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SURGICAL MANAGEMENT OF ABDOMINAL TUBERCULOSIS: A TERTIARY CARE HOSPITAL EXPERIENCE IN QUETTA

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ABSTRACT

Abdominal tuberculosis remains a significant health problem in developing countries like Pakistan, presenting with varied and non-specific clinical features. Timely diagnosis often requires surgical exploration due to overlapping symptoms with other abdominal pathologies. Understanding the frequency and surgical management patterns of this disease is crucial for improving patient outcomes in tertiary care settings.

Objective: To determine the frequency and surgical management patterns of abdominal tuberculosis in a tertiary care hospital setting.

Methods: This is Cross sectional study was conducted at the surgical department at Bolan Medical College Quetta Baluchistan 10th August 2022 - 10th August 2023.

A total of 131 patients presenting with various abdominal complaints. All patients underwent detailed clinical evaluation, radiological imaging, and relevant laboratory investigations. Based on these assessments, 85 patients were selected for exploratory laparotomy due to strong clinical indications. During surgery, intraoperative specimens — including mesenteric lymph nodes, intestinal biopsies, and ascitic fluid — were collected and sent for histopathological and microbiological analysis. The remaining patients were managed conservatively with medical treatment and monitored for clinical improvement.

Results: A total of 131 patients presenting with acute abdomen were included in this study. Among them, 54 (41%) were male and 77 (59%) were female. The mean age of patients was 42 years with a standard deviation (SD) of ±10.43 years. Age distribution showed that 75 patients (57%) were between 18–40 years, and 56 patients (43%) were between 41–60 years. Out of all 85 underwent laparotomy based on clinical, radiological, and laboratory assessments. Various surgical procedures were performed in these cases. Of these, 8% were diagnosed with abdominal tuberculosis, confirmed through laboratory investigations such as histopathological examination and other relevant diagnostic tests.

Conclusion: Abdominal tuberculosis was identified in 8% of patients, predominantly affecting females aged 41–60 years. Surgical intervention was essential for diagnosis and management, with

adhesiolysis and bowel resection being common procedures. Despite some postoperative complications, outcomes were favorable with timely surgical evaluation.

KEY WORDS: Abdominal tuberculosis, surgical management, BMCH, Quetta.

INTRODUCTION:

Tuberculosis remains a major global health problem and continues to be a widespread and common disease in our society. Pakistan ranks 5th among countries with the highest TB burden, following India, China, Indonesia, and Bangladesh.[1] It is estimated that one-third of the world's population is infected with Mycobacterium tuberculosis. While most infected individuals remain asymptomatic (latent TB), approximately eight million people develop active tuberculosis each year, resulting in 2–3 million deaths.[2, 3]

Abdominal tuberculosis continues to be recognized as a significant health concern across South Asia, the Near East, and many African countries. Despite advancements in hygiene, drug therapy, and diagnostics, it remains a major cause of morbidity and mortality. Even in developed nations like the United States and United Kingdom, abdominal TB has seen a resurgence.[1, 4]

In Pakistan, extrapulmonary TB accounts for a considerable proportion of overall TB cases, and abdominal TB has been reported in up to 12% of these.[5] Gastrointestinal TB is the sixth most common form of extrapulmonary TB, presenting acutely with complications such as perforation or obstruction, or chronically with vague symptoms like weight loss, anorexia, malabsorption, and subacute intestinal obstruction.[6] It can involve the gastrointestinal tract, mesentery, lymph nodes, peritoneum, omentum, and solid organs such as the liver and spleen.[7]

In Baluchistan, where healthcare infrastructure remains underdeveloped and access to advanced diagnostics is limited, timely identification and management of abdominal TB poses an even greater challenge. The province also bears a disproportionate burden of TB due to poverty, malnutrition, and lack of awareness. There is limited regional data on the surgical presentation and management outcomes of abdominal TB, making this study both necessary and timely.[8]

Abdominal tuberculosis remains a significant diagnostic and therapeutic challenge due to its varied and often non-specific presentations. Surgeons often must rely on clinical judgment and intraoperative findings to determine the extent of surgical intervention, particularly in acutely ill compromised patients.[9]

METHODS

This cross-sectional study was conducted over one year to determine the frequency of abdominal tuberculosis among patients presenting with various abdominal complaints. A total of 131 patients were included, with the sample size calculated using a 9.4% estimated proportion of abdominal TB, a 95% confidence level, and a 5% margin of error, using WHO sample size calculation software. A non-probability consecutive sampling technique was employed.

