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EVALUATION OF MANAGEMENT OF HOLLOW VISCUS INJURY IN BLUNT ABDOMINAL TRAUMA PATIENTS AT A TERTIARY CARE CENTRE

Surgery

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ABSTRACT

Blunt abdominal trauma is one of the most common injuries caused mainly by road traffic accidents. They are usually not obvious. Hence, often missed, unless, repeatedly looked for. In view of increasing number of vehicles and consequently road traffic accidents, this dissertation has been chosen to study the cases of blunt abdominal trauma. **METHODOLOGY:** Patients coming with blunt injury abdomen due to RTA or TTA or Fall from height or Fall of heavy object to Department of General surgery in Rajendra Institute of Medical Sciences, Ranchi were taken up for study. **RESULTS:** Males were predominantly affected. It was mostly seen in the age group of 21-30 years which form the young and productive group. Road traffic accident formed the most common mode of injury. The most common injured viscera in the present study was small bowel and they were managed by simple reapair/anastomosis. Mesenteric injury was the second most common injury and majority of them were managed by simple repair. **INTERPRETATION AND CONCLUSION:** Serial clinical examination plays the main role in diagnosing the hollow viscous injury in blunt trauma abdomen. CECT abdomen is the sensitive investigation to diagnose the injury. Operative management remains the main stay of treatment. Early presentation have good prognosis than late presentation.

KEYWORDS

Hollow viscous injury , blunt injury abdomen

INTRODUCTION

Abdominal trauma is one of the most common causes among injuries caused mainly due to road traffic accidents. The rapid increase in motor vehicles and its velocity has caused rapid increase in number of victims to blunt abdominal trauma. Motor vehicle accidents account for 75 to 80 % of blunt abdominal trauma. Blunt injury of abdomen is also a result of fall from height, assault with blunt objects,sport injuries, industrial mishaps, bomb blast and fall from riding bicycle. The knowledge in the management of blunt abdominal trauma has progressively increasing due to the in-patient data gathered from different parts of the world. In spite of the best techniques and advances in diagnostic and supportive care, the morbidity and mortality remains at large. The reason for this could be due to the interval between trauma and hospitalization, delay in diagnosis, inadequate and lack of appropriate surgical treatment, post operative complications and associated trauma especially to head, thorax and extremities. In view of increasing number of vehicles, rampant increase in construction work and consequent road traffic accidents, this dissertation has been chosen to study the cases of blunt abdominal trauma, its different modes of presentation and to study 2 the different modalities of its management with reference to the patients presenting at Rajendra Institue of Medical Sciences, Ranchi.

AIM AND OBJECTIVES OF THE STUDY

To study the various presentations of hollow viscus injury in blunt injury abdomen.

To evaluate the various modalities to diagnose the hollow viscous injury at the earliest .To compare morbidity and mortality between early and late Interventions

MATERIALS AND METHODS

STUDY DESIGN: This study is a prospective study of Patients coming with blunt injury abdomen due to RTA or TTA or Fall from height or Fall of heavy object to Department of General surgery in R.I.M.S. Ranchi between June 2017 to May 2018

METHODS OF COLLECTION OF DATA: -Data were collected from the patients by their clinical history, clinical examination with appropriate investigations on those patients who were admitted. Post operative follow up was done to note for complications. After initial resuscitation of the trauma victims, a careful history was taken to document any associated medical problem. Routine blood and urine tests were carried out in all the patients. Documentation of patients, which included, identification, history, clinical findings, diagnostic test, operative findings, operative procedures, complications during the stay in the hospital and during subsequent follow-up period, were all recorded on a proforma specially prepared. Demographic data collected included the age, sex, occupation and nature and time of accident leading to the injury. The decision for operative or non operative management depended on the outcome of the clinical examination and results of diagnostic tests. Patients selected for conservative management were placed on strict bed rest, were subjected to serial clinical examination which included hourly pulse rate, blood pressure, respiratory rate and repeated examination of abdomen and other systems.

