

TUBERCULOUS INTESTINAL PERFORATION: A NIGHTMARE FOR THE SURGEONS

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ABSTRACT

Introduction: The incidence of abdominal tuberculosis has been steadily increasing over the past 20 years. The situation is worse in underdeveloped countries like Pakistan where poverty, overcrowding, unhygienic environment & recent outbreaks of multi-drug resistant tuberculosis (MDR-TB) have posed more challenges for the management of abdominal tuberculosis. Tuberculous intestinal perforation is an even bigger challenge for the surgeons. **Objectives:** To reduce the morbidity and mortality related to tuberculous intestinal perforation vide application of Modified New Scoring system based upon simple pre-operative & intra-operative criterias. **Patients and Methods:** This descriptive study was conducted at surgical ward II, SZMC/Hospital, Rahimyar Khan, from 1st March 2009 to 31st August 2010 and 13 patients of tuberculous intestinal perforation were included in this study. Based on Modified New Scoring system, patients were divided into three groups. Group I were managed with primary closure, Group II with ileostomy, Group IIIA with peritoneal tube drainage and Group III B with tube enterostomy. **Results:** Overall, 12 (92%) patients developed wound infections, 2 (15.3%) presented with fecal fistula after surgery and were re-explored, and 3 (23%) patients developed burst abdomen due to fecal fistula or severe sepsis. The overall mortality was 2(15.3%) in this study which is less than other national/international studies. **Conclusion:** Modified new scoring system is practical to categorize the patients on the scale of severity of disease and to offer precise guideline to the surgeons for damage control with minimum injury and with good initial promising results.

Key words: Abdominal tuberculosis, Enteric perforations

INTRODUCTION

The incidence of abdominal tuberculosis has been steadily increasing over the past 20 years.^{1,2} The situation is worse in underdeveloped countries like Pakistan where poverty, overcrowding, unhygienic environment & recent outbreaks of multi-drug resistant tuberculosis (MDR-TB) have posed more challenges for the management of abdominal tuberculosis.^{1,2} It has led, not only to miliary tuberculosis, but also to tuberculosis resistant to most of the first line drugs.^{1,3} According to WHO, Pakistan stands 6th in number among 22 high burden tuberculosis countries.³ Despite implementation of DOTS (Directly Observed Therapy, Short course) in Ivanovo in October 1995, thirty percent patients have poor treatment outcome (relapse, treatment failure or deaths), and this epidemic and poor outcome was due to primary multi drug resistant tuberculosis

(mycobacterium tuberculosis resistant to at least isoniazid and rifampicin in never treated T.B. patients).¹

Tuberculous intestinal perforation is an even bigger challenge for the surgeons due to additional risks of multiple perforations, fecal contamination/septicemia, poor nutritional status/immunosuppressive state & possibility of MDR-AFB.^{1,2,4} Surgical choices available are either too many (primary closure, fecal diversion, resection, anastomosis and tube drainage)^{2,3,6} or not applicable at all (severe dense adhesions or cocoon)^{6,7} hence, creating confusion in the management of these patients.. This descriptive study was based on the Modified New Scoring System with the objective to reduce the morbidity and mortality related to tuberculous intestinal perforation by applying this simple preoperative and intra operative criteria for scoring.

PATIENTS & METHODS

This descriptive study was conducted at surgical ward II Sheikh Zayed Medical College/Hospital, Rahimyar Khan, from 1st March 2009 to 31st August 2010.

Inclusion Criteria

All the patients of either sex or any age who presented with peritonitis due to tuberculous enteric perforation (proven on histopathology) were included in the study.

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Exclusion Criteria

The patients with previously proven histopathological diagnosis of abdominal tuberculosis were excluded. All the patients of group III (Table I) in whom only tube drainage was done but patient expired before the definitive histopathological evidence, were excluded.

