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RESEARCH ARTICLE

"EVALUATION AND MANAGEMENT STRATEGIES FOR PATIENTS WITH BLUNT ABDOMINAL TRAUMA: A HOSPITAL-BASED STUDY"

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Abstract

Introduction:Blunt trauma to the abdomen occurs due to forces that induce shearing, compression, or deceleration injuries, particularly affecting anatomical structures that are relatively immobile. The evaluation of abdominal injuries is challenging and often results in missed diagnoses due to the complexity of symptoms and the difficulty in identifying subtle signs of internal injury.

Aims & Objectives:To study the clinical presentation, evaluation, diagnostic investigations, and management strategies for various intra-abdominal organ injuries resulting from blunt trauma to the abdomen.

Methods: - Following initial resuscitation and attainment of hemodynamic stability, all blunt abdominal trauma patients underwent meticulous clinical history-taking and comprehensive physical examination. Subsequent management decisions, whether operative or non-operative, were determined based on the integrated findings of clinical assessments and radiological evaluations.

Results: Between August 2022 and August 2023, fifty (50) patients with blunt trauma to the abdomen were admitted to Basaveshwara Teaching and General Hospital, Kalaburagi. In this study, males predominated in the 21 to 30-year age group, which represented the most frequent demographic for abdominal blunt trauma. Traffic collisions were identified as the leading cause of abdominal blunt trauma. The spleen emerged as the organ most frequently affected. Of the patients, 28 underwent conservative management, while 22 required surgical intervention.

Conclusion:In cases of blunt trauma to the abdomen, the early hours following injury are critically significant and represent a crucial window, often referred to as the "golden period" of trauma, associated

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with higher survival rates. Timely intervention andappropriate management during this phase have been shown to significantly decrease morbidity and mortality rates associated with blunt trauma abdomenandappropriate management during this phase have been shown to significantly decrease morbidity and mortality rates associated with blunt trauma abdomen.

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Introduction:-

The risk of sickness and mortality has increased significantly in recent years as a result of machinery-dependent jobs and traffic accidents. The quick industrialization and urbanization of the world is increasing trauma andmortality linked to trauma. One of the most common causes of trauma-related mortality is abdominal trauma. Other causes of abdominal trauma include falls from heights, assaults, injuries sustained during combat, sports accidents, mountaineering, martial arts, etc. [1] Approximately 25% of instances with abdominal injuries necessitate surgery. When an impact occurs that affects the abdominal cavity without breaking the continuity of the two abdominal walls, it is known as blunt abdominal trauma. [2] When the abdomen was bruised, substantial organs such as the spleen(most frequent) and the liver sustainconsiderable damage. Despite the fact that injuries to the pancreas, intestines, mesentery, kidneys, bladder, and diaphragm are less common, [3] the appropriate assessment ought to be taken into account. There are two types of abdominal trauma: 1. Perforating abdominal trauma 2. An abdominal blunt trauma. The most frequent type of abdominal trauma is blunt trauma rather than penetrating one. [4] The course of treatment for blunt trauma abdomen is entirely based on the patient's hemodynamic stability, the existence of concomitant injuries, and any sequelae. [1]

When a patient has an abdomen from blunt trauma, a physical examination of the belly is insufficient to make a definitive therapeutic decision. Instead, an investigative evaluation and diagnosis are necessary. On occasion, thePatients with physical trauma to the abdomen often have disorienting injuries, changed mental states, and drug or alcohol intoxication. In rare instances, the injury is only apparent after the abdomen is opened for surgery or an autopsy. As diagnostic techniques focused abdominal sonography for trauma (FAST), computerized computed tomography (CT) scan, and diagnostic peritoneal lavage (DPL) are employed. [5]

If the patient is hemodynamically stable, the most recent guidelines recommend cautious and non-operative therapy under intensive care monitoring. In the event that the patient's hemodynamic stability. A life-saving procedure called an exploratory laparotomy is performed to treat sepsis and bleeding [6].

Objectives of the Study:-

To investigate various intra-abdominal organ injuries in cases of blunt abdominal trauma, including their clinical presentation, evaluation, diagnostics, and therapy.

Resources and Techniques

We conducted an observational study on fifty patients who were referred to theBasaveshwara Teaching and General Hospital'Department of General Surgery, attached toMahadevappaRampure Medical College, Kalaburagi**,** displayed a history of blunt abdominal trauma and was filtered through the inclusion and exclusion criteria. Every patient who took part in the trial gave their informed consent. Every patient admitted with a history of blunt trauma to the abdomen, regardless of age, and with clinical findings such as guarding, rigidity, and abdominal distension were included in the study.

