

# Surgical Emergencies in a Tertiary Care Hospital: A Brief Overview

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## ABSTRACT

**Introduction:** Emergency admissions form a major bulk of total surgical admissions. This study was done to look for the current spectrum of surgical emergencies in a tertiary care hospital.

**Material and methods:** This study was a prospective analysis of patients reported in June 2010 in Accident and Emergency department, Pt. B.D. Sharma PGIMS, Rohtak.

**Result:** A total of 2349 patients reported, 1501 (63.89%) patients were of trauma, 848 (36.11%) were of non trauma. Out of 1501 trauma patients, most common mode of injury was road side accidents (62.23%) and most of the patients (57.76%) were non referred. Males patients (78.22%) outnumbered female patients (21.78%). Most common injury was soft tissue injury limbs (22.88%) and most of them were managed conservatively. Orthopedics operations were most commonly performed procedure and maximum number of the patients were (44.83%) admitted in ward for definitive treatment. Mortality of trauma patients during the study period was 4.13%. Out of 848 non trauma patients most of the patients were non referred (84.78%). Most common diagnosis were colics (42.92%) and most of them (82.40%) were managed conservatively. Laparotomy (41.22%) was the commonest procedure done and most of the patients were discharged without admission (71.58%) after successful treatment. Mortality in nontrauma patients was 0.7%.

**Conclusion:** The study showed that major workload of an accident and emergency department deals with cases of trauma and among non trauma colic came out to be the most common cause.

**Keywords:** Surgical Emergencies; Trauma, Non Trauma,

## INTRODUCTION

General surgery is a speciality which deals with both emergency admissions as well as elective procedures.<sup>1</sup> Emergency surgical admissions account for 46% to 57% of all surgical admissions<sup>2-5</sup>, but the workload estimates are difficult to achieve because of the unpredictability and variability of such admissions and dearth of literature addressing this aspect. The impact of the emergency surgical workload on surgical practice is not only determined by overall volume but also by patients demography, appropriateness of referral, centralization, diagnoses, and required surgical operations.<sup>6</sup> Besides trauma, acute abdominal pain is a common physical complaint accounting for emergency department visits and is leading cause of hospital admissions. Appendicitis is a common cause of surgical patients requiring emergency operation but a significant no of patients are however due to nonspecific abdominal pain. Challenging as it is, it requires careful history taking and thorough evaluation of symptoms, detailed physical examination and judicious use of laboratory investigations which can simplify the evaluation of this disease entity. But despite its frequent occurrence, specific

diagnosis is not possible in 30% cases even after extensive work up; hence difficult to manage sometimes.

This study aimed to identify the current patterns and common problems related to surgical emergency room in Pt. B.D. Sharma PGIMS, Rohtak.

## MATERIALS AND METHODS

This prospective study included all emergency cases who reported in general surgical emergency room for a period of June month 2010. The patients undergoing minor / major surgical procedure during their stay in casualty were recorded. Patients referred internally from indoor admission of other specialities and burn patients as well as obstetrical and pediatric emergencies were excluded, as there were separate team to deal with these patients.

All the data regarding time of admission, presenting complaints, diagnosis, surgery (if done), outcome was collected. All the patients were grouped into two categories i.e. trauma, non trauma and these patients were followed up till their stay in accident and emergency department. Any mortality occurring during the stay was recorded.

All the data were compiled and analysed statistically by using descriptive statistical methods.

## RESULTS

During the one month study period, 2349 patients came in surgical emergency, out of which 1501 (63.89%) were of trauma and 848 (36.11%) were of non trauma.

Among 1501 trauma patients, maximum (78.22%) were males and rest (21.78%) were females. Most of the patients were in the age group of 21-30 years (Figure 1). Maximum number of patients (57.76%) were non referred. Motor vehicle accidents (62.23%) were the most common mode of injury among all trauma patients followed by assault (25.08%) and others (12.69%). Soft tissue injury limbs was the most common injury followed by orthopedics fracture and scalp injury etc (Table 1).

