

Contents lists available at BioMedSciDirect Publications

International Journal of Biological & Medical Research

Journal homepage: www.biomedscidirect.com



Original Article

A Comparative Study In Surgical Management Of Ileal Perforation By Primary Closure V/s Primary Closure With Omental Patch

SrikanthTalluri^{a*}, Nischal. K^b

^aPost graduate, ^bAssociate professor Department of General surgery, R.L Jalappa Hospital and Research centre, Sri devrajUrs Medical college, Tamaka, Kolar. 563101

ARTICLE INFO

Keywords:

ABSTRACT

Background: Ileal perforation is one of the commonest abdominal emergency. Laparotomy with primary closure is the treatment of choice depending upon the bowel condition. Fecal fistula formation is the main concern in primary closure and the incidence of this complication dramatically decreases when omentum is used as a patch over primary closure. **Materials and Methods:** A total of 40 patients randomized to two groups. All odd numbered patients were included in group I and underwent primary closure. All even numbered patients were included in group II and underwent primary closure with omental patch. Postoperative complications such as wound infection, intra abdominal abscess, burst abdomen, faecal fistula, septicaemia, mortality and length of hospital stay are compared. **Results:** Incidence of faecal fistula in primary closure group is 25%. Length of hospital stay is significantly lower in primary closure with omental patch group ($p < 0.001$). **Conclusion:** Primary closure with omental patch repair has shown better results compared to primary closure alone in terms of wound infection, intraabdominal abscess, burst abdomen, faecal fistula, septicaemia, mortality, length of hospital stay irrespective of site of perforation.

© Copyright 2010 BioMedSciDirect Publications IJBMR -ISSN: 0976:6685. All rights reserved.

1. Introduction

Typhoid is most common cause of ileal perforation, tuberculosis, trauma and non-specific enteritis follow a close suit. Early surgery & adequate resuscitation are key to successful management of patients with typhoid perforation.

The current surgical options include primary double layered closure, primary double layered closure with omental patch, segmental resection with end to end anastomosis and primary ileostomy.

An Indian study reported that closure of tubercular perforation with or without bypass procedure has been shown to give poor results & hence resection & anastomosis is recommended.1

A recent Indian study concluded that repair of typhoid perforation is a better procedure than temporary ileostomy due to its cost effectiveness & absence of complications related to ileostomy.2

Various factors influence overall prognosis and outcome of surgical treatments such as delayed presentation, adequate preoperative resuscitation, delay in surgery, number of perforations & degree of faecal contamination of peritoneal cavity.3,4

This study is undertaken to evaluate outcomes of ileal perforation closure by primary closure and primary closure with omental patch.

OBJECTIVES

1. Evaluate outcomes of ileal perforation management with primary closure.
2. Evaluate outcomes of ileal perforation management by primary closure with omental patch
3. To evaluate which has better outcomes between primary closure and primary closure with omental patch in management of ileal perforation.

* Corresponding Author : **Dr. SrikanthTalluri**,
Post Graduate ,
Department of General Surgery,
R.L. Jalappa Hospital and Research Centre,
Sri DevarajUrs Medical College, Tamaka, Kolar, PIN : 563101.
Phone no.: 09591551774

MATERIALS AND METHODS

This prospective comparative study included 40 patients with ileal perforation admitted in Sri Devaraj Urs Medical College and attached teaching hospitals, Kolar, from February 2012 to June 2013 satisfying all the inclusion criteria mentioned below after clearance from the ethical committee.

INCLUSION CRITERIA: All cases admitted with peritonitis diagnosed to have ileal perforation.

EXCLUSION CRITERIA: -Multiple ileal perforations.

-Patients not consenting for surgery.

METHODS:

1. Informed consent will be obtained from the patients under study.

2. Investigations done are routine blood investigations, Widal test, blood culture, x-ray erect abdomen, ultrasound abdomen, abdominal paracentesis.

3 Patients are grouped into 2 groups

a) Group I - 20 patients

b) Group II - 20 patients

All odd numbered patients will be included under group I will undergo primary closure.

All even numbered patients will be included under group 2 will undergo primary closure with omental patch.

4). Outcomes are compared with respect to wound infection, early post operative obstruction, Burst abdomen, intra abdominal abscess, development of faecal fistula, septicaemia, & mortality.

5) Follow up is for a period of one year.

