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ORIGINAL ARTICLE

Comparison of Results of Primary Repair Versus Ileostomy in Enteric Fever Ileal Perforation in Different Gender Groups

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ABSTRACT

Background: Processes of Ileostomy in patient having Enteric fever perforation with friable gut defunctions the diseased gut, change the route of the infected fecal matter, protects the intestinal repair done in septic tissues and reduces the anastomotic dehiscence. Disadvantage is that it needs further surgery for its closure, leads to Ileostomy related complications.

Method: A Randomized controlled study. At BMC Hospital Bolan Quetta Started in November 2015 to May 2016. Our objectives were to compare post-operative wound infection between primary closure and Ileostomy in patients undergoing surgery for Enteric fever ileal perforation. Total One Hundred and Fifty patients who underwent Enteric fever perforation surgery were included. The surgical treatment was done as primary repair (group-A) and Ileostomy (group-B). Post-operative complications like wound infection and wound intra abdominal abscess were evaluated till 5 days of hospital stay. Comparison between 2 groups was done using chi square. Stratification was done and p-value ≤0.05 was considered as significant.

Results: In group-A 47 maless and 28 femalesss and in group-B 52 maless and 23 femalesss patients were included. In group-A, 40% observed wound discharge while in group-B it was 24%. In group-A, acceptable comesis were observed for 80% cases and in group-B, it was 93.3%. Results showed significant association of wound discharge and acceptable cosmesis with the 2 study groups.

Conclusion: Better results in Ileostomy group than primary repair group was significant observed in the study.

Keywords: Enteric fever , Acceptable cosmesis, Wound Discharge, Intra Abdominal Collection, Ileostomy, Enteric fever Ileal Perforation

INTRODUCTION

Enteric fever is a life threatening and severe febrile disease caused by gram negative bacillus salmonella typhi transmitted by the oro-faecal route[1]. Enteric fever is a global health problem having a devastating socioeconomic impact but the developing countries are particularly the victims due to improper sanitation and waste disposal system with an incidence of >100 /100000 cases per year[2]. It is endemic in many developing countries where disease occurs the entire year[3].

Enteric fever has many complications and intestinal bleeding is the commonest one but perforation in terminal ileum is the most dangerous one leading to high morbidity and mortality[4]. There are longitudinal ulcers on anti mesenteric border of terminal ileum due to abundance of Payer's patches leading to perforation with a reported incidence of 9-39%[5]. Short duration of symptoms, inadequate antimicrobial therapy, males sex, and leucopenia are independent risk factors for enteric perforation in patients with Enteric fever[6]. The reported mortality rate of Enteric fever related intestinal perforation is from 5% to 62% but the perioperative mortality in such cases rises up to 80% who present late[7].

Various surgical treatments have been tried but the best and widely acceptable surgical option in Enteric fever ileal perforation has still not yet been established[8]. A wide variety of surgical procedures currently available to treat Enteric fever perforation include primary double layered closure, segmental resection with end- to- end anastomosis and primary Ileostomy[9]. However various researchers worldwide have recommended Ileostomy in cases of Enteric fever perforation to be the most successful procedure in terms of overall mortality, morbidity, hospital stay and return to work as compared to primary anastomosis alone[10].

Doing Ileostomy in cases of Enteric fever perforation with friable gut defunctions the diseased gut, diverts the infected fecal matter, protects the intestinal repair done in septic tissues and hence reduces the anastomotic dehiscence. But the main disadvantage of doing Ileostomy is that it needs further surgery for its closure, leads to Ileostomy related complications. One recent study has shown that patients who underwent primary repair Vs ileastomy wound infection was the commonest complication it occurred in 36.67% patients. While intraabdominal collections were found in 6.67% of patients[11].

Being a developing country, we have to face Enteric fever perforation commonly in Pakistan. From 2 most common options of surgical interventions i-e primary closure Vs Ileostomy, our study is aimed at establishing the more successful procedure to reduce morbidly in terms of wound infection and intra-abdominal collection in our population[12].

Objective: To compare post-operative wound infection and intra-abdominal collection between primary closure and Ileostomy in patients undergoing surgery for Enteric fever ileal perforation.