The mainstay of treatment in most of the patients was conservative (85.25%) and in rest of the patients, operative interventions done were orthopedics operations (59.36%), followed by chest tube drainage (13.24%), laparotomy (10.95%) and tracheostomy (9.13%).

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In case of non traumapatient, out of 848 patients, 247 (29.13%) patients were females while 601 (70.87%) were males and maximum age group was 21-30 years (Figure 1). Most of the patients were non referred (84.78%). Majority of the patients had colics followed by peritonitis, retention of urine, appendicitis, intestinal obstruction, acute cholecystitis etc.(Table 2). Most of the patients (82.40%) were managed conservatively. Laparotomy(41.22%) was the most common operative procedure followed by appendicectomy (32.43%), incision and drainage (22.29%) and others (4.07%). Maximum number of patients (71.55%) were discharged without admission while 23.70% patients were admitted for definitive treatment and later sent to ward, 16 (1.88%) patients were admitted for observation in emergency department and later discharged, 7(0.82%) patients went LAMA while 4 (0.47%) patients were referred to higher centre and 6 (0.7%) died during resuscitation. (Figure 2)

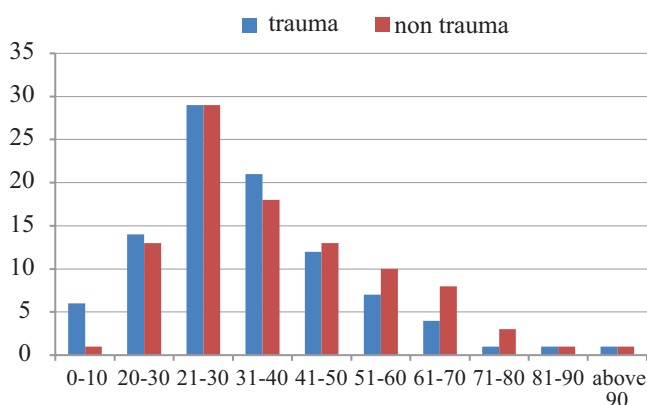
**DISCUSSION**

Trauma-care systems are not well developed in India. Trauma is dealt with other emergencies even in cities and there is almost complete lack of organised trauma care in peripheral centres. There is gross disparity between trauma services available in various parts of the country. There has been accelerated urbanization and industrialization in recent years which has led to an unprecedented increase in the number of vehicles leading to alarming increase in the rate of accidental injuries, crime, and subsequent violence in

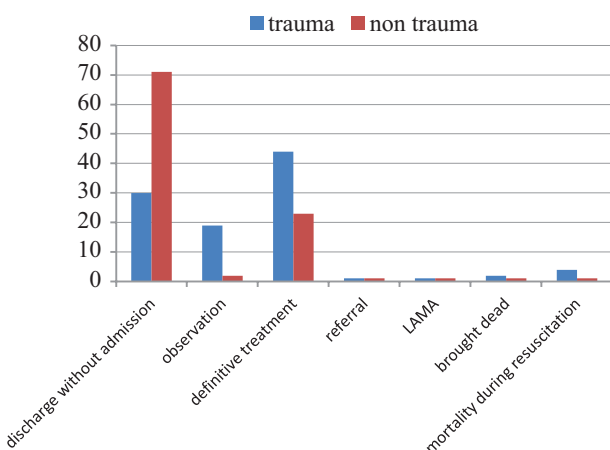
India. India has 1% of the motor vehicles in the world but bears the burden of 6% of the global vehicular accidents. It is well recognized that the health care system in India is not fully equipped to meet the challenge.