6) Student t test and Fisher's exact test are used for analysis

RESULTS

In our study ileal perforation is most commonly seen in age groups of 10-20 & 21-30 years. Mean age of presentation was 34.27 yrs.

In this study 85% were males, 15% are females.

Features suggestive of peritonitis such as tenderness is seen in 100% of patients. Rigidity is seen in 82.5% of patients.

Both groups together air under diaphragm on x-ray erect abdomen was seen in 72.5% of patients.

In our study most common cause of ileal perforation is non specific perforation seen in 50% of patients both groups put together.

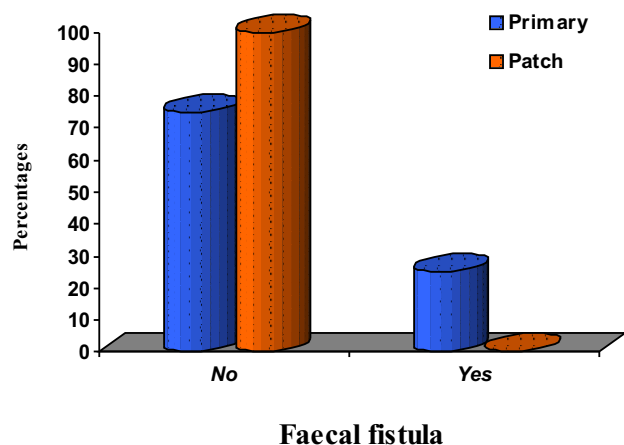
Typhoid perforation is seen in 45% of patients.

Ileal perforation secondary to trauma is seen in 5% of patients.

Present study showed perforation within 20cm proximal to ICJ found in 75% of patients in primary closure group and 50% of patients in primary closure with omental patch group.

TABLE NO.1 : Comparison of post op complications

Post op complications	Primary (n=20)		Patch (n=20)		P value
	No	%	No	%	
Wound infection					
No	2	10.0	7	35.0	0.127
Yes	18	90.0	13	65.0	
Early post operative obstruction					
No	20	100.0	20	100.0	1.000
Yes	0	0.0	0	0.0	
Burst abdomen					
No	16	80.0	20	100.0	0.106
Yes	4	20.0	0	0.0	
Intra abdominal abscess					
No	19	95.0	20	100.0	1.000
Yes	1	5.0	0	0.0	
Faecal fistula					
No	15	75.0	20	100.0	0.047*
Yes	5	25.0	0	0.0	
Septicaemia					
No	17	85.0	20	100.0	0.231
Yes	3	15.0	0	0.0	
Mortality					
No	18	90.0	20	100.0	0.487
Yes	2	10.0	0	0.0	
Cause of mortality					
No	18	90.0	20	100.0	0.487
Yes	2	10.0	0	0.0	

GRAPH NO.1: Incidence of faecal fistula in both groups

In our study 90% of patients in primary closure group and 65% of patients in primary closure with omental patch group had wound infection.

In present study early post operative obstruction is not seen in both the groups.

Faecal fistula is seen in 25% of cases in primary closure group and no case had faecal fistula in primary closure with omental patch.

length of hospital stay is 25.4 days with a standard deviation of 6.9 in primary closure group and 17.05 days with a standard deviation of 5.5 in primary closure with omental patch.

DISCUSSION

Most common cause of ileal perforation is non specific perforation, seen in 50% of patients in the study group. When the etiology of the perforation was not identified it was termed non-specific perforation. Widal test, blood culture were not suggestive of typhoid. Non-specific perforations were the commonest cause of small bowel perforation in the series by Dixon and Bhalerao.^{5,6}

Second most common cause is typhoid perforation seen in 45% of patients.

Typhoid fever was the commonest cause of ileal perforation in tropical countries. It accounted for 56.6% of cases of ileal perforation in the series by Karmakar.⁷

Two cases of ileal perforation were due to trauma in our study accounting for 5% of cases. The rising rate of road traffic accidents and civil violence has contributed to this increased incidence of traumatic perforations

In our study majority of the cases were seen in 2nd & 3rd decade of life.

Males are predominantly affected with 85% of incidence. Sex ratio in the study is M:F=5.6:1

Standard treatment for ileal perforation is surgical management. The various methods in use are flank drains, simple closure, closure with omental patch, wedge resection, resection and anastomosis, ileotransverse anastomosis and ileostomy.^{3,9,10,11,12.}

In present study outcomes following primary closure and primary closure with omental patch were evaluated and compared. Outcomes were compared with respect

Table-1: Distribution of donors according to age group

POST OP COMPLICATIONS	PRIMARY GROUP		PATCH GROUP	
Wound infection	Husain M et.al	Present study	Husain M et.al	Present study
	41.1%	90%	36.6%	65%

to wound infection, early post operative obstruction, burst abdomen, intra abdominal

abscess, development of faecal fistula, septicaemia, & mortality.