MATERIAL AND METHODS

This study was conducted at Bolan Medical Complex Hospital, Quetta. In Six months from 11th November to 10th May 2016.

A sample size of One Hundred and Fifty patients (75 in each group) was calculated using formula of 2 proportions. Keeping confidence level 95% with frequency 6.67% and absolute precision 4%. It was a Randomized control study.

Inclusion Criteria:

- A- Patient undergoing Enteric fever perforation surgery
- B- 25-60 years of age
- C- Either gender
- D- Consent to participate in the study

Exclusion Criteria:

- A-Severe Lung disease FEV< 70 on pulmonary function test
- B- Malignancy diagnosed on the basis of confirmed biopsy report.
- C- Refused to participate in study

These patients were divided into 2 groups group A and group B. Randomization was done by senior surgeons by picking up card from both the groups. The surgical treatment was done as primary repair (group A) and Ileostomy (group B); comparative study was done between both procedures. All operations were done by group of three experienced surgeons and they all were performed the same technique. All the procedures were carried with hand sewn method. In group A primary closure was done in 2 layers, the inner layer closed with 3-0 poly glycolic acid (vicryl) and

outer layer closed with silk 3-0. In group B loop Ileostomy was done. Post-operative complications in each group like wound infection and wound intra abdominal abscess, was evaluated till 5 days of hospital stay.

All data were entered and analyzed using SPSS Version 20.0. Descriptive statistics were used to calculate mean and standard deviation for Quantitative Variables like age. Frequencies with percentages were presented for Qualitative variables like gender, DM, obesity, previous surgery and results variable like wound infection and intra-abdominal collection. Effect modifiers were controlled through stratification of age, gender, DM, obesity and previous surgery to see effect of these on results variable applying chi squire lest taken p value <0.05 significant.

RESULTS

Total One Hundred and Fifty patients of either gender with age between 25 to 60 years undergoing Enteric fever perforation surgery were included in the study to compare post-operative wound infection and intra-abdominal collection between primary closure and Ileostomy. In Both study Groups, Group A (Primary repair) and Group B (Ileostomy) 75 patients were Included. Descriptive statistics were calculated using SPSS version 21. Qualitative variables were presented in terms of frequency and percentages. Quantitative variables were presented in term of mean and standard deviations. Stratification was done to see the effect of modifiers on results. Post stratification chi square test was applied considering p-value ≤0.05 as significant.

The results showed that out of One Hundred and Fifty study subjects, 99 were males and 51 were femaless patients. The frequency and percentages are presented in below Graph.

Figure 1: Overall Percentage Of Patients According To Gender (n=One Hundred and Fifty)

In Group A there were 47 males and 28 femaless patients while in Group B there were 52 males and 23 femaless patients. The frequency distributions of both groups according to gender are presented in Tables below.

Table 1: Frequency Distribution Of Gender In Primary Repair Group (n=75)

	Frequency (n)	%
Males	47	62.7%
Femaless	28	37.3%
TOTAL	75	

Table 2: Frequency Distribution Of Gender In Ileostomy Group (n=75)

	Frequency (n)	%
Males	52	69.3%
Femaless	23	30.7%
TOTAL	75	

Out of 75 patients in group A, 30 (40%) have found wound discharge Detailed frequency distribution is presented in Table below.

Table 3: Frequency Distribution Of Wound Discharge In Primary Repair Group (n=75)

	Frequency (n)	%
Yes	30	40%
No	45	60%
TOTAL	75	

Mean duration of wound discharge was 2.76±1.38 days as presented in Table below.

Table 4: Descriptive Statistics Of Duration Of Wound Discharge (Days) In Primary Treatment Group (n=30)

Mean ±SD	2.76±1.38
95%CI (LB – UB)	2.25–3.28
Median (IQR)	2.00 (2)
Range	4
Minimum	1
Maximum	5

Stratification with respect to gender and age was done to observe effect of these modifiers on results with 2 study groups. The results showed that no significant association of wound discharge among the 2 treatment groups was observed with males gender (p=0.100), femaless gender (p=0.212), age ≤45 years (p=0.225), and age >45 years (p=0.089). The significant association of acceptable cosmesis among the 2 treatment groups was observed with femaless gender (p=0.044). No significant association was observed with males gender (p=0.156), age ≤45 years (p=0.112), and age >45 years (p=0.159). The detailed results of associations are presented in tables below.