The patients were divided into 3 groups, based on the modification of "New Scoring System" (Table : 1) evolved originally for the management of typhoid enteric perforation.⁹ (Table: I & II)

The patients of Group I were managed by primary closure or stricturoplasty or entero-enteric anastomosis (bypass). The patients of Group II were managed by fecal diversion stoma formation (ileostomy) with/without stricturoplasty or resection of diseased gut. The patients of group III were further divided into Group III A (preoperative diagnosis of peritonitis) & Group III B (due to operative diagnosis of associated adhesive bowel disease). Group IIIA was managed with tube drainage till the score of the patient fell to <25

Table I: Applied Table of New Scoring System

Criteria	Score Awarded		
	1	2	3
History of perforation	1day	2-5 days	>5days
Pulse (beats/minutes)	90-100	100-120	>120
BP (mmHg)	>90/60	70-90/40-60	<70/40
Respiratory rate(per min)	25-35	35-40	>40
Temperature(F ⁰)	99-100	101-104	>104
Dehydration	Mild	Moderate	Severe
Haemoglobin (g%)	9-12	5-9	<5
Nutritional status(Body mass Index)	18.5	16 to 18	<16
Resuscitation Period (in hours)	<3	3-6	>6
Associated Pul.TB.	Single lesion	miliary	Lung+pleura
No. of perforations	1	2-3	>3/CP*/colonic P ⁺
Associated stricture	1	2-3	>3
Fecal contamination	Minimal	Moderate	Severe
Adhesions	fibrinous	dense	cocoon

CP* =caecal perforation. P⁺=perforation

Table II: Management Protocol of Tuberculous Enteric Perforation

Groups	Score	Recommended Surgical Procedure
I	0-10	Primary closure with/without stricturoplasty or enteroenteric anastomosis (Bypass)
II	11-25	Loop or end ileostomy/ colostomy with/with out Stricturoplasty or resection of gut.
III A	>25	Tube drainage of peritoneal cavity followed by ileostomy /colostomy when score becomes <25
III B with grade2/3 adhesion	<25	Tube enterostomy only with/without peritoneal drainage

(Group: II) and then patient was treated as in group II. On the other hand, Group IIIB patients were managed by tube enterostomy & peritoneal tube drainage (Table II). In all the patients, tissues from the perforation, stricture or lymph nodes were taken for histo-pathological confirmation. Culture and sensitivity was not done in any case.

Anti-tuberculosis drugs (according to the advice of consultant physician) were started immediately in the postoperative period. All the patients were kept under observation and immediate post-operative complications in terms of wound infection, fecal fistula, burst abdomen, intra-abdominal sepsis and mortality were recorded. The mortality of this study was compared with other international and national

studies to determine the usefulness of the scoring system.

RESULTS

A total number of 13 patients with tuberculous intestinal perforation were included in the study. 9 patients were female and 4 were male. The age of the patients was in the range of 3 years to 35 years with mean age of 20.8 ± 7.4 years. The patients were grouped into 4 sets as shown in Table III, depending upon the severity of the disease (based on pre-operative/intra-operative criteria).

Table III:
Group distribution of Tuberculous Intestinal Perforation Cases. Total number =13

Groups	No of Patients	Sex		Surgical Procedures done	Mortality
		M	F		
I	2	1	1	Primary closure of perforation	-
II	9	3	6	Ileostomy with/without Strictureplasty or Resection & anastomosis	1
IIIA	1	-	1	Tube Peritoneal drainage	-
IIIB	1	-	1	Tube enterostomy	1
Total					2

One patient in Group I was re-explored as she developed fecal fistula. It led to a severe wound infection & she required a prolonged hospital stay of 37 days. Majority of the patients (9) were included in group II. All these patients developed wound infection and one female patient developed burst abdomen. One young female patient of 14 years of age expired as a result of Multi Organ Failure (MOF).

There was only one patient in group III A, in whom peritoneal tube drainage was done and patient was resuscitated till her score fell less than 25 after 48 hrs. Then laparotomy was performed and ileostomy was done. She developed wound infection which was managed and patient discharged. In group IIIB, a female patient was included who had a pre-operative score of 23 but on exploration her score increased to 29 (fecal contamination), so only tube enterostomy with tube peritoneal drainage were performed as it was not possible to do ileostomy. She developed burst abdomen, wound infection, fecal fistula and expired due to Multi Organ Failure (MOF). Thus over all, 12 (92%) patients developed wound infections, 2 (15.2%) presented with fecal fistula, 2 (15.2%) were re-explored (for fecal fistula), and

3 (23%) patients developed burst abdomen due to fecal fistula or severe sepsis. The overall mortality was 2 (15.2%) in this study (Table III).