After the patients' abdomens from blunt trauma were hemodynamically stabilized through resuscitation, a clinical history and examination were performed. Clinical history, demographic variables,Clinical symptoms such stomach pain, distension, and soreness were assessed, along with indicators like guarding, rigidity, and lack of bowel noises.Urine tests and routine blood examinations were conducted. The decision to proceed with hemodynamic stability studies, such as X-ray erect view abdomen, abdominal ultrasound, and CECTabdomen, was made based on the clinical results.When indicated, computed tomography of the abdomen and pelvis was limited to patients with blunt abdominal injuries who were hemodynamically stable. The results of the clinical examination and the investigations were used to determine whether to proceed with operational or non-operative therapy.

Patients who were determined to be candidates for conservative or non-operative treatment were put on strict bed rest with minimal mobilization, and they underwent repeated clinical examinations that included hourly vital signs such as blood pressure, respiration rate, and pulse rate, as well as repeated abdominal and systemic examinations. When necessary, appropriate diagnostic tests were repeated.

If necessary, a laparotomy was performed with the patient's signed, valid, and informed consent. The initial resuscitation of the casualty was done in accordance with the advanced trauma and basic life support (BLS) AdvancedTraumaLifeSupport (ATLS). In order to schedule emergency surgery as soon as possible for life-threatening injuries, the patient was evaluated.

Results:-

Table 1: shows that out of the 50 patients that were seen, approximately 40% of the cases fell into the age range of 21–30 years, followed by 26 percent in the age group of 31–40 years, 18% in the age group of above 40 years, and 16 percent in the age group of less than 20 years. The patient's mean age was 33.31 +/- 12.66 years.

Table 1:- Age wise Distribution of Patients

Age	Number of cases	% of cases
<20 Years	8	16%
21-30 Years	25	40%
31-40 Years	12	26%
>40 Years	05	18%
Total	50	100%

Table2: Of the patients with pneumoperitoneum and hemodynamic instability, 22 patients (or 44 %of the cases) underwent laparotomy intervention. Figure 3: Causes of blunt trauma abdomen Conservative care was given to the 28 patients who remained, all of whom had minor organ damage and were hemodynamically stable.

Table 2:- Mode of intervention.

Intervention	Number of Cases	% of Cases
Operative management	22	44%
Non-operative management	28	56%

Figure1:-Displays the gender distribution of patients, indicating that most of them weremale(85%).

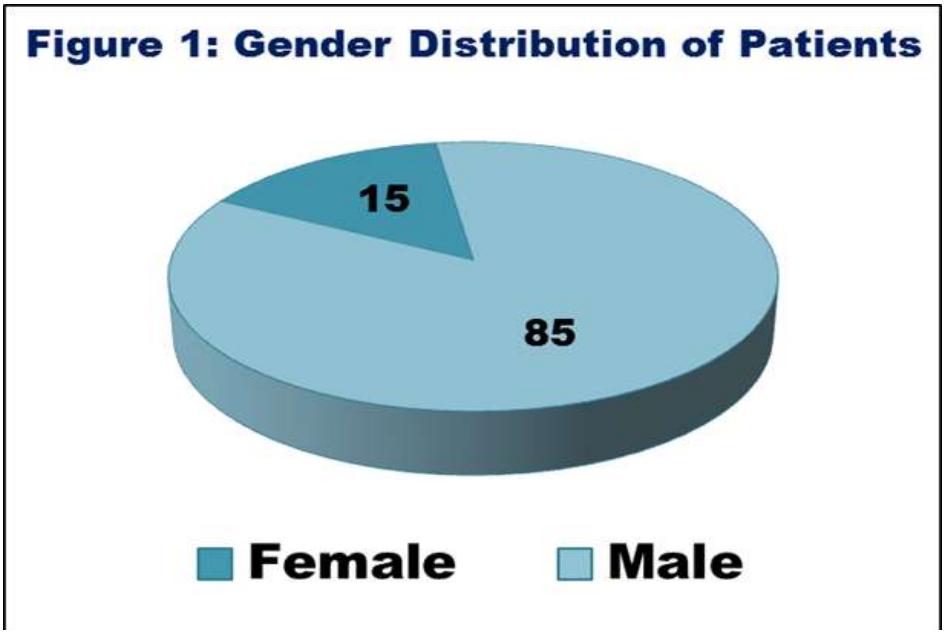


Figure2: Of the patients evaluated, road traffic accidents accounted for 58% of the injuries. The next most common mechanism of injury was assault, which occurred in 24% of cases, while the remaining 18% of cases had a history of falling from a height.

