cases to the total pool every year. Any part of the GI system may be infected, although the ileum and colon are common sites. Abdominal tuberculosis which involves the bowels, peritoneum, lymph node or solid viscera, constitutes up to 12% of extra pulmonary tuberculosis. In the past the diagnosis of abdominal tuberculosis was dependent on either blind peritoneal biopsy or visual findings on diagnostic laparotomy. However, with the ever-increasing experience with laparoscopy direct visualisation of the peritoneal cavity and simultaneous biopsy of doubtful lesions became possible. Various studies have proven laparoscopy to be a rapid, safe, and most specific procedure for the diagnosis of abdominal tuberculosis.

Aims and Objectives: To study the importance of diagnostic laparoscopy in the diagnosis of abdominal tuberculosis.

Materials and Methods: This was a prospective study to evaluate the importance /role of laparoscopy in diagnosis of abdominal tuberculosis. It was conducted in the department of general and minimally invasive surgery SKIMS, Srinagar over a period of two years. A total of 48 patients were subjected to diagnostic laparoscopy. Informed consent was taken from all the patients. Inclusion criteria were patients with abdominal pain who had remained undiagnosed despite exhaustive evaluation with biochemical, molecular and imaging techniques. The patients with uncontrolled coagulopathy and severe cardiopulmonary disease were excluded. Doubtful lesions in peritoneal cavity were routinely biopsied for histopathological diagnosis and ascitic fluid if present was taken for biochemical, cytological, microbiological (AFB Staining) and molecular analysis (CB NAAT).

Results: In our study group there were 31 (64.58%) males and 17 (35.41 %) females. The most common symptom was pain abdomen 100% followed by fever 29.16% bloating 27.08% weakness 20.83%weight loss 16.6%and diarrhoea 8.3%.The most common laparoscopy finding among the patients was adhesions(14)(29.16%), abdominal TB(12)(25%), chronic recurrent appedicitis(11)(22.9%), pelvic inflammatory diseases(3)(6.25%) and metastatic peritoneal disease(2)(4.16%). Negative diagnostic laparoscopy (6)(12.5%). Out of 12 patients diagnosed as abdominal tuberculosis on diagnostic laparoscopy only 2 had ascitic fluid CB NAAT positive while none of the patients tested positive on AFB staining of ascitic fluid. Also none of the patients had shown peritoneal lesions less than 5mm on CT. No complications pertaining to diagnostic laparoscopy were observed in our study group.

Conclusion: From our study we conclude that diagnostic laparoscopy is a very effective and robust diagnostic modality to make a very reliable diagnosis in patients wherein the other diagnostic modalities have failed to reach a conclusive diagnosis. We also suggest a low threshold for diagnostic laparoscopy in cases where tuberculosis is suspected so that an early diagnosis is done and an appropriate antitubercular regime is started for better outcome and minimise complications related to delayed diagnosis.

Keywords: Laparoscopy, diagnostic, tuberculosis

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INTRODUCTION

Tuberculosis (TB), which is caused by bacteria of the Mycobacterium tuberculosis complex, is one of the oldest diseases known to affect humans and the top cause of infectious death worldwide. Population genomic studies suggest that M. tuberculosis may have emerged 70,000 years ago in Africa and subsequently disseminated along with anatomically modern humans, expanding globally during the Neolithic Age as human density started to increase. Tuberculosis is a multisystemic disease with varied clinical presentations. In addition, the prevalence of drug-resistant tuberculosis is growing worldwide.

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Tuberculosis (TB) has an incidence of 211 cases per 100,000 population and adds about 2.8 million cases to the total pool every year[7]. Poor living conditions, overcrowding and limited health infrastructure are the major causes of the disease. Any part of the GI system may get infected, although the ileum and colon are common sites. On gross pathologic examination, intestinal TB can be classified into 3 categories. The ulcerative form of TB is seen in approximately 60% of patients. This is considered a highly active form of the disease. The hypertrophic form is seen in approximately 10% of patients and consists of thickening the bowel wall with scarring. The ulcerohypertrophic form is a subtype seen in 30% of patients. The control of TB has been challenging because of the natural history of the disease and the varying patterns in which it manifests in different groups. Investigations like erythrocyte sedimentation rate (ESR), Ziehl Neelsen staining, AFB culture, CB NAAT and biopsy have been used to diagnose abdominal TB. In the past, the diagnosis of abdominal tuberculosis was dependent on either blind peritoneal biopsy or visual findings on diagnostic laparotomy. Diagnostic laparoscopy which is a minimal access surgical approach offers direct visualisation of the peritoneal cavity and simultaneous biopsy of doubtful lesions. Various studies have proven laparoscopy to be a rapid, safe and specific procedure for the diagnosis of abdominal tuberculosis.[1,8,11,13]

AIMS AND OBJECTIVES:

To study the role of diagnostic laparoscopy in the diagnosis of abdominal tuberculosis.

