

ANALYSIS OF BLUNT ABDOMINAL TRAUMA CASES AT TERTIARY CARE HOSPITAL BIKANER (RAJASTHAN)

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Abstract

Background: 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 with reference to the patients presenting at P.B.M. hospital, attached to S.P. Medical College, Bikaner.

Methods: Prospective hospital-based study was conducted on all the patients of blunt abdominal injury admitted in the department of surgery, S.P. Medical College and P.B.M. Hospital, Bikaner.

Results: Majority of the patients presented with abdominal pain (86%) and abdominal tenderness (81%).

Conclusion: We concluded that young Males are predominantly affected. Road traffic accident forms the most common mode of injury. Though conservative management is successful in carefully selected patients, operative management remains the main stay of treatment.

Keywords: Blunt trauma, Age, Sex

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 aftermath has caused rapid increase in number of victims to blunt abdominal trauma. Motor vehicle accidents account for 75 to 80 % of blunt abdominal trauma.¹ 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.¹

Blunt abdominal trauma is usually not obvious. Hence, often missed, unless, repeatedly looked for. Due to the inadequate treatment of the abdominal injuries, most of the cases are fatal. 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.² 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.³

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 with reference to the patients presenting at P.B.M. hospital, attached to S.P. Medical College, Bikaner.

Materials & Method

Study design: Prospective hospital-based study.

Study duration: 12 months.

Study place: Department of General Surgery, S.P. Medical College and P.B.M. Hospital, Bikaner

Study population: Patients of both sexes and all age groups admitted in the department of general surgery with symptomatic blunt abdominal injury will be included in the study

Sample size: All patients of blunt abdominal injury reporting to the surgery department within study duration and eligible as per inclusion criteria will be included in the study

Sampling method: Convenience sampling

Consent and ethics: Written informed consent.

Inclusion criteria: All the patients of blunt abdominal injury admitted in the department of surgery, S.P. Medical College and P.B.M. Hospital, Bikaner.

Procedure of data collection: After taking written, informed consent, details of cases including history, clinical examination and investigations were recorded. 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 .

Data analysis: Data were analyzed using appropriate software (Microsoft Excel and SPSS). Descriptive statistics was computed for characteristics of patients, clinical parameters, pre-operative finding, intra-operative finding and post operative complication.

Observation

From November 2019 to October 2020, the total number of Blunt abdominal emergency operations carried out by various General surgical Units in PBM Hospital was 59.

Table 1: General Characteristics

Mean age in yrs		22.32±11.21
Male : Female		53 : 6
Treatment	Conservative	44 (74.00%)
	Operative	15 (26.00%)
Mode of injury	Road traffic accident	36 (61.00%)
	Fall from height	16(27.00%)
	Blow to abdomen with blunt objects	7(12.00%)

Majority of the patients belonged to 11-20 years age group, followed by 21-30 years age group. 53 cases were males, with females accounting for only about 6 cases. After a detailed clinical evaluation and suitable investigations, 44 patients with pneumoperitoneum or hemoperitoneum with hemodynamic instability underwent exploratory laparotomy. 15 patients were selected for non operative management because they had no signs of peritonitis or

they had hemoperitoneum without hemodynamic instability. Out of 15 patients, 2 patients required a delayed laparotomy after 48 hours of deterioration in their hemodynamic status and development of signs of peritonitis. Road traffic accident was responsible for 61% of blunt abdominal trauma cases, while fall from heights accounted for 27% of cases and blow with blunt object was responsible for 12% of injuries.

Table 2: Clinical profile

SYMPTOMS AND SIGNS	NO. OF PATIENT
Abdominal pain	51
Vomiting	8
Abdominal distension	32
Hematuria	3
Abdominal guarding and rigidity	34
Abdominal tenderness	52
Rebound tenderness	19
Pallor	24
Pulse>90/min	48
BP<90mm of Hg systolic	28
Free fluid	32
Absent bowel sound	33

Majority of the patients presented with abdominal pain (86%) and abdominal tenderness (81%).

Discussion

Table 3: The following table compares the incidence of blunt abdominal trauma in various age groups in the present series to that of the Davis et al⁴

AGE GROUP (yrs)	PRESENT SERIES	DAVIS ET AL ³⁶
0-10	1.7%	-
11-20	37.2%	19%
21-30	33.8%	24%
31-40	10%	15%
41-50	6%	13%
51-60	5%	6%
61-70	3%	3%
71-80	1.7%	-

It can be seen from the above table that the majority of patients belonged to 11-20 years of age group, followed by 21-30 years age group. In Davis *et al*⁴ study the majority of patients belonged to 21-30 years age group. Therefore it can be concluded that the young and the productive age group people are the usual victims of blunt abdominal trauma.

Table 4:

GANDER	PRESENT STUDY	DAVIS ET AL ⁴
Male	90%	70%
Female	10%	30%

From the above table, 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.

Table 5:

TREATMENT	PRESENT STUDY (2019-20)	DAVIS ET AL ⁴	KHANNA ET AL ⁵ (1992-97)
Operative	74%	77%	58%
Conservative	26%	23%	42%

The above table shows there is an increasing trend towards conservative management even mortality. However the present study shows that 26% of patients were subjected for non operative management. Davis *et al*⁴ showed 23% and Khanna *et al*⁵ showed that 43% of patients were subjected for conservative management. Non operative management is gaining increasing acceptance mainly because of the easy availability of CT scan. With the aid of CT scan it is possible to accurately grade the extent of injury to solid organs like liver and spleen. Minor lacerations and capsular tears, difficult to diagnose clinically can be easily demonstrated by CT scan and selected for non operative management. The disadvantages of non operative management are those of missed injuries and delayed treatment resulting in excessive morbidity and even mortality.

Table 6:

CAUSATIVE	PRESENT STUDY (2019-20)	DAVIS ET AL ⁴	KHANNA ET AL ⁵ (1992-97)
Road traffic accident	61%	70%	57%
Fall from height	27%	6%	15%
Blow to abdomen with blunt objects	12%	17%	33%

The above table clearly depicts that the road traffic accident is the most common mode of injury. This is due to the rapid development in technology, in all fields. Including automobile industry where the first priority has been given to speed rather than safety.

In the present study, abdominal pain was the most common presenting complaint accounting for 85% and abdominal tenderness was the most common sign accounting for 88% 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. In Davis *et al*⁴ study, 43% of patients had no specific complaints and no signs or symptoms of intra abdominal injury when they first presented to the emergency room. But 44% of those patients eventually required exploratory laparotomy and 34% of patients had an intra abdominal injury. This emphasizes the importance of careful and continuing observation and repeated examination of individuals with blunt abdominal trauma.

Conclusions

We concluded that young Males are predominantly affected. Road traffic accident forms the most common mode of injury. Though conservative management is successful in carefully selected patients, operative management remains the main stay of treatment.

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