Figure 2:- Causes of blunt trauma abdomen.

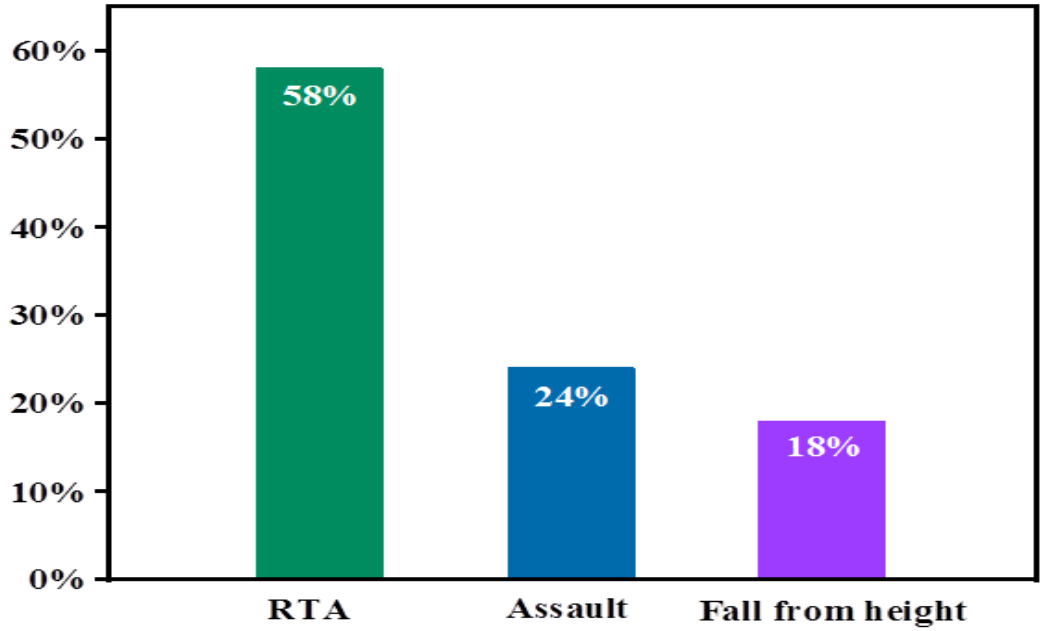
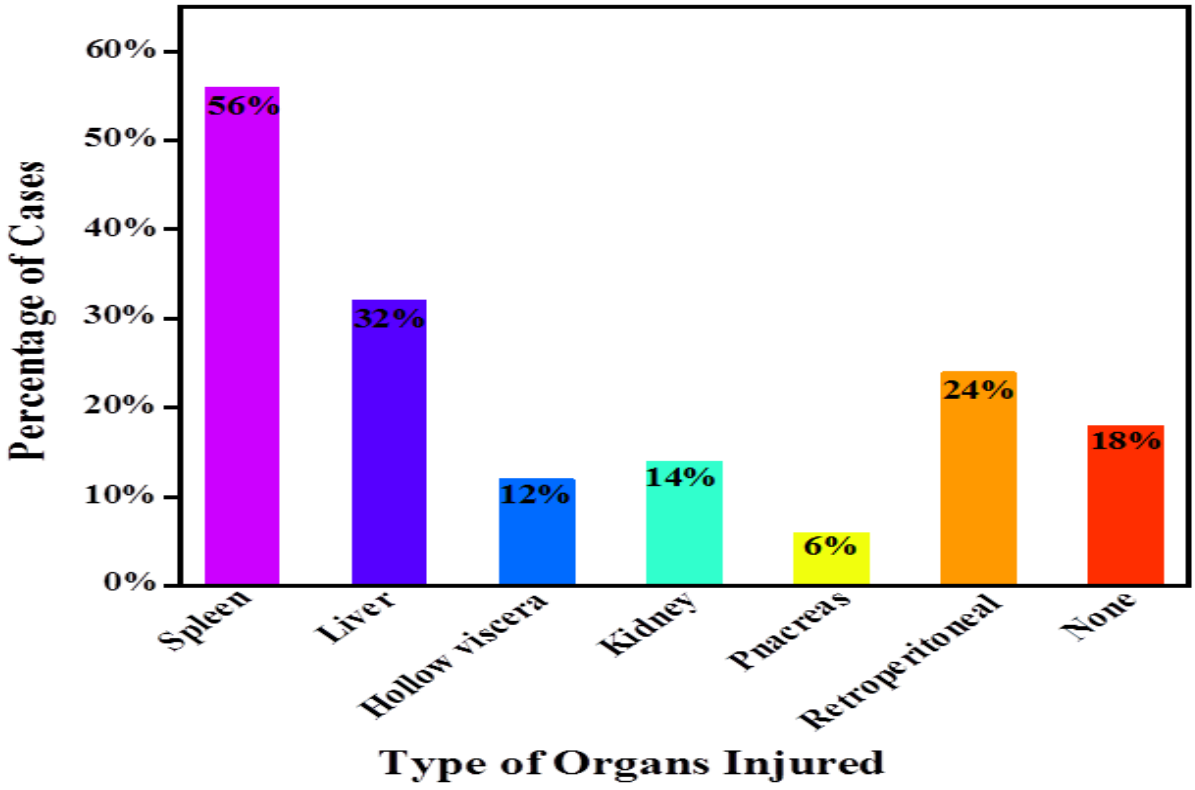