TABLE NO.2 :Comparison of our results with study by Husain M et.al¹³

Early post operative obstruction	0%	0%	0%	0%
Burst abdomen	7.7%	20%	6.6%	0%
Intra abdominal abscess	10%	5%	5.5%	0%
Faecal fistula	7.7%	25%	1.1%	0%
Septicaemia	10%	15%	3.3%	0%
Mortality	3.3%	10%	1.1%	0%

Results are similar in comparison with Husain M et.al.

RELATION TO SITE OF PERFORATION WITH CLOSURE TECHNIQUE

AND COMPLICATIONS

Site of perforation

<10cm from ICJ:- Primary closure done in 1 patient, had faecal fistula Primary closure with omental patch done in 3 patients, no major complication

11 – 20 cm from ICJ:- Primary closure done in 12 patients had complications Intra

abdominal abscess-1

Burst abdomen – 3

Faecal fistula – 3

Septicaemia – 3

Mortality – 2

Primary closure with omental patch done in 10 patients, no major complication

>20cm from ICJ – primary closure done in 7 patients with following complications

Burst abdomen-1

Faecal fistula -1

Primary closure with omental patch done in 7 patients, no major complication.

In view of above results irrespective of the position of perforation, primary closure with omental patch has better outcomes compared to primary closure alone.

Length of hospital stay is significantly lower in primary closure with omental patch group ($p < 0.001$) because of lesser postoperative complications.

SUMMARY

Most common cause of ileal perforation is non specific perforation followed by typhoid fever.

Irrespective of causes, ileal perforation is predominantly seen second and third decade of life with preponderance in male sex.

Primary closure with omental patch repair has better outcomes compared to primary closure alone in terms of wound infection, intra abdominal abscess, burst abdomen, faecal fistula, septicaemia, mortality irrespective of position of perforation from ICJ.

Primary closure with omental patch group had better and early recovery thus reducing length of hospital stay.

BIBLIOGRAPHY

1. Bhansali SK and Desai AN. 1968 "Abdominal tuberculosis". Indian journal of surgery. 30: 218-219.
2. Singh B.U, Dinesh J, Jagdish S, Sumita J, Ghan S. 2003 "Comparative study of operative procedures in typhoid perforation". Indian Journal surgery. 65: 172-177.
3. Gibney EJ. 1989 "Typhoid perforation". Br J surg. 76: 887-9.
4. Archan Pong E.Q. 1985 "Topical diseases of the small bowel". World J. Surg. 9: 889-896.
5. Nadkarni KM, Shetty SD, Kagzi RS, Bhalarao RA. Small bowel perforation. A study of 32 cases. Archives of Surgery, 1981; 116: 53-57.

6. Faquharson- Roberts MA, Giddings AEB, Nuna J. Perforations of small intestine due to slow release potassium chloride. Br Med J, 1975; 2: 206.
7. Karmakar SR, Dwivedi Dr, Bhalarao RA. Perforations of terminal ileum. Indian Journal of Surgery, 1972; 34: 422-426.
8. Eduardo Lizzaralde A. Typhoid perforation of ileum in children. J Pediatr Surgery, 1981; 16(6): 1012-1016
9. Kaul BK. Operative management of typhoid perforation in children. Int Surg. 1975 Aug; 60(8): 407-10.
10. Kim JP, Oh SK, Jarrett F. Management of ileal perforation due to typhoid fever. Ann Surg. 1975 Jan; 181(1): 88-91.
11. Talwar S, Sharma RK, Mittal DK, Prasad P. Typhoid enteric perforation. Aust NZ J Surg. 1997 Jun; 67(6): 351-3.
12. Ameh EA, Dogo PM, Attah MM, Nmadu PT. Comparison of three operations for typhoid perforation. Br J Surg. 1997 Apr; 84(4): 558-9.
13. Husain M, Khan R.N, Rehmani B, Haris H. 2011 "Omental patch technique for the ileal perforation secondary to typhoid fever". Saudi J Gastroenterol. 17: 208-211.