

Primary Repair Versus Colostomy in Traumatic Colonic Injuries

AMIR USMAN*, FAIZUL HASAN**, TAHIR HAMID, MANSAB ALI

ABSTRACT

Aim: To compare the primary repair with colostomy in traumatic colonic injuries at tertiary care hospital in terms of morbidity and hospital stay.

Methods: The study was conducted in the Department of Surgery, North Surgical Ward, Mayo Hospital, Lahore for one year from 01-07-2012 to 30-06-2013.

Sixty patients fulfilling the inclusion criteria were selected for this study. Patients were randomly allocated in two groups Group A (Primary repair), Group B (Colostomy), 30 patients in each group. Follow up in group A patients was done twice; after 2 weeks and after six weeks of discharge. The follow up in group B was done several times. Initially the visit was advised after every two weeks until the patient was called back for colostomy closure.

Results: The mean age in group A was 28.9±8.1 years and mean age in group B was 30.1±14.0 years. The mean hospital stay in group A was 8.9±3.65 days and in group B was 11.0±4.7 days. At two weeks follow up, in-group A there was 1(3.3%) patient of abscess, 1(3.3%) patient of suture repair leak, 1 (3.3%) patient of sepsis and 2(6.7%) patients of wound infection. In group B, there were 2(6.7%) patients of abscess, 1(3.3%) patient of suture repair leak, 3(10%) patients of sepsis and 4(13.3%) patients of wound infection.

Conclusion: It is concluded from this study that primary repair is safe and effective treatment modality in the management of traumatic colonic injuries as compared to colostomy.

Key words: Penetrating colonic injuries, primary repair, colostomy.

INTRODUCTION

Colon is one of the most commonly injured viscera in the abdominal trauma¹ because it courses through all the quadrants of the abdomen. Traumatic colonic injuries may occur in two ways:

1. Open injuries from penetrating wounds as in shotgun or stab wound.
2. Closed lesions resulting from external violence as in crushing injuries or injuries due to blast in air or water without external wound.

Five percent colonic injuries are caused by blunt abdominal trauma and 95% colonic injuries are caused by gunshot, shot gun and stab abdomen injuries².

Before the time of World War I, the colonic injuries were treated by non-operative methods, for example management like that of faecal fistula.³ In the World War 1, this method of treatment of colonic injuries was replaced by operative method consisting of primary repair of colonic injury. The primary repair of colonic injury led to mortality upto 60%⁴.

The survival rate in colonic injuries noticeably increased by exteriorization of injury as a colostomy its widespread use in civilian practice.⁵ With

advancing age colostomy was accepted as a standard method of management for colonic injuries and in selected cases primary repair with proximal colostomy was adopted as preferred treatment⁶.

In the past 20 years, there has been an increasing trend toward primary repair. Advantages of primary repair are the avoidance of colostomy, with the subsequent reduction in the morbidity of the colostomy itself and the cost associated with colostomy care and the subsequent hospitalization for closure.

For social and cultural reasons, it is much better accepted by the patient than a colostomy. The problems of stoma care and stoma bags, which are always in short supply, disappear. There is no reintervention^{7,8}.

Potential drawbacks of primary repair are the morbidity and mortality associated with failure of repair. If there is no difference in morbidity between the approaches, primary repair would be preferred. In recent years, there have been several prospective studies that support primary repair over colostomy; however, there is continued confusion as to when primary repair is appropriate⁹.

MATERIAL AND METHODS

This study was conducted in North Surgical Ward, Department of General Surgery Mayo Hospital, Lahore for one year from 1-07-2012 to 30-06-2013.

*Assistant Professor of Surgery, Nawaz Sharif Social Security Teaching Hospital, Lahore

**Associate Professor of Surgery, Nawaz Sharif Social Security Teaching Hospital, Lahore

Correspondence to Dr. Amir Usman, Assistant Professor of Surgery. Email: royameerusman@gmail.com

A total of sixty patients (both male and female) were selected for study. These patients were divided into two groups A (primary repair) and B (colostomy) with 30 patients in each group.

Inclusion criteria:

1. Patient presented within 8 hours after penetrating injury (i.e., stab wound or fire arm injury)
2. Patients with less than 50% of the circumference of colon involved.
3. Patients having minimal fecal contamination

Exclusion criteria:

1. Injury of more than two abdominal viscera.
2. Patients with features of haemodynamic shock with systolic BP <90mmHg and heart rate >110.
3. Immune-compromised patients e.g. patients on steroids, uncontrolled diabetes mellitus.

Data collection procedure: Sixty patients suffering from colonic injuries were selected from the emergency department of Mayo Hospital, Lahore. Patients were randomly allocated in two groups Group A (Primary repair), Group B (Colostomy), 30 patients in each group. At the end of the operation, operative variables were recorded on the proforma. Post-operative events were recorded till the patient was discharged. Follow up in group A patients was done twice after discharge, the first visit was after 2 weeks and the second visit was after one month of first visit.

The follow up in group B was done several times. Initially the visit was advised after every two weeks until the patient was called back for colostomy closure. After colostomy closure the patient was advised follow up twice a month for one month.

