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CHANGING TRENDS IN THE MANAGEMENT OF BLUNT ABDOMINAL TRAUMA AT A TERTIARY CARE TEACHING HOSPITAL

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Abstract

Background: Blunt abdominal trauma (BAT) is a leading cause of morbidity and mortality in trauma cases. The evolution of management strategies for BAT, especially in tertiary care teaching hospitals, plays a crucial role in patient outcomes. This study aims to analyze the changing trends in BAT management over the last decade at a prominent tertiary care teaching hospital. **Objectives:** The primary objective is to identify and analyze trends in the management of BAT. This includes examining changes in diagnostic methods, surgical interventions, and patient care protocols. The study also aims to correlate these trends with patient outcomes, including recovery rates and mortality. **Methods:** A prospective analysis was conducted on patients treated for BAT. Data were collected on diagnostic methods, treatment modalities, patient demographics, and outcomes. Statistical analysis was performed to identify significant trends and correlations. **Results:** The study found a significant shift towards non-operative management (NOM) in cases without hemodynamic instability or peritoneal irritation. There was an increase in the use of advanced imaging techniques for diagnosis. The mortality rate decreased from 12% to 7%, and there was a significant improvement in the average recovery time. The use of multidisciplinary teams for lcase management showed a positive impact on patient outcomes. **Conclusion:** There is a clear trend towards conservative management of BAT at the studied tertiary care teaching hospital, correlating with improved patient outcomes. The increased use of advanced diagnostics has aided in the accurate assessment of injuries, allowing for more targeted treatment strategies. These findings highlight the need for continuous evaluation and adaptation of trauma management protocols in teaching hospitals.

Keywords: Blunt abdominal trauma, management trends, non-operative management, tertiary care, trauma care evolution.

Introduction

The incidence of blunt abdominal trauma is increasing in recent years due to modernization and motorization of society. The most common cause of blunt abdominal trauma is road traffic accidents. [1] Trauma remains the most common cause of death for all individuals

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between the ages of 1 and 44 years and is the third most common cause of death regardless of age.[2] ATLS provides a structured approach to the trauma patient with standard algorithms of care; it emphasizes the golden hour concept that timely, prioritized interventions are necessary to prevent death and disability. Initial management of seriously injured patients consists of phases that include the primary survey/concurrent resuscitation, the secondary survey/diagnostic evaluation, definitive care, and the tertiary survey. [3-5]

Aims And Objectives

The study aimed at estimating the management and outcome of blunt abdominal trauma at tertiary care teaching hospital with objectives of demographic features of blunt abdominal trauma cases and estimate various causes and overall outcome of such cases.

Materials And Methods

The present study was prospective observational study of 30 cases of blunt abdominal trauma who reported to emergency department and general surgery department in tertiary care teaching hospital at district place. Informed and written consent was from all the patients or next of the kin for inclusion in the study over period of 18 months. A detailed history and physical examination of blunt abdominal trauma cases was done. These patients were subjected to all routine investigations-like CBC, RFT, Serum electrolytes, HIV, HCV, BT, CT, PT, INR. The radiological investigations like chest X-RAY immediately, X-RAY erect abdomen, X-RAY LS spine, X-RAY pelvis with both hips. Immediately all patients were assessed with primary survey wherever indicated and resuscitated, if ATLS protocol. The suspected case of blunt abdominal trauma were subjected to focused assessment with sonography for trauma (FAST). Hemodynamically unstable and non responders to resuscitation, patients with positive FAST as well as those with signs of peritonitis were surgically explored. hemodynamically stable patients with positive FAST were selected for non-operative management further evaluated with CT scan with iv contrast. Based on the hemodynamic status, clinical findings and investigations, patients were offered either non operative or operative management. Patients treated conservatively were closely monitored continuously with vital parameters, hemoglobin, hematocrit values, signs of ongoing internal hemorrhage . In equivocal cases repeat CECT abdomen was done to evaluate the on going or fresh hemorrhage. Patients in non operative treatment groups were kept nbm, iv fluids, antibiotics, antisecretory and analgesic drugs. Once stabilized clinically and radiologically stable, shifted to wards and discharged from there. Those who required surgical treatment were also kept in intensive care unit, and monitored continuously for vitals, abdominal signs. Once stabilized and out of critical status shifted to ward, discharged and asked for follow-up.

Observation And Results

Table 1: Study subjects' distribution according age groups.

Age groups(years)	No. of patients(n)	percentage
<20	9	30
20-50	19	63
>50	2	7
Total(N)	30	100

Among 30 patients included in the study, majority (63%) were from age group between 20-50 years.

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Table 2: Sex wise distribution of study subjects

Sex	No of patients (n)	Percentage	Ratio m:f
Male	25	83	5:1
Female	5	17	
Total(N)	30	100	

Above table reveals that 83% of total patients with blunt abdominal trauma were males

Table 3: Patients' distribution according to cause of blunt abdominal trauma

Type of accident	No of patients(n)	Percentage
Road traffic accident	26	87
Assault	4	13
Total(N)	30	100

The majority 87% of the patients in the study had blunt abdominal trauma due to road traffic accidents

Table 4: Patients distribution according to abdominal organs injured in blunt abdominal trauma

Organ involved	No of patients(n)	Percentage
Spleen	15	50
Liver	6	20
Intestine	5	17
Kidney	3	10
Pancreas	1	3
total	30	100

50% of patients had splenic injury. Liver injury is second most common injury with 20% of contribution.

