ORIGINAL ARTICLE

Examine the Pattern and Treatment Outcomes of Colon Injuries

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ABSTRACT

Objective: To determine the pattern and treatment outcomes of colonic injuries.
Study Design: Descriptive study
Place and Duration of Study: Department of Surgery, Khairpur Medical College Khairpur Mir's and Postgraduate Medical Institute Quetta from 1st October 2019 to 31st March 2020.
Methodology: One hundred and twenty patients of both genders with ages 20 to 60 years presented with severe colonic injuries were included. Demographical details were recorded after written consent. Pattern of injuries were recorded. Treatment outcomes such as complications and mortality were examined.
Results: There were 105 (87.5%) male patients while 15 (12.5%) were females. Majority of patients 50 (41.67%) were ages 20 to 35 years. Right colon was the most common location of injury in 40 (33.33%) followed by transverse and left. 65 (54.17%) patients had grade 2 injury. Gunshot was the commonest cause of injury in 96 (80%) patients. Small bowel was the commonest injured organ in 70 (58.33%) patients. Eighty patients received primary repair and 40 patients received diversion. Overall complications found in 36 (30%) patients. Mortality found in 30 (25%) patients.
Conclusion: Majority of male patients and most common age group was 20 to 35 years. Gunshot was the commonest cause of colonic injury and small bowel was the most frequent injured organ. Complications occurred in 30% patients and 25% patients were died.
Key words: Colonic injury, Pattern, Primary repair, Diversion, Complications, Mortality

INTRODUCTION

In recent years, the treatment of colonic injury has undergone revolution by trauma surgeons. The main cause for better performance was the exteriorisation of colon injuries in the first year of 1944 by Ogilvie.[1] This colostomy or externalization technique of war led post-war surgeons to find primary repair to be dangerous. The first study to randomize between primary reparations and colostomy was released by Stone in 1979, and after that date, the primary reparation was extended to the degree to which agreement was reached on the safe and successful use and primary anastomosis of primary repair or resection for most colonic wounds.[2,3] In the sense of urban trauma, some scholars proposed colostomy should be abandoned.[4] Primary patch, resection, partial anastomosis and wartime colon injuries have also been widely used in recent years.[5,6] Low caliber weapons wounded patients or ammunition changed. This indicates that more patients with exsanguination and vital physiological dysfunction have been treated with these arms. A series of three interrelated factors, metabolic acidosis, deep hypothermal and clinically apparent coagulopathy, are ongoing hemorrhages. Both factors jointly strengthen the coagulopathy in critically wounded patients through hypothermia and acidosis.[7,8] A 'bladed vicious cycle' has been called the triad of hypothermia, acidosis and coagulopathy that if not broken, it is fast-fatal.[9] This understanding led to the idea of 'damage management,' which sees surgery rather than an end of itself as part of the resuscitation process. The surgeon concentrated on maintaining haemostasis in a "damage control" laparotomy of a critically injured, exsanguinating patient, prevented uncontrolled discharge of intestinal contents and urine, abbreviated laparotomy and spent his energy to restore the damaged physiology of his patient to the surgical intensive care unit.[10] After complete hemodynamic resuscitation and natural restoration of the coagulation variables, delayed gastrointestinal reconstruction can be achieved. For the surgical treatment of colonic injuries there are three medical approaches, principal repair, colostomy and eventually outsourced repair. Colostomy and externalized repairs reduce the possibility that the second procedure would be required to prevent leakage. Primary fixes are recommended unless they are leaked. We conducted present study to examine the pattern of colonic injuries also determine the treatment outcomes such as complications and mortality.

MATERIAL AND METHODS

This descriptive study was conducted at Department of Surgery, Khairpur Medical College Khairpur Mir's and Postgraduate Medical Institute Quetta from 1st October 2019 to 31st March 2020. A total of 120 patients of both genders with ages 20 to 60 years presented with colonic injuries were included. Patients demographics including age and sex, site of injury, grade of injury as per Flint injury scale, and involved organs were recorded after taking written consent. Diabetes patients, history of chronic illness, chronic renal failure, patients with tuberculosis and those with head and neck injury were excluded. Eighty patients received primary repair and forty patients received diversion. Complications such as wound infection, wound dehiscence and intra-abdominal abscess were examined. Mortality during hospital stay was recorded. All the data was analyzed by SPSS 24.

RESULTS

One hundred and five (87.5%) patients were males while 15 (12.5%) were females. 58 (48.33%) patients were ages 20 to 35 years, 47 (39.16%) were ages 36 to 50 years and 15 (12.5%) were ages above 50 years (Table 1).