Road-traffic accidents are increasing at an alarming annual rate of 3%. In 1997, 10.1% of all deaths in India were the result of accidents and injuries.<sup>7</sup> During 1998, nearly 80,000 lives were lost and 330,000 people were injured. Of these, 78% were men aged 20–44 years, which significantly impacted productivity.<sup>8</sup> The majority of fatal road-traffic accident victims are pedestrians, two-wheeler riders, and bicyclists.<sup>9</sup> No credible data are available to ascertain the outcome of trauma victims; it is generally perceived that outcomes in patients with single-system injury (e.g., musculoskeletal trauma) have improved.

On another hand, acute abdominal pain also constitute a significant percentage of emergency admission worldwide and comprises one of the largest group (non traumatic) of people presenting as general surgical emergency.<sup>10</sup> The term encompasses within it a long list of differential diagnosis and poses a greatest challenge to clinicians.<sup>11</sup> Pattern of disease vary according to age, sex, geography, social class, genetic and environmental factors. Very few local studies are available on the topic of spectrum of disease in patients presenting



**Figure-1:** Age wise distribution of trauma and non trauma patients (%)



**Figure-2:** Outcome of trauma and non trauma patients (%)

Injury pattern	Number of injuries	%
Scalp injury	557	21.13%
Head injury	185	7.02%
Face injury	172	6.55%
Blunt chest injury	150	5.71%
Penetrating chest injury	15	0.57%
Blunt injury abdomen	25	0.95%
Penetrating injury abdomen	15	0.57%
Soft tissue injury limbs	603	22.88%
Orthopaedics fractures	576	21.85%
Ophthalmic injury	122	4.62%
ENT injury	134	5.08%
Dental injury	81	3.07%
Total	2635	100%

**Table-1:** Injury pattern of trauma patients

Disease pattern	Number of patients	%
Colic	364	42.92%
Appendicitis	48	5.66%
Acute cholecystitis	40	4.71%
Pancreatitis	11	0.11%
Enteric perforation peritonitis	25	2.94%
Peptic perforation peritonitis	18	2.12%
Burst appendix peritonitis	7	0.82%
Others peritonitis	7	0.82%
Intestinal obstruction	43	5.07%
Lower limb DVT	7	0.82%
Abscesses	36	4.24%
Dysphagia	7	0.82%
Retention of urine	77	9.08%
Miscellaneous	160	18.86%
Total	848	100%

**Table-2:** Disease pattern of non trauma patients

with acute abdomen.

This study attempts to highlight the pattern of injury (excluding burns) and non traumatic acute abdomen in local population.

In our study it was found that incidence of trauma was much higher than that of non trauma. This might be because of road traffic accidents which are increasing at alarming rate. Our finding support the WHO prediction that road traffic injuries will be third leading cause of mortality by 2020 which was earlier on ninth position. However our finding was not concordant with that of Masood et al<sup>12</sup> who reported that majority of patients (49.1%) who presented to general surgery emergency were suffering from acute condition of abdomen and the second commonest cause was trauma.

Road side accident came out to be the predominant cause of injuries seen at our center followed by assault. The reason for this was probably the location of the our center close to highway No.10. This was similar to the study by Solagberu et al<sup>13</sup> who reported 62.3% prevalence of RTA in Nigeria whereas studies from Netherland<sup>14</sup>, Kenya<sup>15,16</sup> and West Indies<sup>17</sup> reported prevalence of 19%, 18% and 20% respectively.

In our study most of surgical emergencies were non referred. Possible explanation could be that in case of trauma PHC, CHC and general hospitals refer directly patients to our institute for MLC, X-rays, CT scan and expert opinion as there was no referral principles at primary and secondary health center. In the same fashion non trauma patients directly came to our institute due to non availability of diagnostic investigations and manpower at primary and secondary health care level. Many patients referred by private practitioner were counted as non referred because in our study protocol, only government agency referral were considered.

