

# Primary Colonic Repair in Penetrating Injuries

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## ABSTRACT

The aim of this study is to determine the safety and usefulness of primary colonic repair in patients of penetrating trauma. It is a prospective study of 200 patients with who presented with penetrating colonic trauma. This study was conducted on the surgical floor of Jinnah hospital Lahore from January 2000 to December 2006. The study involved 200 cases of primary colonic repair after penetrating trauma. The age range was from 15 to 50 years (175 male 25 female). Of this 125 injuries involved the right colon 25 were involving the transverse colon and 35 cases involved the left side of colon and 15 injuries were in the sigmoid colon. Other organs involved were ileum, jejunum, stomach, liver and spleen. In 110 cases of right colonic injury right hemicolectomy and ileocolic anastomoses was done. 15 cases had repair of perforations. Of the cases involving transverse colon one patient had colocolic anastomoses .the other nine had repair of perforations on the left side 2 patients had a colocolic anastomoses. The other 13 patients had repair of perforations. The perforations to the sigmoid colon in 5 patients were repaired. Others organs were repaired accordingly. The other organs involved were ileum (100 cases), Jejunum (85 cases), stomach (65 cases), liver (35 cases), spleen (15 cases), kidney (20 cases), diaphragm (15 cases), and duodenum (35 cases). The amount of blood transfused was 3-5 pints in 168 cases and 6-8 pints in 35 cases. The results demonstrated 1 case of leakage in the sigmoid colon which was managed conservatively and closed within a week. There was 6 percent incidence of wound infection and 1 case of incisional hernia. This study is a continuation of our previous study and along with a review of world literature demonstrates that it is a safe option and can be recommended as a gold standard for colonic trauma. Colostomy should be done only in selected cases.

**Key words** Colonic repair, primary, colostomy

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## INTRODUCTION

Primary colonic repair has now become the ideal treatment for patients with colonic trauma<sup>2,3,5,6,7</sup>. This study further demonstrates the safety and efficacy of primary colonic repair. Colostomy is no longer a standard option because of its own complications and the need for subsequent surgery<sup>4,5,9</sup>. Right sided lesions which require resection do very well after ileocolostomy<sup>3,7,10</sup>. There is still some debate about left sided lesions<sup>8,10,13</sup>. Simple perforation can be managed easily with primary closure; however lesions requiring resection should also be primarily anastomosed<sup>5,7,13</sup>. The only lesions requiring colostomy are rectal injuries, injuries accompanied by major pancreatico duodenal trauma , major vessel injuries, more than 72 hours delay in surgery and in selected cases of destructive left colonic injuries<sup>2,3,10</sup>.

## PATIENTS AND METHODS

This study was conducted prospectively from March 2000 to December 2006 on the surgical floor of Jinnah Hospital Lahore. It involved cases of colonic injuries due to bullet injuries (185) and stab injuries

(15). The age range was 15 to 50 years (175 male 25 female).

Abdomen was opened through midline incision and colonic perforations were repaired with a single layer of 3/0 interrupted Prolene sutures. 20 cases involving right side of colon underwent right hemicolectomy and ileocolic anastomoses. This was done in two layers with vicryl 2/0 continuous for inner layer and prolene 3/0 interrupted for outer layer. The other 5 had repair of perforations. Of the cases involving transverse colon one patient had colocolic anastomoses The other nine had repair of perforations on the left side 2 patients had a colocolic anastomoses. The other 13 patients had repair of perforations. The perforations to the sigmoid colon in 5 patients were repaired. The colocolic anastomoses was done in a single layer with 3/0 prolene the perforation were also closed with a single layer of 3/0 prolene. Others organs were repaired accordingly.

## RESULTS

The age and sex incidence is given in the table below

Age	=n
15-25 years	25
26- 35 years	155
36-45 years	15
46-50 years	5

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The distribution of injuries in the parts of colon is as under

Part of colon	=n
Right colon	125
Transverse colon	25
Left colon	35
Sigmoid colon	15

The other organs involved were ileum, jejunum, duodenum, stomach, liver, spleen and kidney, while some patients had diaphragmatic injuries as well. The relative proportion is shown in the table below.