RESULTS

The mean age in group A was 28.9±8.1 years and mean age in group B was 30.1±14.0 years as shown in Table 1. In the distribution of type of injury, in group A, there were 25(83.3%) patients of firearm injury and 5(16.7%) patients of stab wound injury. In group B there were 22(73.3%) patients of firearm injury and 8(26.7%) patients of stab wound injury (Table 2). The mean hospital stay in group A was 8.9±3.65 days and mean hospital stay in group B was 11.0±4.7 days with significant P value of 0.04 (Table 3).

At two weeks follow up, in-group A there was 1 (3.3%) patient of abscess, 1(3.3%) patient of suture repair leak, 1(3.3%) patient of sepsis and 2 (6.7%) patients of wound infection. In group B, there were 2 (6.7%) patients of abscess, 1(3.3%) patient of suture repair leak, 3(10%) patients of sepsis and 4 (13.3%) patients of wound infection.

At four weeks follow up, in-group A there was 1 (3.3%) patient of abscess and 1(3.3%) patients of

wound infection. In group B, there were 2(6.7%) patients of abscess, 1(3.3%) patient of suture repair leak, 1(3.3%) patient of sepsis and 2(6.7%) patients of wound infection.

In group B, at follow up of six weeks, there was 1(3.3%) patient of abscess, 1(3.3%) patient of sepsis and 1(3.3%) patient of wound infection. At follow up of eight weeks, there was 1(3.3%) patient of abscess and 1(3.3%) patient of wound infection.

Table 1: Distribution of patients by age

Age in year	Group A	Group B
Upto 20	8(26.67%)	7(23.33%)
21-30	12(40%)	12(40%)
31-40	9(30%)	5(16.67%)
41-50	1(3.33%)	3(10%)
>50	0	3(10%)
Mean±SD	28.9±8.1	30.1±14.0

Table 2: Distribution of patients by type of injury

Type	Group A	Group B
Firearm injury	25(83.3%)	22(73.3%)
Stab wound	5(16.7%)	8(26.7%)
Total	30(100%)	30(100%)

Table 3: Distribution of patients by hospital stay

Hospital stay (days)	Group A	Group B
1-5	13(43.33%)	3(10%)
6-10	10(33.33%)	11(36.67%)
11-15	6(20%)	12(40%)
16-20	1(3.33%)	4(13.33%)
Mean±SD	8.9±3.6	11.0±4.7

DISCUSSION

In this study the mean age in group A 28.9±8.1 years and mean age in group B was 30.1±14.0 years. As compared with the study of Kahyaet al¹⁰ the mean age of the patients of 30.1 years which is same and comparable with our study.

In group A, there were 83.3% patients of firearm injury and 16.7% patients of stab wound injury. In group B there were 73.3% patients of firearm injury and 26.7% patients of stab wound injury. Our study is supported by Adesanya and Ekanem¹¹.

In Group A, there was 1(3.3%) patient and in Group B, there were 2(6.7%) patients of intra-abdominal abscess. As compared with the study of Bulgeret al¹² there were 6% patients of intra-abdominal abscess complication, which is comparable.

In this study there were 6.7% and 13.3% patients of wound infection in group A and group B, respectively. As compared with the study of Bulgeret al¹² there were 14% patients of wound infection.

In group A the complication of sepsis was found to be 3.3% patients and in group B there were 13.3% patients of sepsis. This is justified by the study of Stagnittiet al¹³ who also found 14% complication of sepsis.

The complication of suture repair leak was found to be 3.3% in group A and 3.3% in group B. Miller et al¹⁴ also found 7% suture repair leak.

Complication of colostomy may occur at time of fashioning colostomy or after its closure. Early postoperative complications like retraction, stricture, prolapsed and paracolostomy hernia are well recognized. There is wide variation in the recorded morbidity of stoma closure. Parks and Hastings¹⁵ found a complication rate of 36% without any mortality in a review of 83 patients subjected to colostomy closure. Patcheret al¹⁶ and Bhattiet al¹⁷ also found 25% morbidity rate in their study of 87 patients.

On the basis of these results it is found that although, colostomy is still a safe, conservative and acceptable method of treating patients with colonic injuries, its morbidity remained formidable. It is an open source of contamination lying close to main wound. The hospital admission is required for closure of colostomy with risk of complication associated with it.¹⁵ Inconvenience of having colostomy by itself makes the patient isolated from society and work place.

In Pakistan and other developing countries due to poor education, unreliable supply of collecting appliances and inadequate toilet facilities, colostomies are less easily managed. Once a colostomy or ileostomy is created, the patient becomes essentially disabled until after closure. Patients with colostomy generally have an additional 8 to 16 weeks of disability in the interval from its formation until closure. The burden on health facilities increases due to multiple admission, increased bed occupancy, operating theatre time, and use of manpower.

Most of the series conclude that primary repair should be undertaken in selected patients and for this experience and judgment on the part of surgeon is of central importance. However, the criteria for selection of the patients for primary repair are not the same¹⁸. This study favors primary repair of colon in most of patients and our results are also comparable to other series.

CONCLUSION

Primary repair group had significantly shorter hospital stay as compared to colostomy (P=0.04). Primary repair group had significantly lesser morbidities (abscess, suture repair leak, sepsis and wound infection) as compared to colostomy. Therefore it is concluded from the study that primary repair is safe and effective treatment modality in the management of traumatic colonic injuries as compared to colostomy

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