OBSERVATIONS AND RESULTS

60 patients were taken up for study.

(A)AGE INCIDENCE:

In this series, the majority of the patients belonged to 21-30 years age group, followed by 31-40 years age group.

(B) SEX INCIDENCE:-

In the 60 cases studied, 51 cases were males, with females accounting for only 9 cases.
Male 85%
Female 15%

(C) MODE OF INJURY:

Road traffic accident was responsible for 60% of blunt abdominal trauma cases, while fall from heights accounted for 23% of cases and blow with blunt object was responsible for 7% of injuries.

(E) SYMPTOMS AND SIGNS:-

Abdominal pain was present in 48, vomiting in 9, abdominal distension in 32, hematuria in 3 ,pallor in 36, Pulse>90/min in 54, BP<90mm of Hg systolic in 21,abdominal guarding and rigidity in 24, abdominal tenderness in 38, rebound tenderness in 30, free fluid in 34,absent bowel sounds in 30. Majority of the patients presented with abdominal pain:48 of 60 (90%) and abdominal tenderness38 of 60 (63%).

LATENT PERIOD:-

Latent period is the interval between the time of injury to the time of surgery.

HOURS	NO OF CASES	PERCENTAGE
0-12	13	22
12-24	25	42
24-48	12	20
>48	10	16

Average latent period seen in the present study is between 12-24 hours.

Majority of patients (40%) were taken for surgery between 12-24 hours of latent period.

INVESTIGATIONS:
Most of the patients diagnosed with X–ray or CECT abdomen and remainder of patients diagnosed and taken up for surgery by X ray & USG findings and serial clinical examination.

ORGAN INVOLVED:

ORGAN INJURED	NO. OF PATIENTS	PERCENTAGE
Gastric injury	6	10
Small bowel injury	31	52
Large bowel injury	5	8
Mesenteric injury	18	30
Bladder injury	3	5
a/w solid organ injury	18	30

Most common injury is the small bowel injury accounts for 52 % of patients .Followed by next most common finding is the mesenteric injury .

OPERATIVE PROCEDURES:

PROCEDURE	NO. OF PATIENTS	PERCENTAGE
Closure of perforation	27	45
Resection & anastomosis	12	20
Repair of mesentry	15	25
Bladder repair	3	5
Colostomy	3	5

The above table shows the various operative procedures carried out among the patients who underwent exploratory laparotomy. Bowel perforations were treated with 2 layered closure, with 12 patients requiring resection and anastamosis. Omental and mesenteric injuries were treated by simple suturing and ligating the bleeding points. Bladder injuries were repaired by 2 layered closures under the supervision of Urologist.In the present series of 60 cases, one case of duodenal perforation was found which was simple and was closed by 2 layered closures.

POST OPERATIVE COMPLICATIONS:
The following table shows the postoperative complications and their relative incidences in patients who underwent exploratory laparotomy.

POST-OPERATIVE COMPLICATION	NO. OF CASES	PERCENTAGE
Wound dehiscence	5	8
Wound infection	7	11
Respiratory complication	4	6
Intra abdominal collection	6	10

MORBIDITY AND MORTALITY: The mean range of stay of patients in the hospital ranged from 11-20 days (15days). The range varied from 2 days to 60 days.The following table shows the duration of stay of patients with blunt abdominal trauma including those who died.

DURATION OF HOSPITAL STAY(days)	NO. OF PATIENTS	PERCENTAGE
1-10	17	28
11-20	27	45
21-30	8	13
31-40	5	8
41-50	2	4
51-60	1	2

MORTALITY : A total of 10 patients died in the present study. 9 patients belonged to operative group and died in the post operative period, majority of them due to peritonitis and septicemia. One patient died before surgery due to severe head injury.. This shows the disadvantages of delayed presentation due to missed injuries causing delayed treatment. Therefore the mortality in the present study is 16%.

