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Original Research

Observing Trends in Abdominal Trauma: A Study on Injury Patterns in Trauma Patients

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ABSTRACT:
Objective: To evaluate the incidence and patterns of abdominal injuries in trauma patients. **Methods:** This observational study included 50 enrolled patients. The initial assessment followed the ABCDE approach (airway and cervical spine control; breathing; circulation; dysfunction of the central nervous system; and exposure), coupled with a regional examination of the head and neck, chest, abdomen, extremities, and back. Data were meticulously entered and coded using Microsoft Excel and analyzed using the Statistical Package for SPSS software. **Results:** The mean age of the patients was 43.5 years, with 31 males and 19 females among the 50 participants. Thirty-nine patients experienced blunt trauma, while 11 patients had penetrating trauma. Mortality occurred in 8 patients (16 percent), with 6 fatalities associated with blunt trauma and 2 with penetrating trauma. **Conclusion:** Effectively managing abdominal trauma patients involves refining the diagnosis of intra-abdominal injuries for the swift recognition of cases requiring surgical intervention.
Keywords: Abdominal, Trauma, Injuries

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INTRODUCTION

Trauma stands as the predominant cause of mortality among individuals under the age of 45 in the United States. Involving injuries to intraperitoneal and retroperitoneal organs, inclusive of hemoperitoneum, intra-abdominal injuries resulting from blunt (80%) or penetrating (20%) trauma contribute significantly to traumatic fatalities. Blunt trauma, commonly stemming from motor vehicle collisions and falls, and penetrating trauma, often induced by gunshot or stab wounds, collectively account for a substantial proportion of these incidents.[1-3] While penetrating abdominal trauma typically entails a relatively straightforward diagnostic assessment, blunt abdominal trauma poses a considerable diagnostic challenge.[3,5]

Motor vehicle collisions and falls are the most common causes of blunt trauma, whereas gunshot and stab wounds are the most common causes of penetrating trauma.1-3 Penetrating abdominal trauma has a relatively straightforward diagnostic evaluation, but blunt abdominal trauma often presents a substantial diagnostic challenge.[5] Patients with severe injuries and ongoing hemorrhage require immediate recognition and treatment (laparotomy or angiographic embolization). Patients with seemingly less severe trauma or no apparent injury on initial examination may still have clinically significant intra-abdominal injuries, and delayed diagnosis of such injuries is an important cause of preventable morbidity and mortality.[4, 5]

Abdominal trauma, particularly that induced by blunt force, stands as a leading cause of morbidity and mortality across all age groups.[6] It poses a significant challenge for emergency department physicians due to its diverse presentations.[7] The variance in severity between initial symptoms and actual injuries in a considerable number of cases complicates the rapid diagnosis and management of these patients.6 Therefore, this study was undertaken to assess the

incidence and patterns of abdominal injuries in trauma patients.[8,9]

METHODS

This study aimed to assess the incidence and patterns of abdominal injuries in trauma patients. A total of 50 patients were included in the research. The assessment began with the ABCDE approach (airway and cervical spine control, breathing, circulation, dysfunction of the central nervous system, and exposure), followed by a comprehensive regional examination covering the head and neck, chest, abdomen, extremities, and back. The type of abdominal trauma was initially determined through a thorough physical examination. Subsequently, patient conditions were categorized as stable or unstable. A detailed plan for additional evaluation and management was devised. Laboratory Investigations: Various laboratory investigations, including a complete blood count, blood typing, cross-matching, and coagulation profile, were conducted. Radiographic Investigations: Radiographic examinations encompassed plain chest X-rays, pelvic abdominal ultrasounds, and, in stable cases, computed tomography. All collected data were meticulously entered and coded using Microsoft Excel and subjected to analysis with the Statistical Package for SPSS software.

RESULTS

The average age of the patients was 43.5 years. Among the 50 participants, 31 were male, and the remaining 19 were female. Out of the total, 39 patients experienced blunt trauma, while 11 patients had penetrating trauma. A total of 8 patients (16 percent) succumbed to their injuries. Specifically, mortality was observed in 6 patients with blunt trauma and 2 patients with penetrating trauma.

Table 1: Summary of Variables

Table 1: Variables

Variables	Value
Mean age (years)	43.5
Males (n)	31
Females (n)	19
Blunt abdominal trauma (n)	39
Penetrating trauma (n)	11

DISCUSSION

The dynamic landscape of managing blunt abdominal trauma necessitates a cautious approach. Relying solely on physical examination and abdominal radiography often proves insufficient. While elevated liver function tests or a substantial base deficit can heighten suspicion for intraabdominal trauma, normal blood test results should not dissuade further investigation based on the injury mechanism or clinical presentation. Abroad, extensive studies have been conducted on the diagnostic roles of ultrasound and laparoscopy in this context.[6-9,11]

The study cohort had a mean age of 43.5 years, comprising 31 males and 19 females, with 39 experiencing blunt trauma and 11 penetrating trauma. Eight patients (16 percent) faced mortality, with 6 fatalities linked to blunt trauma and 2 to penetrating trauma.

Karamercan MA et al explored the relationship between microscopic hematuria and extrarenal intra-abdominal organ injury in a rat model, determining impact energy levels. Their findings suggested that microscopic hematuria could serve as a predictor of trauma severity and intra-abdominal organ injury.[12]

Davis, J. J et al analyzed records of 437 patients with blunt abdominal trauma, revealing an 80% increase in incidence compared to the previous 15 years. A substantial number (43%) presented with no specific complaints or signs of injury. The study highlighted the importance of conventional diagnostic methods, including history, physical examination, routine laboratory tests, and x-rays. Mortality and morbidity remained significant, emphasizing the need for a high index of suspicion and adequate observation for proper care.[13]

Gad MA et al investigated the incidence and patterns of abdominal injuries in trauma patients, categorizing the injuries, and identifying variables related to morbidity and mortality. Their study revealed that abdominal trauma was present in 248 out of 300 cases, with blunt trauma being the most frequent type, often resulting from motor vehicle accidents. Mortality was higher among penetrating abdominal trauma patients, with factors like the type of abdominal trauma, associated injuries, and the Revised Trauma Score serving as independent risk factors.[14]

In summary, this discussion underscores the complexity of managing blunt abdominal trauma, emphasizing the need for a comprehensive diagnostic approach and a thorough understanding of associated risk factors and patterns of injury.[12]

CONCLUSION

The challenge among patients with abdominal traumawill be to refine the diagnosis of intraabdominaltrauma to allow for swift recognition of those injuriesthat require surgical intervention.

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