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# CLINICO-EPIDEMIOLOGICAL EVALUATION OF BLUNT TRAUMA ABDOMEN PATIENTS IN A TERTIARY CARE CENTER OF KUMAUN REGION OF UTTARAKHAND: A PROSPECTIVE STUDY

Surgery

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## ABSTRACT

Blunt trauma refers to physical trauma to any body part, either by direct impact, injury or indirect force. Blunt abdominal trauma comprises 75% of all blunt trauma. Road traffic accidents are most common cause & solid organ injury is much more common in blunt abdominal trauma. This study was done to evaluate clinico epidemiological profile of the patients, etiology and various diagnostic investigations for early diagnosis of blunt trauma abdomen. This study is comprises of 74 patients admitted in surgical wards of Dr. Susheela Tiwari Govt. Hospital. we colleceted the data by direct interview with patient or patient relatives, thorough clinical examination & relevant diagnostics investigation.

In our study Males were 57 and females were 17 (total¬ 74) with the male to female ratio of 3.55:1.Most common age group was 15-30 year. Road traffic accidents were the most common cause (58%) & were more common in patients from plains. While, fall from height (35%) was more common in patients from hilly region. Substance abuse was present in 31 patients (41.8%) and alcohol was most common in them (27%). Abdominal pain with tenderness were most common (95 %) presenting features. Ultrasound was done in 66 patients (89%).while C.T. was done in haemo-dynamically stable 58 patients (78.3%).most common organ injured was liver (62%) and next is spleen (40%). Most patients with solid organ injury was managed conservatively. Injuries due to blunt trauma are difficult to diagnosis. Repeated clinical examination and focused Abdominal sonography for trauma are mainstay of diagnosis in emergency department. C.E.C.T. is required for definitive diagnosis.Early diagnosis and appropriate management are key to success.

## KEYWORDS

Blunt trauma Abdomen, road traffic accident, fall from height, solid organ injury.

**Introduction-** Blunt trauma, blunt injury, non-penetrating trauma or blunt force trauma refers to physical trauma to a body part, either by direct or indirect impact, injury or physical attack. The term refers to the initial trauma, from which develops more specific types injuries such as contusions, abrasions, lacerations, and/or bone fractures. Blunt trauma is contrasted with penetrating trauma, in which an object enters the body such as fire arm or stab injury abdomen.[1] Blunt abdominal trauma comprises 75% of all blunt trauma and is the most common example of this injury[2] . Abdominal injuries are seen in 2 to 5 percent of all accidents and are the leading injury in 51.6 % of fatal accidents[3]. Physical examination and focused assessment sonography in trauma comprise the standard initial abdominal evaluation for trauma in most instances[4].

**Material and methods-** This prospective study was carried out in 75 patients admitted with blunt trauma abdomen in Department of surgery, Government Medical College and Dr. Sushila Tiwari Government Hospital, Haldwani over a period of 2 years.

Patients were evaluated as under, history, physical examination, local examination, laboratory test, x-ray, ultrasound abdomen, C.E.C.T. abdomen, conservative management was done in stable patients and explorative laparotomy was done according to institutional protocol.

**Inclusion criteria-** Patient on whom there is clinical suspicion of blunt trauma to abdomen.

**Exclusion criteria-** Patients with penetrating, stab and gun shot injuries**.** Patients of pediatric age group (< 15 years).

**Observation & results-** In our study male: female ratio was 3.55: 1 and most common age group was 15-30 years(48%).

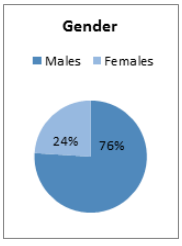



**Figure-1**

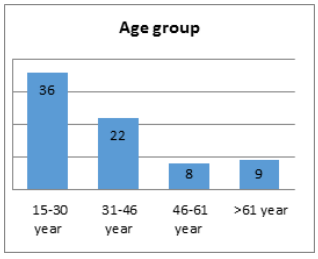
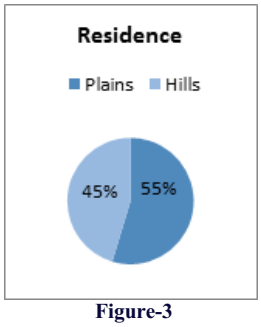



**Figure-2**

Most of patients was educated upto matric & above (50.6%). Alcohol was most common substance abuse present in 27%. Road traffic accidents (57.4%) was most common cause, which was more common in plains. Fall from hieght(36%) was 2nd most common cause which was more common in hills, followed by assault(6.6%).

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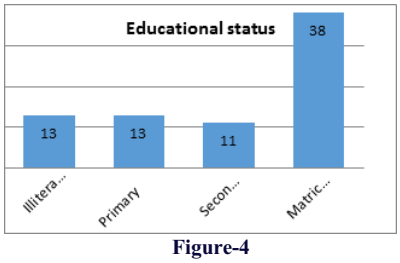


