

## Original Article

# Primary Repair of Traumatic Gut Injury Without Diversion in Casualty Department of Dhaka Medical College Hospital

M Matubber<sup>1</sup>, MB Billah<sup>2</sup>, ASM N Huq<sup>3</sup>, A Ahmed<sup>4</sup>, RK Saha<sup>5</sup>, SM A Hossain<sup>6</sup>

### Abstract :

Colon is one of the most commonly injured viscera followed by small gut and liver in abdomen for which management becomes complicated had the type and severity of injury not been assessed properly. With improved facilities in patient care and proper use of antibiotics the inclination is directed towards primary repair of colon without diversion. This study was aimed to assess the efficacy of primary repair in a tertiary hospital. A number of 50 patients of traumatic gut injury from 15-50 years ( $31.18 \pm 9.38$  years) mainly presenting with RTA with blunt trauma abdomen (54.0%) and different types of stab injury (40.0%) were managed with primary repair in the department of casualty in Dhaka Medical College Hospital, Dhaka between the period of January to June 2009. On admission more than half (52.0%) had hypotension, 70.0% distended abdomen, 84.0% tender abdomen, 58.0% presented with abdominal rigidity while 80% of them had perforation of the small and 20% had the same in large gut. After primary repair, only 6% developed chest infection and 4% developed wound infection. The findings suggest that primary repair without diversion in the treatment of traumatic gut injury can be performed among patients admitted in our hospitals.

**Key words :** Primary repair, Gut, Injury, Diversion.

### Introduction :

Trauma is the most common cause of death and disability in age of 1-50 years from different causes inflicting its effect mainly over abdomen due to the involvement of automobile movement<sup>1-3</sup>. The management of colonic injuries continues to arouse lively debate. Colon is one of the most commonly injured viscera followed by small gut and liver in abdomen for which management becomes complicated had the type and severity of injury not been assessed

1. Dr. Md. Mahiuddin Matubber, FCPS (Surgery), Department of Surgery, Dhaka Medical College, Dhaka.
2. Dr. Syed Muhammad Baqui Billah, MPH, Ph D (Epidemiology), Department of Community Medicine, Sher-e Bangla Medical College, Barisal.
3. Dr. ASM Nazmul Huq, (MBBS), Directorate General of Health Services, Dhaka.
4. Dr. Akhter Ahmed, FCPS (Surgery), Department of Surgery, Sir Salimullah Medical College Hospital.
5. Dr. Ratan Kumar Saha, FCPS (Surgery), Assouate Prof. Department of Surgery, Faridpur Medical College, Faridpur.
6. Dr. SM Amjad Hossain, FCPS (Surgery), Department of Surgery, Shaheed Shuhrawardi Medical College, Dhaka.

### Address of correspondence :

Dr. Md. Mahiuddin Matubber, Assistant Professor, department of Surgery, Dhaka Medical College, Dhaka. Mobile No:  
Email: drmm1967@yahoo.com

properly<sup>4,5</sup>. In primary repair of wound, researchers used several options of primary repair with or without colostomy to check the effectiveness of repair without diversion<sup>6-14</sup>. Similar types of intervention had been adopted in developing countries too<sup>15-16</sup>. Researchers from Bangladesh are also assessing the outcome of primary repair of abdominal injuries in their clinical settings. With improved facilities in patient care and proper use of antibiotics the inclination is directed towards primary repair of colon without diversion. This study was aimed to assess the efficacy of primary repair in a tertiary hospital.

### Material and Methods :

It was a cross sectional study conducted on purposively selected 50 patients admitted within 24 hours of traumatic gut injury in casualty department of Dhaka Medical College Hospital (DMCH) from January to June 2009. All patients were managed by primary repair without colostomy or diversion. The sociodemographic profiles, types and severity of injury, hospital stay and outcome of primary repair were assessed. The qualitative variables were presented with absolute number and proportion while the quantitative variables were presented with mean  $\pm$  standard deviation (SD).

## Results :

Table I shows the baseline information of the patients. Half of the patients were in the age group of 20-30 years followed by 20.0% in the age group of 30-40 ahead of 18.0% in the age group of 40-50 years with an average of  $31.18 \pm 9.38$  years between the ranges of 15-50 years. Most (38.0%) of the patients were businessmen with 14.0% students, 12% drivers and another 12.0% day labourers. The monthly income of them was  $8000 \pm 6000$  taka where 58% of them earned  $>10,000$  taka and the rest 42% earned  $\leq 10000$  taka.