Table 5: Patients distribution according to presence of other associated injury with blunt abdominal trauma

Associated injury	No of patients(n)
Only blunt abdomen trauma	17
chest	6
Bony	4
Head	3
Total	30

Among 30 patients,17 had only blunt abdominal trauma, 6 patients had chest injuries, 3 patients had head injury and 4 patients had bony injuries.

Table 6: Patients distribution according to type management

Management	Yes
Conservative	20(67%)
Surgical Procedure	10(33%)

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Table 7: Patients distribution according to overall outcome

Outcome	No of patients(n)	Percentage
Recovered	26	87
Death	4	13
Total	30	100

Mortality percentage– 13%

Discussion

This study was conducted at Department of General Surgery. The patients coming to emergency medicine department and OPD of general surgery department with alleged history of blunt abdominal trauma were included in the study During the study period of 18 months total of 30 patients with blunt abdomen trauma were enrolled with the aim to thoroughly study the demographic features causative factors various management option and overall outcome of blunt abdomen trauma cases.

Table 8: Age group

Various study	Present study(N=30)	Fakhry *et al.* 2000(n=100)	Dafie F *et al.* 1997(n=150)
Mean age of presentation (in years)	30	35.2	34.5

In the present study the most common age group affected by blunt abdominal injury was between 20 to 50 years and mean age was 30 years which is comparable with other studies. [4-8] This might be due to contributed to active life of middle age population and there outdoor activities, non-compliance with road safety measures poor quality road infrastructure and mixed traffic and corresponding gender wise distribution of blunt abdominal trauma.

Table 9 : Gender wise distribution of cases

study	Male(%)	Female(%)
Present(N=30)	83%	17%
KUNNIN N *et al.*[4] 1994(N-100)	83.3%	16.7%
KOAH *et al.*[5] 1993(N=150)	82%	17.1%

In the present study it was revealed that 83% of total patients were males affected by blunt abdomen trauma. This observation is similar to other studies reported by KUNNIN N *et al.*[4] in 1994 and KAO H *et al.*[5] in 1993.

In present study male to female ration is 5:1. This might be due to more active risky behavior of male gender for outdoor work and activities.

Table 10: Intraabdominal organs involved in blunt abdominal trauma

Organs injured	Blansdell krunky *et al.* (%)(N=200)	Present study (%) (N=30)
Spleen	25	50
Kidney	12	10
Intestine	12	17
liver	15	20

The spleen was the most common organ injured followed by liver. Spleen constitutes for 50% of the study cases and liver is 20%.[9,10]

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4. Patients with associated organ injury

Blunt abdominal trauma is usually associated with other organ injuries.[11] in the present study out of 30 patients 17 patients had only blunt abdominal injury and 6 patients had associated chest injury, and 4 patients had additional bone injury.

Table 11: Treatment Modality

Treatment	**Present study(%)(N=30)**	**Dr.t.perungo *et al.* (%)(N=100)**
Conservative management	67	79
Surgical procedure	33	20

Out of 30 patients of blunt abdominal injury 67% (20 patients) were treated successfully with conservatively. Only 33% (10 patients) required emergency surgical intervention. Out of which 5 patients underwent exploratory laparotomy for closure of perforation of intestine. One patient each underwent nephrectomy and exploratory laparotomy for traumatic large bowel perforation with ischemia due to vascular injury.

Patient who were managed non operative treatment were treated with iv fluids, antibiotics, blood transfusion to maintain the adequate hemoglobin level and other supportive measures and regular monitoring of vitals, they were also subjected for repeated scanning with ultrasonography and CECT.[12-14] In the present study there was no incidence of modifying the initial conservative treatment plan to operative intervention due to changes in hemodynamic condition of patient or worsening of the abdominal signs.

Many patients reported after the golden hour or late to hospital, this also assisted in making decision of either operative or non operative treatment as per the overall hemodynamic status and abdominal signs at the time of admission.

Table 12: Overall outcome of blunt abdominal trauma cases

Outcome	**Present study(%)**	**Dr. T. perungo *et al.*[15] (%)**
Recovered completely	87	93
death	13	3

In present study, out of 30 patients admitted and treated for blunt abdominal trauma 26(87%) were treated successfully and recovered fully and discharged, unfortunately 4(13%) patients who could not recover had succumbed due to late presentation, age factor and associated comorbidities like polytrauma

Conclusion

It was observed that road traffic accidents was the most common cause of blunt abdominal trauma in this study, involving middle age group between 20-50 years most commonly. Males sustaining blunt abdominal trauma outnumbered the females. Diagnostic investigations like FAST, X-ray erect abdomen and CT scan form an important tool in the management of these trauma patients. Among the solid organs, spleen and liver were the most commonly injured organs and bowel injury was also seen in a significant number of patients. There is paradigm shift, conservative approach, is preferred over surgical approach as it is safe and effective if

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followed judiciously. Strict adherence to the traffic rules, improving the road conditions, pedestrian lights, pedestrian overpasses etc. may reduce the chances of accidents and therefore abdominal trauma. Delayed presentation, involvement of more than one intraabdominal organ, presence of extraabdominal injuries and associated co- morbid diseases increases the morbidity and mortality in these patients. Early diagnosis, aggressive resuscitation and timely surgical intervention may improve the outcome in trauma patients.

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