DISCUSSION
AGE INCIDENCE:In this series, the majority of the patients belonged to 21-30 years age group, followed by 31-40 years age group comparable with davis et al study. Therefore it can be concluded that the young and the productive age group people are the usual victims of blunt abdominal trauma.

SEX INCIDENCE: Male 85% Female 15% . it can be seen that the males are the more common victims of blunt abdominal trauma. When compared to other studies the incidence of males is much more than those of the females, as, in India males are the chief bread earner for the family and are involved in outdoor activities most of the times.

SIGNS AND SYMPTOMS: In the present study, abdominal pain was the most common presenting complaint accounting for 80% and abdominal tenderness was the most common sign accounting for 63% of cases. But the signs and symptoms in abdominal injuries are notoriously unreliable and are often masked by concomitant head injuries, chest injuries and pelvic fractures. Significant injuries to the retroperitoneal structures may not manifest signs and symptoms immediately and be totally missed even on abdominal x rays. This emphasizes the importance of careful and continuing observation and repeated examination of individuals with blunt abdominal trauma.

LATENT PERIOD: Latent period is the interval between the time of injury to the time of surgery. Average latent period seen in the present study is between 12-24 hours. Majority of patients (40%) were taken for surgery between 12-24 hours of latent period. 2 patients were taken for surgery after 5 days of injury as they were initially put on conservative management. Since their condition deteriorated on repeated clinical examinations, they had to be taken up for delayed exploratory laparotomy.

ORGANWISE INJURY: The above study compares the incidences of the organs involved in blunt abdominal trauma in the present study to that of the international series. Small bowel was involved in 52% of cases, followed by mesentric injury.

OPERATIVE PROCEDURES: Bowel perforations were treated with 2 layered closure, with 12 patients requiring resection and anastamosis. Omental and mesenteric injuries were treated by simple suturing and ligating the bleeding points. Bladder injuries were repaired by 2 layered closures under the supervision of Urologist. In the present series of 60 cases, one case of duodenal perforation was found which was simple and was closed by 2 layered closures. We could not find any case of disruption of the biliary tract and pancreatic injury in this series.

SUMMARY AND CONCLUSION: This was a retroprospective study of 60 cases of blunt abdominal trauma in R.I.M.S. From this study, the following conclusions can be made.

1. Males are predominantly affected. It is mostly seen in the age group of 21-30 years which form the young and productive group.
2. Road traffic accident forms the most common mode of injury. Hence measures should be taken to prevent these accidents and care of the victims at the accident site. Well established trauma care centers should be established at least at every District hospital. Measures for early transport of the patients from the accident site to the trauma center should be undertaken.
3. A thorough and repeated clinical examination and appropriate diagnostic investigations lead to successful treatment in these patients.
4.In bowel injury, operative management remains the main stay of treatment.
5. Plain erect x ray abdomen is a valuable investigation taken for gastrointestinal injuries.
6. Ultrasound examination gives a clear picture of solid organ injury and free fluid. Four quadrant aspiration is a simple and an important tool for diagnosis.
7.Most of the patients diagnosed with CECT abdomen and remainder of patients diagnosed by X ray & USG findings and serial clinical examination.
8. The most common injured viscera in the present study is small bowel and they were managed by simple suturing.
9. Mesenteric injury is the second most common injury and majority of them were managed by simple repair. Few of them were managed by resection anastomosis due to unviable bowel.
10.Bladder injury was seen in a small proportion of patients associated with pelvic fracture. They are repaired under supervision of urologist.
11. Post operative complications like wound infection, dehiscence, respiratory infections and fecal fistula are common in blunt abdominal

trauma.

12.Among the total mortality of 10 pts, 7 patients died in group which presented more than 24 hrs. This shows the disadvantages of delayed presentation due to missed injuries causing delayed treatment. The mortality in the present study is 16%.

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