Figure 3: The most often affected organ when it came to abdominal organ injuries was the spleen (56 %), followed by the liver (32%). Only a small percentage of patients had renal damage (14%), hollow viscera, and retroperitoneal hematomas (24%) (12%). A small percentage of cases (6%) involved pancreatic damage. The remaining patients showed no signs of organ involvement.

Figure 3 :-Percentage of organs Injured.



Discussion:-

Blunt abdominal trauma is a common emergency condition that is linked to notable rates of morbidity and death.Despite better treatment and diagnosis. With trauma accounting for 16% of the worldwide disease burden, it ranks as the seventh most common cause of illness. [7]

One of the most preventable causes of trauma related deaths is an undetected abdominal injury. [8] Clinical symptoms may be mild or obscured by polytrauma or patients under the influence of drugs or alcohol. Accurate and prompt identification of individuals in need of surgical intervention for intra-abdominal organ damage is essential for the successful management of patients suffering from blunt abdominal trauma. [9]

In this investigation, a total of 50 patients were observed. Approximately 40% of the patients were between the ages of 20 and 30, then 26% were between the ages of 31 and 40, 18% were over 40, and 6% were under the age of 20. (16%). The patients' average age was33.31±12.66 years old. Similar results were found in the study by Rehman et al., with the age group with the highest frequency being 21 to 30years old (39%). [5]

Only 14% of the patients in a research by Ahmed et al. were female, while 86% of the patients were male. The results of the aforementioned study were consistent with our own, in which 15% of patients were female and 85% of patients were male. [10]

According to the current survey, road traffic accidents account for 58% of patient injuries, with assault accounting for 24% of cases and falls from height accounting for the remaining 18% of cases. In a researchAccording to Yogendra Singh Wadiwa et al., falls from a height (25%), assaults with blunt objects (25%), and traffic accidents (56.2%) were the most common ways that people were injured (18.8%). It is noted that almost all of the findings from the two investigations were comparable. [11]

The most frequently implicated organ in a research by Rahman S et al. was the spleen, which was involved in 44% of patients. Other commonly involved organs included the liver (24%), small bowel (22%), mesenteric damage (3%), stomach (1%), and urinary bladder (2%),Pancreas and five retroperitoneal organs (2%) (1%).[5] The results of the other investigations also demonstrated that the spleen (39.6%) was heavily implicated, with the liver (37.5%), kidney (12.5%), pancreas (4.16%), mesentery (4.1%), bladder, and pancreas following closely behind(2%).[11] The results of the two investigations were similar to those of the current investigation, which showed that the spleen accounted for 56% of all organ injuries, with liver, renal injury, hollow viscera, retroperitoneal hematoma, and pancreatic injuries following closely behind (6 %).

56 % of the cases in the current study had an ICU hospitalization and were treated conservatively. When vital signs such as blood pressure, urine output, belly circumference, and examinations are within normal ranges, they were alsohandled cautiously. The conservative approach is recommended by the most recent standard guidelines for the therapy of blunt trauma abdomen because it results in shorter hospital stays and lower morbidity rates than surgery. We have performed exploratory laparotomies with primary closure in 44% of instances. In cases where it was necessary, spleenectomy and resection anastomosis were also performed. A study by Sisodiya S et al. produced modest results, with 32.2% of cases undergoing surgery and 67.7% of cases being handled conservatively. [12]

Conclusion:-

Among the age group included in this study, it was shown that the most frequent cause of blunt trauma was traffic accidents. most of 30 to 40 years old. The liver is the second most often injured organ in individuals with abdominal blunt trauma, after the spleen. A cautious approach is favored. over surgical management since it is both efficient and safe. The prognosis for trauma patients may be enhanced by prompt surgical intervention, vigorous resuscitation, and early diagnosis.

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