**Figure-4**

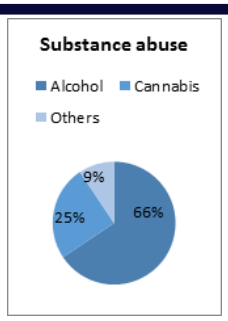


**Figure-5**

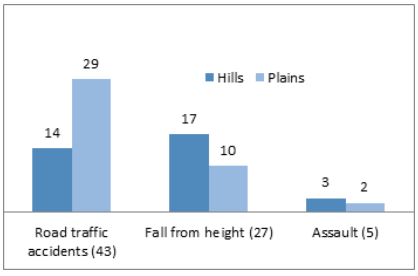


**Figure-6, Mode of injury versus Residence**

Pain abdomen was most common presenting feature and was present in almost all patients, followed by vomiting (38.6%), abdominal distension (20%), haematuria (6.6%) and urinary retention(10.6%). Abdominal tenderness was most common sign present in 93% patients ,followed by guarding (44%), absent bowel sounds (21.3%), shock (20%), rigidity (14.6%). Base line investigations like X-RAY chest and abdomen , C.B.C. , L.F.T., K.F.T. were done in all patients. Ultrasound abdomen was done in 94.6% patients ,followed by C.E.C.T. abdomen (78.6%) and 5% patients were directly taken for laparotomy. Liver was most common organ injured in 57.3% patients, followed by spleen (38.6%), intestine (17.3%), kidney (10.6%), stomach (8%), urinary bladder (4%) and only free fluid (4%). 72% patients were managed conservatively while operative intervention was required in 28% patients. 5.3% patients expired during admission period and follow up period of one month and 94.6% patients were survived.

**Figure-7,USG showing liver contusion**

**Figure-8,C.T. showing liver laceration of right lobe**

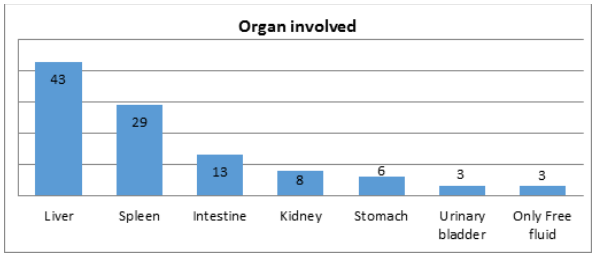


**Figure-9**

**Figure-10, showing gross haemoperitonium with mesenteric injury.**

**Discussion & Conclusion -** Blunt abdominal trauma is the leading cause of morbidity and mortality in all age groups. Identification of serious intra-abdominal pathology is often challenging. Many injuries may not manifest during the initial assessment and treatment period. Present study was aimed to study the clinico-epedimiological profile of blunt trauma abdomen patients. Male: female ration in our study was 3.55:1, it was low as compared to other studies[5],[6]. The reason was involvement of females in field work of accident prone hilly region. From our study it is seen that, blunt injury abdomen mainly affected men of younger population, between the age group of 15 years-30 years were predominantly affected[7],[8],[9]. Alcohol was most common substance abuse and road traffic accidents were major mode of injury[10]. Road traffic accidents were more common in plains area 67% of all RTAs, and fall from height in hilly areas 65% of all. This difference is due to geographical differences in hills and high speed traffic in plains area. Alcohol was commonest substance abuse in RTAs where cannabis abuse was found in some cases of fall from height. So, proper implication of traffic laws can reduce the incidence of trauma. In our study most common presenting feature was pain abdomen which was present in all patients. Second most common symptom was vomiting (38.6%), Next common symptom was abdominal distention (20%). Next was urinary retention (10.6%) and hematuria (6.6%) These results are comparable to other studies[11],[12]. In our study abdominal tenderness was most common sign present in 93% patients. Next common sign was guarding (44%) followed by rigidity (21%), absent bowel sounds in (21%) and shock (20%)[13]. In our study, liver was most common organ injured (57.3%), next was spleen (38.6%) followed by intestines (17.3%), kidney (10.6%), stomach (8%), urinary bladder(4%) and some patients have only free fluid (4%). This is comparable to other studies, a study done by Gupta s.et al shows liver was found to be most common organ injured[7]. It poses a therapeutic and diagnostic dilemma for the attending surgeon due to wide range of clinical manifestations ranging from no early physical findings to progression to shock. Hence, the trauma surgeon should rely on physical findings in association with the use of modalities such as X-ray abdomen, ultrasonography of abdomen, and C.E.C.T. abdomen. Hollow viscus perforations are relatively easy to pick on X-ray[14]. In our study 72% patients were managed conservatively while operative intervention was required in 28% patients[15]. In our study 4 patients (5.3%) expired, rest 71 patients survived during hospital stay and follow up period of 1 month[16]. When the patient is received in the emergency department immediate attention must be provided and a thorough evaluation must be done. The patient must be stabilized quickly and investigations must be done without much delay. Ultrasound abdomen & C.E.C.T. abdomen are very useful tools in diagnosing the severity and extent of blunt injury to the abdomen.

We concluded that C.E.C.T., if available is best modality because of its high sensitivity and specificity. Whole body scanning can be done in shorter duration. In our study liver was found most common organ injured. We found that most of the solid organ injuries can be managed conservatively, but hollow viscus injuries required laparotomy. When laparotomy is decided, then a thorough examination of the abdominal organs must be done. Liver and spleen have favourable outcome when managed conservatively. Delayed hospitalization, multiple organ injuries and associated injuries were major cause of mortality. The most challenging aspect of the blunt abdominal management is the Non – Operative management mainly due to its diversity of presentation and wide range of visceral injuries. However the conservative approach is a satisfying method of managing them and is highly successful in selective cases.

**Recommendation-** From the rigorous study, we recommended that, Proper infrastructure for smooth movement of traffic, Educating the drivers about protective gears, Adherence to traffic rules, Better training of the paramedical staff for better pre hospital treatment & A specialised and multi modality approach is all required to decrease the incidence, morbidity & mortality of blunt trauma patient effectively.

Limitations- Despite the best utilisation of the available resources the study has following limitations, Study was done only at one centre and thus the number of patients was less, Patients of paediatric age group were not included as our centre lacks the required infrastructure to cater to trauma in this age group, lack of a specialised trauma centre undoubtedly affected the overall outcome of patients.

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