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Research Article

**AN AUDIT OF VARIOUS ABDOMINAL INJURIES  
FOLLOWING BLUNT ABDOMINAL TRAUMA****<sup>1</sup>Dr. Mian Moeed Ahmad, <sup>2</sup>Dr. Muhammad Zoha, <sup>3</sup>Dr. Maryam Fatima**<sup>1</sup>House Officer, Bahawal Victoria Hospital, Bahawalpur<sup>2</sup>House Officer, Bahawal Victoria Hospital, Bahawalpur<sup>3</sup>House Officer, Bahawal Victoria Hospital, Bahawalpur**Article Received:** March 2020**Accepted:** April 2020**Published:** May 2020**Abstract:**

*To assess the various abdominal injuries following blunt abdominal trauma presenting at tertiary care hospital.*

**Material and methods:** *This descriptive study was conducted at Department of Surgery, Bahawal Victoria Hospital, Bahawalpur from May 2019 to November 2019 over the period of 6 months. Study was approved by the ethical committee and written informed consent was taken from ethical committee. Total 100 patients with patients presenting with a history of recent assault by the blunt/heavy object over the abdomen, road traffic accident with suspected blunt abdominal injury, history of accidental fall from height, history of fall of the heavy object over the abdomen and blunt trauma abdomen in sports injury were included in the study.*

**Results:** *Among 76 (76%) patients, mode of injury was road traffic accident followed by assault in 20 (20%) patients, fall from height in 2 (2%) and fall of weight 2 (2%) patients. (Table 2) Out of 100 patients, spleen injury was seen in 52 (52%) patients, liver was injured in 14 (14%) patients, ileal perforation was seen in 10 (10%) patients, combined injury was noticed in 8 (8%) patients, mesentery in 4 (4%) patients, renal injury in 2 (2%) patients, pancreas injury in 4 (4%) patients, bladder injury in 4 (4%) patients and jejunal perforation was seen in 2 (2%) patients.*

**Conclusions:** *Results of present study showed that most of patients of blunt abdominal trauma belonged to age group 20-30 years. Most common mode of injury was road traffic accident. Spleen and liver was the most common injured organ.*

**Keywords:** *Abdominal injury, CT scan, Splenectomy, Solid organ injury*

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**INTRODUCTION:**

Trauma is defined as a physical injury or a wound to living tissue caused by an extrinsic agent.<sup>1</sup> Trauma is the sixth leading cause of death worldwide, accounting for 10% of all mortalities. It accounts for approximately 5 million deaths each year worldwide and causes disability to millions more. Genitourinary trauma accounts for 10% of total trauma victims due to various modes of injury like road traffic accidents, blunt injury, penetrating injury, accidental fall and others. Genitourinary trauma is seen in both sexes and in all age groups, but is more common in males.<sup>2</sup>

Blunt trauma can result from either compression (secondary to a direct blow or against a fixed external object) or from deceleration forces.<sup>3</sup> Abdomen is the third most common organ injured following extremities and head injury. CT scanning has increased the identification of injuries.<sup>4</sup> The care of the trauma patient is demanding and requires dedication, diligence, and efficiency. Evaluating patients who have sustained blunt abdominal trauma remains one of the most challenging and intensive aspects of acute trauma care.<sup>5</sup> Missed intra-abdominal injuries and concealed hemorrhage are frequent causes of increased morbidity and mortality, especially in patients who survive the initial phase of an injury. Physical examination findings are sometimes unreliable for several reasons; including the presence of distracting injuries, associated chest injuries, an altered mental state, and co-existing drug and alcohol intoxication in the patient.<sup>6</sup> In view of increasing number of vehicles, the consequent increase in high-velocity road traffic accidents, rampant increase in construction work, this study chosen to study blunt abdominal trauma, its frequency, different modalities of management and treatment outcomes.<sup>7</sup>

**MATERIAL AND METHODS:**

This descriptive study was conducted at Department of Surgery, Bahawal Victoria Hospital, Bahawalpur from May 2019 to November 2019 over the period of 6 months. Study was approved by the ethical committee and written informed consent was taken from ethical committee. Total 100 patients with patients presenting with a history of recent assault by the blunt/heavy object over the abdomen, road traffic accident with suspected blunt abdominal injury, history of accidental fall from height, history of fall of the heavy object over the abdomen and

blunt trauma abdomen in sports injury were included in the study.

Patients with penetrating/stab/gunshot injuries and patients of the pediatric age group were excluded from the study.

After a primary survey of these patients, brief history and complete physical assessment and all the basic investigations were done. Ultrasonogram was done for all cases and a CT scan was done for selected cases. Based on the clinical finding and investigations, cases were managed. At laparotomy, a systematic approach with an examination of all intraabdominal organs was made. After surgery patients were managed with continuous vitals monitoring, Nasogastric tube, IV fluids, and antibiotics. All the surgeries was done by consultant surgeon having 5 year experience. All the findings were noted in pre-designed performa along with demographic profile of the patients.

Collected data was entered in SPSS version 18 and analyzed. Mean and SD was calculated for numerical data and frequencies and percentages were calculated for categorical data.