**Table I :** Baseline information of the patients

Age (years)	N (%)
10-20	06 (12)
20-30	25 (50)
30-40	10 (20)
40-50	09 (18)
Occupation	N (%)
Business	19 (38)
Student	07 (14)
Driver	06 (12)
Day labourer	06 (12)
Service holder	04 (08)
Monthly Income (taka)	N (%)
$>10000$	29 (58)
$\leq 10000$	21 (42)

The types of trauma, hospitalization time after injury, blood pressure status of the patients and abdominal findings were recorded (Table-II,III). It was found that more than 1 in every 2 patients (54%) had injury from road traffic accident (RTA) inflicting the wound in abdomen. Other 36% injuries, though not due to RTA, were also associating abdominal injury. Rest 10% injuries were in chest, either due to stab (04%) or bullet (06%) injury. After injury 56% patients were taken to the hospital  $\leq 6$  hours and the other 44% patients were taken in hospital  $>6$  hours of injury. Ranging from 1-23 hours, the average time taken to hospitalize the patients was  $6.49 \pm 5.27$  hours. On admission, 52% had hypotension while the rest 48% were normotensive. With multiple findings, abdomen was distended in 70% cases. Tenderness and rigidity was found in 84% and 58% cases respectively. On Percussion 54% abdomen produced dull sound while in 24% cases it was resonant. In small intestine 80% perforation was found of which 42% was in jejunum and 20% perforation was found in large intestine (Table-III).

**Table II :** Type of trauma

	N (%)
RTA with blunt trauma on abdomen	27 (54)
Injury on abdomen	18 (36)
Stab injury in left side of chest	02 (04)
Bullet injury in left side of chest	03 (06)

**Table III :** Abdominal findings

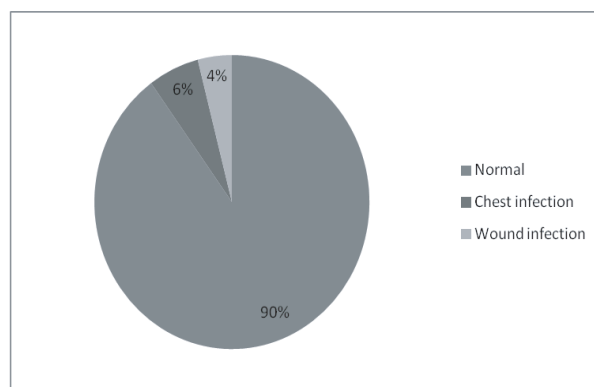
	N (%)*
Distended	35 (70)
Tender	42 (84)
Rigidity	29 (58)
Dull	28 (56)
Resonant	12 (24)
Operative finding	N (%)
Perforation small gut	40 (80)
Perforation large gut	10 (20)

\*Multiple findings

**Table IV :** Duration of hospital stay after operation

Duration of hospital stay (days)	N (%)
$< 7$	12 (24)
7-14	31 (62)
$>14$	07 (14)

The patients remained in hospital for  $9 \pm 2$  days where most of them (62.0%) leave the hospital within 7-14 days of operation followed by 24% discharge  $<7$  days indicating a short stay in hospital after operation (Table-V). While we looked at the outcome of operation, only 6% had chest infection and 4% had wound infection. Others recovered well without any complications as depicted in Figure 1.



**Figure I :** Outcome of primary gut repair without diversion

**Discussion :**

Total number of patients was 50. Among them 25 (50.0%) were in the age group of 20-30 years followed by 10 (20.0%) were in the age group of 30-40, 9 (18.0%) were in the age group of 40-50 and 6 (12.0%) were in the age group of 10-20 years. Mean  $\pm$  SD of the age of the respondents was  $31.18 \pm 9.38$  and range was 15-50 (Table-I). Lou et al in a study of total 50 patients found the age ranged from 4 to 47 years<sup>17</sup>. In this study 54% patients had injury from road traffic accident (RTA) inflicting the wound in abdomen. But overall 90% of the injuries affected the abdomen. Lou et al 76% gunshot and 24% stab wounds were associated with abdominal injury<sup>17</sup>. Aziz et al described 67% cases with penetrating trauma in abdomen, 62% due to firearm and 38% due to stab wound<sup>1</sup>. There had been 80% perforation in small intestine compared to 20% large intestine perforation. Bhatti et al found stab injury as the commonest mode of injury affecting mostly large intestine (40%)<sup>4</sup>. Fakhry SM et al showed that most of abdominal injuries affect the jejunum (64%)<sup>19</sup>.

In our study only 10% came out with infection, out of which 6% were chest infection and 4% were wound infection after primary repair. Bhatti et al recommended primary repair for the management of penetrating colonic injury because of its better outcome in terms of less infection and early recovery<sup>4</sup>. Zheng et al treated 81.7% patients with primary repair with 16% wound infection<sup>9</sup>. Naraynsingh et al found 10% wound infection rate in their study to support the view of primary repair of colon to be the management of choice<sup>11</sup>. Hussain et al concluded that primary repair is a safe method of managing penetrating colon injuries in carefully selected patients<sup>16</sup>. Strasen and Berne recorded 26% wound infections<sup>18</sup>. Guarino et al decided that the outcome of primary repair was so better so as to recommend for primary repair of wound in penetrating small bowel injuries<sup>20</sup>.

**Conclusion :**

The study had several limitations. It was conducted in a single hospital with a small sample size without any comparison group. But the findings suggest that primary repair without diversion in the treatment of traumatic gut injury can be performed among patients admitted in our hospitals.

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