MATERIALS AND METHODS:

This was a prospective study to evaluate the role of diagnostic laparoscopy in diagnosing abdominal tuberculosis. It was conducted in the Department of General and minimally invasive surgery SKIMS, Srinagar over two years. A total of 48 patients were subjected to diagnostic laparoscopy. Informed consent was taken from all the patients. Inclusion criteria were patients with abdominal pain who had remained undiagnosed despite exhaustive evaluation with biochemical, molecular and imaging techniques. The patients with uncontrolled coagulopathy and severe cardiopulmonary disease were excluded. Doubtful lesions in the peritoneal cavity were routinely biopsied for histopathological examination.

Operative Technique

For diagnostic laparoscopy, the patient is placed supine with arms tucked by the side of the patient. We prefer to use the open technique to access the peritoneum. After pneumoperitoneum is achieved, a standard three-trocar technique is used (10-mm umbilical trocar and two 5-mm lateral trocars). A fourth 5-mm trocar is inserted if required. The whole abdominal cavity is inspected carefully. With atraumatic graspers, the structures are touched safely and elevated for further inspection. The small bowel is examined using atraumatic graspers from the ligament of Treitz to the ileocecal valve. The colon including the appendix is inspected. In females, the uterus, adnexa and the pouch of Douglas are inspected and any amount of fluid, its colour and site are noted. Biopsy of suspicious lesions on the peritoneal surfaces or solid organs is performed and the specimen is sent for histopathology.

RESULTS

In our study group, there were 31 (64.58%) males and 17 (35.41 %) females. The age distribution of our patients was 23(47.9%) in the 18 to 40 age group,19 (39.58%) in the 41 to 60 age group and 6 (12.5%) in the 61 to 80 age group respectively. The most common symptom was pain abdomen 100% followed by fever 29.16% bloating 27.08% weakness 20.83% weight loss 16.6% and diarrhoea 8.3%. The dominant site of pain was periumbilical 33.33 % followed by flanks and lumbar region 18.75%, lower abdomen 16.66% diffuse poorly localised 14.58% and upper abdomen 10.41% respectively. The dominant character type of pain was intermittent colicky in 43.75% of patients, vague discomfort in 31.25%, pricking type in 18.75% and burning type in 6.25% respectively. The most common laparoscopic finding among the patients was adhesions[14](29.16%), abdominal TB[12](25%), chronic recurrent appedicitis[11](22.9%), pelvic inflammatory diseases[3](6.25%) and metastatic peritoneal disease[2](4.16%). Negative diagnostic laparoscopy in[6](12.5%). Out of 12 patients diagnosed with abdominal tuberculosis on diagnostic laparoscopy, only 2 had ascitic fluid CB NAAT positive while none of the patients tested positive on AFB staining of ascitic fluid. Also, none of the patients had shown peritoneal lesions less than 5mm on CT.

No complications about diagnostic laparoscopy were observed in our study group.

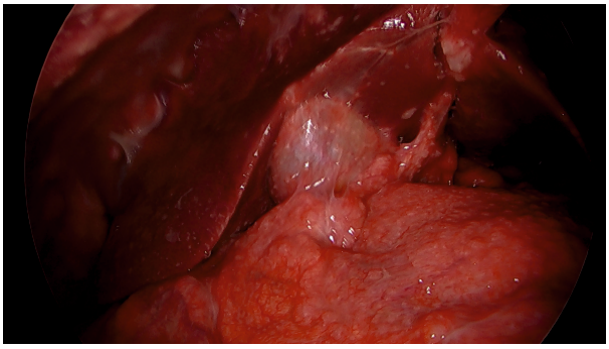
DISCUSSION

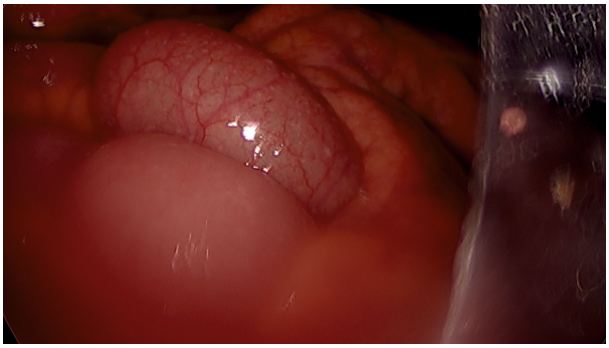
There are many diagnostic methods for diagnosing abdominal tuberculosis like AFB staining, AFB culture, ADA levels, CB NAAT and imaging diagnostic methods. However, despite all these investigations, the diagnosis may remain elusive. Diagnostic laparoscopy with tissue biopsy provides rapid and reliable diagnosis of abdominal tuberculosis. Abdominal tuberculosis tends to present with non-specific clinical features and at times difficult to diagnose. To diagnose abdominal tuberculosis the level of suspicion should be high and should be considered in the differential diagnosis of patients who have chronic undiagnosed abdominal pain, weight loss, anorexia, evening rise of temperature and diarrhoea over a long period. We observed that in expert hands diagnostic laparoscopy is a safe and quick diagnostic modality to directly visualise the abdominal cavity and take tissues for histopathological examination wherever feasible. We noticed that abdominal tuberculosis to be second most common diagnosis in our study group. Even AFB staining, biochemical analysis and CB NAAT which were done preoperatively were not conclusive in the majority of patients. In our study group radiological studies USG and CT did pick up certain findings like adhesions, ascites, strictures, thickened bowel and mesentery which suggested the possibility of abdominal tuberculosis but these findings were non-specific and could be present in other clinical conditions like inflammatory bowel diseases, pelvic inflammatory diseases and vasculitis. We also noticed that small nodules less than 5mm were not picked up by any imaging modality.