Table 5: Frequency And Association Of Wound Discharge With Study Groups According To Males Gender (n=99)

	Study Group		TOTAL	P-Value
	Primary Repair (n=47)	Ileostomy (n=52)		
YES (n=30)	18	12	30	0.100**
NO (n=69)	29	40	69	
TOTAL	47	52	99	

Chi Square Test was applied.
P-value ≤0.05 considered as Significant
** Not Significant at 0.05 levels

Table 6: Frequency And Association Of Wound Discharge With Study Groups According To Femaless Gender (n=51)

	Study Group		TOTAL	P-Value
	Primary Repair (n=28)	Ileostomy (n=23)		
YES (n=18)	12	6	18	0.212**
NO (n=33)	16	17	33	
TOTAL	28	23	51	

Chi Square Test was applied.
P-value ≤0.05 considered as Significant
** Not Significant at 0.05 levels

Table 7: Frequency And Association Of Acceptable Cosmesis With Study Groups According To Age ≤ 45 Years (n=77)

	Study Group		TOTAL	P-Value
	Primary Repair (n=46)	Ileostomy (n=31)		
YES (n=63)	35	28	63	0.112**
NO (n=14)	11	3	14	
TOTAL	46	31	77	

Chi Square Test was applied.
P-value ≤0.05 considered as Significant
** Not Significant at 0.05 levels

DISCUSSION

Enteric fever perforation is a major problem in developing countries and carries a high mortality and morbidity. To improve survival in Enteric fever perforation, attention should be focused on preoperative resuscitation and early intervention. The most dangerous complications of Enteric fever perforation are intestinal bleeding and ileal perforations, both arising from necrosis Pyre's patches in the terminal ileum[13].

Onset of symptoms and time of presentation in hospital are important prognostic factors. An early presentation holds a good prognosis even with primary repair of perforation[14]. Unfortunately, in developing countries, the presentation to hospital is usually late with fully blown peritonitis; some cases may present with septicemia and multiorgan. Various operative procedures were advocated by different authors, such as simple primary repair of perforation, repair of perforation with ileotransverse colostomy, primary Ileostomy, single layer repair with an omental patch, and resection and anastomosis[15].

There is a study that gives insight into contemporary causes of nontraumatic perforation of the small intestine in this part of the world on the basis of Widal reaction, operative findings, and histopathological examination[16]. Enteric fever remains the major identifiable cause of small bowel perforation (36.67%), the second being tubercular perforation (18.33%)[17]. In a large proportion of cases (35%), the underlying cause was not identified and histopathological analysis revealed nonspecific inflammation[18].

The morbidity was higher in patients who underwent Ileostomy as compared to patients who underwent primary repair. There was a study which shows 28% mortality[19]. However mortality was unrelated to type of operation performed. Wound infection was the most common post-operative complication, about 36.67% each in group I and group II, followed by wound dehiscence, intra-abdominal collections, systemic complication, and anastomotic leak.

Enteric fever intestinal perforation is the most common cause of acute generalized peritonitis followed by perforated acute appendicitis. Prognostic factors include age, the cause of perforation, amount of pus, fecal fistula and intraabdominal abscesses.[20] Mortality and morbidity after surgical treatment of Enteric fever ileal perforation remain very high in developing countries.

Repair of the perforation is a better procedure than temporary Ileostomy in enteric perforation due to its cost effectiveness and absence of complications related to Ileostomy. There is a less morbidity rate (20%) in primary surgical repair compared with loop Ileostomy which is (31%). Ileostomy and ileo-transverse bypass should be considered as a treatment option in patients with unhealthy gut. Ileostomy is a life saving to be used judicially, accepting inconvenience to the patients.

CONCLUSION

After analyzing the whole data of males and females in our study we found better results in Ileostomy group than primary repair group in both gender males and females,and significant difference in both proceders results while in both genders the result are discribed separately i.e. wound discharge and acceptable comesis between both primary closer and ilostomy procedure groups of treatment was observed in the study .

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