The study included all patients aged 18 to 60 years, of either gender, presenting with abdominal complaints such as severe pain, vomiting, perforation, or signs of intestinal obstruction.

Patients excluded:

A confirmed diagnosis of pulmonary or extrapulmonary TB,

A history of anti-tuberculous therapy (ATT) prior to presentation, clinical signs suggestive of acute appendicitis with an Alvarado score >6, or a recent history of blunt abdominal trauma within the past month.

Data collection:

Ethical approval was obtained from the institutional review board prior to initiating the study. All patients presenting to the outpatient department (OPD) or emergency room (ER) with abdominal complaints were assessed for eligibility and enrolled after obtaining written informed consent. The purpose and benefits of the study were clearly explained to each patient prior to enrollment.

Patients presenting with symptoms such as severe abdominal pain, vomiting, signs of perforation, or intestinal obstruction underwent detailed clinical history, physical examination, abdominal ultrasound, and erect abdominal X-ray. Routine laboratory and preoperative investigations were also performed. Based on clinical, radiological, and laboratory findings, those patients who fulfilled the criteria for surgical intervention were selected for exploratory laparotomy.

Preoperative preparation included intravenous fluid resuscitation, nasogastric tube insertion, and urinary catheterization, as indicated. Eligible patients were scheduled for surgery on the next available operating list. During laparotomy, specimens including mesenteric lymph nodes, intestinal biopsies (small and large intestine), and ascitic fluid were collected and sent to the hospital laboratory for histopathological and microbiological analysis to detect abdominal tuberculosis.

Patients diagnosed with abdominal TB were started on standard anti-tuberculous treatment (ATT) according to international guidelines. All data were recorded using a structured proforma. Effect modifiers and potential biases were controlled by strictly adhering to the inclusion and exclusion criteria.

Data analysis:

Data were entered and analyzed using SPSS version 22. Descriptive statistics were applied to summarize the data. Mean and standard deviation were calculated for quantitative variables such as age, while frequencies and percentages were computed for categorical variables including gender and abdominal tuberculosis.

Abdominal TB was stratified by age and gender to assess potential effect modifiers. Post-stratification, the Chi-square test was applied, and a p-value of < 0.05 was considered statistically significant. All results were presented in tabular form.

RESULTS

A total of 131 patients presenting with acute abdomen were included in this study. Among them, 54 (41%) were male and 77 (59%) were female. The mean age of patients was 42 years with a standard deviation (SD) of ±10.43 years. Age distribution showed that 75 patients (57%) were between 18–40 years, and 56 patients (43%) were between 41–60 years. The occurrence of abdominal TB was further stratified by age and gender, as detailed in Table No 1.

Out of a total of 131 patients admitted with acute abdomen, 85 underwent laparotomy based on clinical, radiological, and laboratory assessments. Various surgical procedures were performed in these cases. Adhesiolysis and lymphadenitis biopsy were carried out in 30% of patients. Temporary ileostomy for intestinal perforation was required in 14% of cases. Right hemicolectomy with ileocolic anastomosis was performed in 17% of patients, while resection and anastomosis of a stenosed intestinal segment were conducted in 25% of cases. Diagnostic laparoscopy was performed in 14% of patients for evaluation purposes.as shown in Table No 2.

A total of 131 patients were admitted with acute abdominal conditions. Of these, 10 patients (8%) were diagnosed with abdominal tuberculosis, confirmed through laboratory investigations such as histopathological examination and other relevant diagnostic tests. Among the confirmed TB cases, the small intestine was involved in 4% of the total patients, while mesenteric lymph nodes and the peritoneum were each involved in 2%.

Postoperative complications were observed in 25 (29.4%) in the study population. The most frequent complication was surgical site infection, which occurred in 9 patients (11%), followed by sepsis in 6 patients (7%), paralytic ileus in 5 patients (6%), intra-abdominal abscess in 3 patients (3.1%), and wound dehiscence in 2 patients (2.1%). Among the 10 patients diagnosed with abdominal tuberculosis who underwent surgical intervention, complications were observed in 4 patients Of these, surgical site infection and sepsis were the most common, each occurring in 2 patients as shown in Table No.3

Table 1. Procedure wise distribution

Category	Subcategory	Total Patients	Abdominal TB (Yes)	Abdominal TB (No)	P-Value
Age Group	18–40 years	75 (57%)	4	71	0.2512
	41–60 years	56 (43%)	6	50	
	Total	**131**	**10**	**121**	
Gender	Male	54 (41%)	4	50	0.9349
	Female	77 (59%)	6	71	
	Total	**131**	**10**	**121**	