Table IV: Complications encountered

Complications	Overall No (%)	Individual			
		Group I	Group II	Group IIIA	Group IIIB
Wound infection	12 (92%)	3	8	1	1
Fecal Fistula	2 (15.2%)	1	-	-	1
Re-laparotomy	2 (15.2%)	1	-	-	1
Burst Abdomen	3 (23%)	1	1	-	1
Mortality	2 (15.2%)	-	1	-	1

Table V: Comparison of mortality in different studies on tuberculous intestinal perforation

Author	Year	Cases	Mortality	
			No	%
Arun Kakar et al ¹⁰	1983	22	10	46%
Grinev MV et al ¹¹	1997	6	6	100%
Talwar S et al ¹²	1999	58	17	30%
Cengiz Ara et al ¹³	2004	12	3	25%
Rajinder S J et al ¹⁴	2006	20	4	25%
Shakeel Ahmed et al ¹⁵	2010	5	2	25%
Current study	2010	13	2	15%

DISCUSSION

Management of extra-pulmonary tuberculosis (abdominal), especially due to MDR-AFB, is the major health issue of the world due to its ongoing resurgence with increasing poverty, malnourishment and HIV infections.¹ The problem is more heinous in underdeveloped countries like Pakistan.³ Among the different presentations of abdominal tuberculosis, intestinal perforation is an acute surgical emergency associated with high morbidity and mortality, demanding intervention by exceptionally competent, astute surgeons.^{1,2,4} Tuberculous intestinal perforation is a very dreadful surgical emergency as these patients are not only chronically ill, malnourished, anaemic but also in septicemia with possible respiratory impediment.^{9-10,13,15} Intestinal tuberculous perforation is a nightmare for the surgeons and to embark upon its management is a factual trial. As the major responsibility falls on their shoulders in managing these patients, it leads to marked anxiety and tension. Deciding the most appropriate next course of action is a very difficult task, especially since many treatment option

modalities are available. However the principle of surgical therapy is to be conservative and to control damage with minimal intercession.¹⁶ The new scoring system was simple (without high tech lab investigations) and had previously been tried successfully in management of typhoid enteric perforation.⁸ Thus application of modified new scoring system in this study was not only to categorize the patients on the scale of severity of disease, but also to offer precise guideline to the surgeons for damage control with minimum injury. The age of the patients included in this study ranged from 3.5 years to 35 years with mean age of 20.8 years of age. Majority of the patients (9) were young females, reflecting the vulnerability of this population to tuberculosis due to co-morbid factors like poverty, malnourishment, anemia and multiple pregnancies. Consequently, health education and improving the nutritional status may prevent the disease. In group I, primary repair with and without resection anastomosis was performed in two patients with 50% success rate. The patient who developed fecal fistula was re-explored and ileostomy done. Primary repair, in tuberculous intestinal perforation even with a score <10, needs additional evidence and experience.¹⁶

Majority of our patients (61.5%) fell into group II and ileostomy, with/without resection anastomosis, stricturoplasty, distal perforation closure was done. The group morbidity was 100% in terms of wound infection, while one patient expired (mortality=12.5%) due to the vicious cycle of severe sepsis, burst abdomen and MOF which is the most familiar mode of fatality in these patients. 2 patients of Group III, were either unable to tolerate the surgery, or simple procedure like ileostomy was not possible due to very dense intestinal adhesions. Morbidity/mortality (50%) were high because of deliberate delayed exploration in group IIIA (evolution to group II) and inability of the surgeon to mobilize the intestine for stoma formation in group IIIB. The overall morbidity (92% wound infection, 15% burst abdomen, fecal fistula and reexploration, 23% burst abdomen) of this study was high with prolonged hospital stay, but comparable to other studies. However the mortality of this study was less in comparison to other international/ national studies,⁹⁻¹⁶ which is promising for the continuation of application of

modified new scoring system in the management of tuberculosis intestinal perforation (Table IV). Early involvement of physician is mandatory for appropriate ATT treatment as well as early detection of its side effects and management of tuberculosis pulmonary complications.

CONCLUSION

Intestinal perforation is an acute surgical emergency associated with high morbidity and mortality, demanding intervention by exceptionally competent, astute surgeons. Modified new scoring system is practical to categorize the patients on the scale of severity of disease and to offer precise guideline to the surgeons for damage control with minimum injury. These are the initial promising results in only a series of 13 patients, so, further longer series is required to substantiate its efficacy in attenuation of the mortality and morbidity.

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“Always bear in mind that your own resolution to succeed is more important than any other thing.”

Abraham Lincoln