Organ involved	=n
Ileum	100
Jejunum	85
Stomach	65
Liver	35
Spleen	15
Diaphragm	25
Kidney	20
Duodenum	35

The amount of blood transfused ranged from 3 to 8 pints. The detailed analysis is shown in the table below

Number of pints of blood	=n
3-5	165
6-8	35

The results demonstrated 1 case of leakage in the sigmoid colon which was managed conservatively and closed within a week. There were 6 cases of laparotomy wound infection and 2 cases of incisional hernia.

## DISCUSSION

Primary colonic repair for trauma has been advised for selected patients for the past ten to fifteen years<sup>1</sup>. Of late research papers from all over the world have come out strongly in favor of primary colonic repair for trauma in almost all cases<sup>5</sup>. It also advocates against colostomy as a primary procedure of choice. Primary colonic repair is being also advised for war injuries<sup>6</sup>. The previous recommendations that primary repair should not be done in cases with major blood loss, soiling left sided colonic injuries and injuries to more than two other viscera have also become obsolete<sup>5,9,11</sup>. Our results compare favorably with the results of other studies. Our leakage rates are lower and infection rates are almost the same<sup>2,3,5,9,10</sup>.

We advise primary repair of traumatic colonic injuries except in rectal injuries, in patients with injuries to aorta and/or inferior vena cava, major pancreaticoduodenal trauma and injuries repaired late<sup>2,3,10</sup>.

## CONCLUSION

Primary colonic repair is the gold standard for colonic injuries<sup>8,9</sup>. It has few complications, avoids further surgery is cost effective and results in early rehabilitation of patients<sup>3,4</sup>. Colostomy should only be done in the following cases.

In destructive left colonic injuries in selected cases<sup>2,10</sup>, in rectal injuries<sup>2</sup>, in patients with major vessel injuries<sup>3</sup>, in patients with major pancreaticoduodenal trauma<sup>6</sup> and in injuries repaired after a delay of 72 hours or more<sup>12</sup>.

Primary repair has thus emerged as the procedure of choice in colonic injuries<sup>2,3,5,7</sup>.

## REFERENCES

- Marc A, Singer MD, Richard L: Primary repair of penetrating colon injuries. *Dis Colon Rectum* Dec 2000; 45(12): 1579-1587.
- Cleary RK, Pomerantz RA, Lampman RM: Colon and rectal injuries. *Dis colon rectum*. 2006 Aug; 49(8):1203.
- Kayha MC, Derici H, Cin N, Tatar F, Et al: our experience in the cases with penetrating colonic injuries. *Ulus Travma Acil Cerrahj Derg*. 3006 Jul; 12(3):223-9.
- Lazovic R, Krivokapic Z: The role of enterostomy in management of colonic injuries. *Acta Chir Iugosl*. 2005; 52(1):73-82.
- Tzovoros G, Hatzitheofilou C. New trends in the management of colonic trauma. *Injury*. 2005 Sep; 36(9):1011-5. Review.
- Hudolin T, Hudolin I: The role of primary repair for colonic injuries in wartime. *Br J Surg*. 2005 May; 92(5):643-7.
- Adesanya AA, Ekanem EE: A ten year study of penetrating injuries of colon. *Dis Colon Rectum*. 2004 Dec; 47(12):2169-77.
- Fealk M, Osipov R, et al: The conundrum of traumatic colonic injury. *Am J Surg*; 2004 Dec; 188(6): 663-70.
- Nelson R, Singer M: Primary repair for penetrating colonic injuries *Cochrane Database Syst Rev*. 2003; (3):CD002247.Review.
- Hussein MI, Zahid M, Khan AF, Et al: Outcome of primary repair in penetrating colonic injuries. *J Coll Physicians Surg Pak*. 2003 Jul;13(7):412-5
- Mickevicius A, Klizaite J, Tamelis A, Et al: Penetrating colorectal trauma: index of severity and results of treatment. *Medicina (Kaunas)*. 2003 Jan; 39(6):562-9.
- Kamwendo NY, Modiba MC, Matlala NS, Et al: Randomized clinical trial to determine if delay from time of penetrating colonic injury precludes primary repair. *Br J Surg*. 2002 Aug; 89(8):993-8.
- Miller PR, Fabian TC, Croce MA., Et al: improving outcomes following colon wounds: application of a clinical pathway. *Am J Surg*. 2002 JUN;235(6):775-81
- Steel M, Danne P, Jones I: Colon trauma: Royal Melbourne Hospital experience. *ANZ J Surg*. 2002 May; 72(5):357-9.