Findings related to reliability and safety have also been reported by several studies conducted by Abdelaal A[1], Pathan S[11], Islam J[8] and Sattar Z[13]. Similarly, the importance of diagnostic laparoscopy in diagnosing abdominal tuberculosis has been reported by Akgun Yilmaz[2], Chow Kai Ming[5], Prasad Krishnan[10], Malik Arshad[9], Bhupesh Harish[4], and Ashwani Gupta[3]. The superiority of diagnostic laparoscopy in comparison to imaging has also been reported by Faizollah Safarpor[6]. Low diagnostic yield of AFB staining and CB NAAT of ascetic fluid has also been reported by Sarman et al[12]

CONCLUSION

From our study, we conclude that diagnostic laparoscopy is a very effective and safe diagnostic modality to make a very reliable diagnosis in patients wherein the other diagnostic modalities have failed to reach a conclusive diagnosis. We also suggest a low threshold for diagnostic laparoscopy in cases where abdominal tuberculosis is suspected so that an early diagnosis is made. This would enable a physician to start an appropriate antitubercular regime at the earliest for better outcomes and to minimise complications related to delayed diagnosis.







CONCLUSION

From our study we conclude that diagnostic laparoscopy is a very effective and safe diagnostic modality to make a very reliable diagnosis in patients wherein the other diagnostic

modalities have failed to reach a conclusive diagnosis. We also suggest a low threshold for diagnostic laparoscopy in cases where abdominal tuberculosis is suspected so that an early diagnosis is made. This would enable a physician to start an appropriate antitubercular regime at earliest for better outcome and minimise complications related to delayed diagnosis.

Conflict of interest: None

Written informed consent: taken

Competting interest : None

REFERENCES

1. Abdelaal A. Role of laparoscopic peritoneal biopsy in the diagnosis of peritoneal tuberculosis. A seven-year experience. Chirurgia 2014;109:330–334.
2. Akgun Y. Intestinal and peritoneal tuberculosis: changing trends over 10 years and a review of 80 patients. Can J Surg 2005;48(2):131–136.
3. Ashwani Gupta Role of diagnostic laparoscopy in suspected abdominal tuberculosis
4. Bhupesh Harish Role of laparoscopy in the diagnosis and management of abdominal tuberculosis International Surgery Journal | July-September 2016 | Vol 3 | Issue 3 Page 1495
5. Chow KM. Indication for peritoneal biopsy in tuberculous peritonitis. Am J Surg 2003;185:567–573.
6. Faizollah Safarpor Role of laparoscopy in the diagnosis of abdominal tuberculosis Saudi J Gastroenterol 2007 Jul-Sep;13(3):133-5.
7. Fallis A. Tb India 2016 by RNTCP annual report. J Chem Inf. Model 2015;1:1–60.
8. Islam J, Clarke D, Thomson SR, et al. A prospective audit of the use of diagnostic laparoscopy to establish the diagnosis of abdominal tuberculosis. Surg Endosc 2014;28(6):1895–1901.
9. Malik Arshad Diagnostic laparoscopy for abdominal tuberculosis, a promising tool for diagnosis
10. Prasad Krishnan Laparoscopy in suspected abdominal tuberculosis is useful as an early diagnostic method ANZ J Surg 2008 Nov;78(11):987-9. doi: 10.1111/j.1445-2197.2008.04717.x.
11. Pathan S, Kakade SV, Ambre S. Role of Laparoscopy in Diagnosis of Abdominal Tuberculosis. World J Lap Surg 2021; 14 (3):145-148.
12. Sarman Singh Performance of Xpert MTB/RIF on Ascitic Fluid Samples for Detection of Abdominal Tuberculosis J Lab Physicians. 2017 Jan-Mar;9(1):47-52
13. Sattar Z. Laparoscopic findings of abdominal tuberculosis. PJMHS 2009;3:2.
14. Saxena P, Saxena S. The role of laparoscopy in diagnosis of abdominal tuberculosis. Int Surg J 2016:3(3):1557–1563. DOI: 10.18203/2349-2902.isj20162747.