**RESULTS:**

Selected patients were divided into 6 age groups i.e. age group <20 years, age group 20-30 years, age group 31-40 years, age group 41-50 years, age group 51-60 years and age group >60 years. Total 12 (12%) patients belonged to age group <20 years followed by 36 (36%) patients to age group 20-30 years, 22 (22%) patients to age group 31-40 years, 12 (12%) patients to age group 41-50 years, 14 (14%) patients to age group 51-60 years and 4 (4%) patients belonged to age group >60 years. (Table 1)

Among 76 (76%) patients, mode of injury was road traffic accident followed by assault in 20 (20%) patients, fall from height in 2 (2%) and fall of weight 2 (2%) patients. (Table 2) Out of 100 patients, spleen injury was seen in 52 (52%) patients, liver was injured in 14 (14%) patients, ileal perforation was seen in 10 (10%) patients, combined injury was noticed in 8 (8%) patients, mesentery in 4 (4%) patients, renal injury in 2 (2%) patients, pancreas injury in 4 (4%) patients, bladder injury in 4 (4%) patients and jejunal perforation was seen in 2 (2%) patients. (Table 3)

**Table 1: Age incidence.**

Age (years)	Number (%)
<20	12 (12%)
20-30	36 (36%)
31-40	22 (22%)
41-50	12 (12%)
51-60	14 (14%)
>60	4 (4%)
Total	50

**Table 2: Mode of injury.**

Mode of injury	No (%)
Road traffic accident	76 (76)
Assault	20 (20)
Fall from height	2 (2)
Fall of weight	2 (2)

**Table 3: Specific organ injury.**

Organs injured	No (%)
Splenic injury	52 (52%)
Liver injury	14 (14%)
Ileal perforation	10 (10%)
Others/combined	8 (8%)
Mesentery	4 (4%)
Renal injury	2 (2%)
Pancreas	4 (4%)
Bladder injury	4 (4%)
Jejunal perforation	2 (2%)

**DISCUSSION:**

The grievously injured victims require prompt enlightened care to avoid catastrophic end results. Deaths are occurring every day, in many different settings, from injuries to the upper abdomen and lower rib cage that produce damage to the liver, spleen, and pancreas.<sup>8</sup> The location and severity of the blow and the position of the victim when injured determine which combination of organs is affected.<sup>9</sup> These are life-threatening injuries. The stakes are high for the patient, and the demands on the surgical team are great. It is necessary that the early recognition and effective management of these injurious are essential for the survival and prevention of far-reaching complications.<sup>10</sup> The development of EMS (Emergency Medical Services) has brought tremendous improvement in the management of blunt abdominal injuries. EMS comprises trauma squads, the persons trained in stabilizing and transport of injured persons to Hospitals.<sup>11</sup> EMS intervene in the within one hour of injury and hence they play a major role in decreasing the mortality by initial resuscitation and by reducing the time lag between injury and hospitalization.<sup>12</sup>

In our study grade III splenic injuries were encountered in the majority (20 cases). 12 cases

involved laceration of parenchyma >3cm depth and 8 cases were a subcapsular hematoma (>50%). All cases were taken up for laparotomy ending in splenectomy. 2 cases of grade II injury were encountered (laceration<3cm) were taken for laparotomy resulting in splenectomy. 3 cases of grade-IV type were seen with hilar vessel laceration and 1 case of grade-5 injury with shattered spleen were met with. All these cases with severe injuries were managed by splenectomy.

We encountered 7 cases of liver injury of which Grade II injuries constituted the majority (5 cases) followed by grade III injuries (2 cases). All grade II injuries involving either a small subcapsular hematoma (3) or capsular tear with laceration <1cm depth in the parenchyma (1) were managed conservatively and patients did well. Both the cases of grade-III injury, were managed conservatively.

Ileal perforation was a total of 6 cases (12%). About 5 of the cases the defect was large involving more than two-thirds of the wall and one was associated with mesenteric tear and hence resection of the segment with primary anastomosis was done by 2 layer method. Jejunal perforation constituted about 4 cases (4%) and three cases the defect being large

underwent Resection and anastomosis using two-layered closure and one case proceeded with primary suturing.

Solid organs are injured by a direct violence or deceleration injury because of protected position and ligament attachments.<sup>13</sup> Injury to the kidney and Pancreas is usually by direct trauma. Both cases of pancreatic trauma required no surgery. Two cases of renal injury were seen. One case was a grade-I injury with a non-expanding subcapsular hematoma. The second one was a Grade 3 injury. Both the cases were managed conservatively. There was no associated intra-abdominal injury or urethral injury. Three cases of mesenteric injury with associated small bowel injuries were encountered. In one case primary suturing using 2-0 vicryl was done. In two cases we proceeded with resection and anastomosis for the associated small bowel injury. There was a case of urethral injury. There was urinary extravasation in perineum and blood at urethral meatus. AUG was done and found to be an anterior urethral injury. Urinary diversion was done by Suprapubic cystostomy.<sup>14</sup>

There is an increase in the trend towards conservative management if the patient is hemodynamically stable. The grade of injury was assessed by USG and CECT and was most of the time managed conservatively. Minor lacerations and capsular tears which are difficult to diagnose clinically can be easily demonstrated in USG and CECT scan and were selected for non-operative management. However, the disadvantage of non-operative management is missed injuries resulting in increased morbidity and mortality.<sup>15</sup> Operative intervention is needed in hemodynamically unstable patients who are not responding to aggressive fluid resuscitation and those with significant organ injuries.<sup>19</sup> The common surgeries performed in our patients included splenectomy, primary closure of perforation and resection and anastomosis. Similar surgeries were required in patients of blunt abdominal trauma as reported by Siddique.<sup>16</sup>

### CONCLUSION:

Results of present study showed that most of patients of blunt abdominal trauma belonged to age group 20-30 years. Most common mode of injury was road traffic accident. Spleen and liver was the most common injured organ.

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