Table 2. Procedure wise distribution

Procedure	Percentage
Adhesiolysis / lymphadenitis biopsy	30%
Temporary ileostomy	14%
Right hemicolectomy / ileocolic anastomosis	17%
Resection / anastomosis of stenosed segment	25%
Diagnostic laparoscopy	14%

Table 3. Postoperative Complications Summary (Total Population & Abdominal TB Subgroup)

Complication	Patients	Percentage	Abdominal TB Patients #10
Surgical Site Infection	9	11%	2
Paralytic Ileus	5	6%	0
Sepsis	6	7%	2
Intra-Abdominal Abscess	3	3.1%	0
Wound Dehiscence	2	2.6%	0
Total Complication	25	29.4%	4

DISCUSSION

Abdominal pain is a common clinical presentation that can result from a wide variety of underlying causes, including infections, inflammatory conditions, and surgical pathologies. Among these, abdominal tuberculosis (TB) remains a diagnostic and therapeutic challenge, particularly in regions with high TB prevalence. It often presents with non-specific signs and symptoms, mimicking other gastrointestinal disorders and delaying definitive diagnosis. Clinical evaluation, radiological imaging, and intraoperative findings play a pivotal role in identifying the disease. The need for surgical intervention arises when there are complications such as obstruction, perforation, or diagnostic uncertainty. Several studies have highlighted the diagnostic dilemma and therapeutic considerations associated with abdominal TB.[10]

In our study, patients ranged in age from 18 to 60 years, with the highest occurrence observed in the 40 to 60-year age group. This finding contrasts with the study conducted by[11] which reported a peak incidence of abdominal tuberculosis in the second and third decades of life. The variation in age distribution may be attributed to differences in geographic, demographic, or socioeconomic factors influencing disease presentation across study populations.

The present study included 41%) were male and 59% were female, with a mean age of 42 years, showing a slight female predominance. These findings are comparable to the study conducted by.[5] The present study observed a female predominance among patients diagnosed with abdominal tuberculosis**.** This finding is in contrast to the study by[12] who reported a male predominance among patients undergoing surgical management for abdominal TB. One possible explanation for this variation may be related to differences in regional health-seeking behavior, sociocultural dynamics, and gender-based access to healthcare. In some areas, women may delay seeking medical attention until complications arise, thereby increasing the chances of being diagnosed during advanced stages such as abdominal.

In our study, 85 patients with acute abdomen underwent laparotomy based on clinical, radiological, and laboratory findings. Surgical procedures included Adhesiolysis with lymph node biopsy (30%), ileostomy for perforation (14%), right hemicolectomy (17%), and segmental resection with anastomosis (25%). Diagnostic laparoscopy was performed in 14% of patients. These findings align with[13] who also reported frequent need for Adhesiolysis, bowel resection, and stoma formation in abdominal TB. Similar previous study by [14] reported Adhesiolysis as the most frequent surgical procedure in abdominal TB. In contrast study by [15] emphasized early diagnostic laparoscopy to avoid open surgery. The difference may be due to late presentation, limited diagnostic facilities, or regional practice patterns.

Present study abdominal tuberculosis was confirmed in 10 patients (8%). Organ involvement included: Small intestine: 4% Mesenteric lymph nodes: 2% Peritoneum: 2%.These findings align with[10]who noted that the small intestine and lymph nodes are the most commonly involved sites in abdominal TB. The peritoneum is typically affected in disseminated cases or with chronic disease duration.

In the present study, a total of 25 postoperative complications were documented, including 4 cases among patients diagnosed with abdominal tuberculosis. Surgical site infection emerged as the most frequently encountered complication, observed in 9 patients (11%), which aligns with the findings reported by.[12]

Limitations

This study was conducted in a single tertiary care hospital, which may limit the generalizability of the findings to broader populations. The sample size was relatively small, especially the number of abdominal TB cases, which may affect the statistical power. Being a cross-sectional study, it could not assess long-term outcomes or treatment responses

CONCLUSION

This study identified abdominal tuberculosis in 8% of patients presenting with acute abdomen at a tertiary care hospital. The majority of patients were females, with the highest prevalence observed in the 41–60 year age group. Surgical intervention played a crucial role in both diagnosis and management, with procedures like adhesiolysis and bowel resection commonly performed. Postoperative complications, such as surgical site infections and sepsis, were notable but manageable. These findings highlight the need for heightened clinical suspicion and timely surgical evaluation to improve outcomes in abdominal TB cases.

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