Table 1: Age and gender wise distribution

Variable	No.	%
Gender		
Male	105	87.5
Female	15	12.5
Age (years)		
20 – 35	58	48.33
36 – 50	47	39.16
> 50	15	12.5

Table 2: Pattern of colonic injuries and applied procedures

Variable	No.	%
Site		
Right	40	33.33
Transverse	35	29.17
Left	28	23.33
Sigmoid	17	14.17
Injury grade		
I	30	25.0
II	65	54.17
III	25	20.83
Cause of injury		
Gunshot	96	80.0
Stab	24	20.0
Organs involved		
Small Bowel	70	58.33
Duodenum	25	20.83
Stomach	15	12.5
Liver	10	8.33
Operative procedures		
Primary repair	80	66.67
Diversion	40	33.33

Table 3: Treatment outcomes

Variable	No.	%
Complications		
Wound infection	16	13.33
Wound dehiscence/ anastomosis leakage	12	10.0
Intra-abdominal abscess	8	6.67
Mortality		
Yes	30	25.0
No	90	75.0

Right colon was the most common location of injury in 40 (33.33%) followed by transverse in 35 (29.17%), left colon in 28 (23.33%) and sigmoid in 17 (14.17%) patients respectively. According to the Flint injury scale 30 (25%) patients had grade I injury, 65 (54.17%) patients had grade II injury and 25 (20.83%) had grade III injury. Gunshot was the commonest cause of injury in 96 (80%) patients followed by stabs in 24 (20%) patients. Small bowel was the commonest injured organ in 70 (58.33%) patients followed by duodenum in 25 (20.83%) patients, stomach in 15 (12.5%) patients and liver in 10 (8.33%) patients respectively. 80 (66.67%) patients received primary repair and 40 (33.33%) received diversion (Table 2). Overall complications found in 36 (30%) patients, among them 16 (13.33%) patients had wound infection, 12 (10%) patients had wound dehiscence/ anastomosis leakage and 8 (6.67%) patients had intra-abdominal abscess. Mortality found in 30 (25%) patients (Table 3).

DISCUSSION

Perforated colonic injuries associated with higher morbidity and mortality rate in all over the world. In present study majority of patients 105 (87.5%) patients were male while 15 (12.5%) were females. 58 (48.33%) patients were ages 20 to 35 years, 47 (39.16%) were ages 36 to 50 years and 15 (12.5%) were ages above 50 years. These results were comparable to many of previous studies in which male patients were high in numbers accounted 80% to 90% and the average age of patients was 30 years.[11,12]

In the present study, we found that right colon was the most common location of injury in 40 (33.33%) followed by transverse in 35 (29.17%), left colon in 28 (23.33%) and sigmoid in 17 (14.17%) patients respectively. According to the Flint injury scale 30 (25%) patients had grade I injury, 65 (54.17%) patients had grade II injury and 25 (20.83%) had grade II injury.

Gunshot was the commonest cause of injury in 96 (80%) patients followed by stabs in 24 (20%) patients. Many of studies reported that gunshot injury was the commonest mode of injury 30 to 50% followed by shell injury and stab wounds.[13,14] Small bowel was the commonest injured organ in 70 (58.33%) patients followed by duodenum in 25 (20.83%) patients, stomach in 15 (12.5%) patients and liver in 10 (8.33%) patients respectively. A variety of variables have significant effects on management in the treatment of colon injuries. Injury may be penetrating or blunt, destructive or non-destructive and treatment may be affected by the particular anatomic position. Second to the small bowel, in penetrating abdominal trauma, the colon is the most commonly affected organ, occurring in up to 20% of patients.[15,16] The vast majority of colon injuries enter the natural environment and are most frequently caused by gunshot wounds (GSWs).[17] Eighty (66.67%) patients received primary repair and 40 (33.33%) received colostomy. 50% were incised (laparotomy) while within 8 hours and 50% patients were incised after 8 hours but within 12 hours. A study by Hameed et al[18] reported that 37.5% patients received primary repair and colostomy in 25% patients. They also reported that patients received primary repair had fewer rate of complications as compared to other procedures.

In this study, complications found in 36 (30%) patients, among them 16 (13.33%) patients had wound infection, 12 (10%) patients had wound dehiscence and 8 (6.67%) patients had intra-abdominal abscess. We found that patients received primary repair had less complications as compared to colostomy. Mortality found in 30 (25%) patients and among them majority of patients were grade III injuries. These results were comparable to many of previous studies.[19,20]

CONCLUSIONS

Majority of patients were male and most common age group was 20 to 35 years. Gunshot was the commonest cause of colonic injury and small bowel was the most frequent injured

organ. Complications occurred in 30% patients and 25% patients were died.

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