Among all cases of trauma male outnumbered female. The male to female ratio was 3.81:1. This was similar to the study conducted by Jha et al<sup>18</sup> who also reported that incidence of trauma was 4.9 times higher in males than in females and another study<sup>19</sup> from Delhi also reported very high male to female ratio (9:1). Male being the earning members of family are subjected to work related stress and more exposure to outside environment as compared to females who usually remain within house premises most of the time, thus explaining this high ratio.

Similarly in non trauma patients ratio of male to female was also 2.43:1. This was due to the fact that, in our set up common diagnosis were colic, retention of urine, intestinal obstruction, peritonitis which were relatively more common in male moreover gynaecological and obstetrical emergencies were excluded from the study, as these were managed by separate specialist. Memon et al<sup>20</sup> reported equivocal result of male to female ratio of 2.3:1 in 585 non traumatic acute abdomen patients. The age group which was most affected was 21-30 years age group which constituted almost 50% of the trauma patients. This was mainly because of the risk taking behavior of youth leading to rash driving and accidents. Similar observations were reported by WHO<sup>21</sup> which showed that the people of the most productive age group are involved in trauma which add a serious economic loss to the community.

Similarly in our study, the highest incidence of non trau-

matic acute abdomen were found in patients of age group of twenties (29.71%) followed by thirties (18.86%). Possible explanation could be that most common diagnosis like colic, appendicitis, perforative peritonitis were more common in these age groups (21-40 years). Similar results were reported by Memon et al<sup>20</sup> who observed highest incidence of acute abdomen (27.81%) in 21-30 years age group which is in contrast to studies conducted in west where the incidence was found to be highest in 45-60 years age group.

In the present study most of trauma patients (30.44%) were given outdoor treatment followed by 44.83% patients which were admitted for definitive treatment and 19.72% patients were admitted for observations only. However our findings were contrary to Masood et al<sup>12</sup> who reported that only 3% patients were admitted for observation. This might be due to the fact that many non PHC, CHC and GH refer nonsurgical patient to our institute for medicolegal purposes only. Our mortality is on higher side as compared to the worldwide mortality (0.5-6%) of trauma patient which may be due to non availability of separate trauma centre.

In our present study majority of non trauma patients were suffering from colics which was contrary to Asif et al<sup>22</sup> who found the most frequent cause was acute appendicitis (21.4%) followed by non specific abdominal pain (15.4%), acute cholecystitis (12.7%), acute intestinal obstruction (14.5%), perforated duodenal ulcer (11.8%), renal colic (9%) and acute pancreatitis (4%).

Urgent surgical intervention was carried out in 17.60% of the patients, laparotomy was the most frequent operation performed, followed by appendectomy. However, Masood et al<sup>11</sup> reported that urgent surgical procedures were carried out in 22.8% patients, appendectomy being the most frequent operation performed. The spectrum of disease causing non traumatic surgical acute abdomen in local population can vary from one geographical area to another moreover our study was conducted in temperate region like north India where renal colic, peritonitis were more common than appendicitis.

Similarly maximum number of non trauma patients (71.58%) were discharged from hospital without admission and 23.70% patients were admitted for definitive treatment which was quite comparable with trauma patients. Mortality in our study of non trauma was 0.70% which is quite less than 9.55% as reported by Memon et al.<sup>20</sup>

In this scenario proper allocation of resources to handle such tremendous work loads is of paramount importance. A clear insight to the exact pattern of these admissions will facilitate deputing adequate trained staff capable of handling the particular surgical emergencies. The changing patterns have implications for surgical training, workforce planning and service provisions.

## CONCLUSION

The major workload of an accident and emergency department deals with cases of trauma which require a holistic approach to care and a wide range of skills and experience that may cross subspecialty and specialty divisions. However, a substantial amount of patients also suffer from acute condition of abdomen.

The results of this study are helpful in planning better emergency service delivery to patients and in focusing and improving the training of surgical residents. Moreover, education programmes regarding traffic rules and regulations should be promoted to increase awareness among general population.

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