

A Study of Pattern of Abdominal Injuries in Cases of Railway Traffic Accidents Brought To The Post Mortem Centre

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Abstract

Post mortem examination has important value in case of railway accidents when the thoracic injury are incorporated. There were so many statistical data present which had defined the thoracic injury but no statistical data is observed regarding the traumatic lesion of the vital organs in thoracic region in cases of Railway traffic accident deaths. This significant oversight can lead to find out the exact cause of death in cases of railway traffic accidents. It can help to improve the hospital emergency centre as far as concerned to abdominal injuries victims in case of Railway traffic Accidents. Observations made were compared with the previous studies. The study period extended from the 1st JUNE 2012 to 31st OCTOBER 2014. During this two (2) years period, a total number of 867 Autopsies were carried out in the department of Forensic Medicine, out of which, 74 cases of railway accident were selected for evaluation in the present study. Approval of local institutional ethical committee has been taken. It has been observed that abdominal fatalities are quite common and their correlation done with other authors.

Keywords: Indian Railways; Contusions; Lacerations; Thoracic Injuries; Fatalities.

Introduction

Railways being one of the most comfortable means of transportation have a long history and an unprecedented contribution to the human civilization. The basic design if the Railway consists of a locomotive or a self-propelled motor-unit drawing a train of cars over a track of two parallel rails placed together on a permanent stretch of roadway or railway. The flanged wheels rolling on iron or steel ribs, causes minimal friction thereby

allowing a smooth and comfortable journey with the added advantage of being cheap, safe and reliable means of transport for everyone [7].

With increasing advantage of the railway it has been observed that as the day progresses the railway also causes misadventures disadvantages in terms of injury with deaths of the passengers. In India as per the report from the Railway Year book 2011-12, in the year of 2011-12, there were 235 passengers were killed and 358 injured and about 585.89 Lakhs Rs compensation has paid by the railway. An autopsy surgeon usually encounters isolated cases where death results from some kind of railway track incident. While in most cases, an opinion regarding the nature of death can be provided by a close observation of the injury pattern alone, but in some cases, it becomes almost impossible to form an opinion about the nature of death. A correct opinion regarding the cause and nature of death becomes important in view of the increasing number of railway injuries and fatalities, which mount to a high number of compensation cases. The correct opinion helps the Railway to verify the cases liable for compensation and also helps in formulating ways for prevention of the same.

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Aims and Objectives

1. To study the causative factors.
2. To study external and internal injuries peculiar to railway fatalities.
3. To study cause and manner of death
4. To assess and evaluate the difference and pattern of thoracic injury on the basis of previous studies.

The present study was carried out in the post mortem center situated of a medical college situated at Central India. It is prospective study. The post mortem center conducts autopsies on following railway accident victims: 1. Cases brought dead by any of the nearby police station. 2. Cases of Railway accidents admitted to this hospital (Either directly or as a transfer from any other hospital) who succumb to the injuries. The study period extended from the 1st JUNE 2012 to 31st OCTOBER 2014. During this two (2) years period, a total number of 867 Autopsies were carried out in the department of Forensic Medicine, out of which, 74 cases of railway accident were selected for evaluation in the present study. Approval of local institutional ethical committee has been taken. Criteria for selection or exclusion of cases: 1. Victims of railway accidents that took place outside the train (Running or stationary), or on the railway track. Or on the railway platform and brought to the post-mortem center with history of railway accidents as per the police inquest. 2. Non- train accidents: Accidents to people on railway premises but not connected with the movement of railway vehicles, were excluded. 3. The natural deaths which occurred in train, railway track, railway platform, railway premises and brought by railway police were not included in the current study. It was observed that that liver was the most common injured organ 22.69%, spleen was next with 14.02%. Injury to kidney was observed in 7.75% cases.

Materials and Methods

Collection of data: Information that provided the primary data in each case was collected from different sources. They were as follows:

1. Examination of the inquest report and history from the relative if available.
2. In case of hospitalized victims, records of the treatment were perustrate

3. Finding of the autopsy reports.

All data collected from different sources were recorded in specially designed proforma for each case for further collective evaluation.

The information was collected and studied mainly under the following headings.

- a. Brief history
- b. Causal factors
- c. Post mortem examination
- d. Cause of death History and causal factors.

A compendious picture about the back ground of the victims was elicited after taking history from investigating police and relatives of the victims. This included detailed particulars such as name, age, sex, address, religion, educational status, socio economic status, occupation, marital status. Similarly an idea about the circumstances of the event leading to death was made out by other epidemiological data such as place of incident, nature of incident leading to death, time of occurrence, weather conditions; and survival period, etc. very importantly Evidence of suicide notes along with body also noticed.

Post Mortem examination

The detailed post mortem examination carried out in each case comprised of an external and an internal examination.

- a. External examination included general condition of the body, including external orifices, injuries sustained, etc.
- b. Internal examination is carried out systematically by opening the three principles body cavities viz. the chest, abdomen and cranium and dissecting the contents by Letulle's method. The location and the extent of the injury were specially observed to note any pattern if any.

Result

Distribution of injuries to the abdominal organs is summarized in the following table.-

Discussion

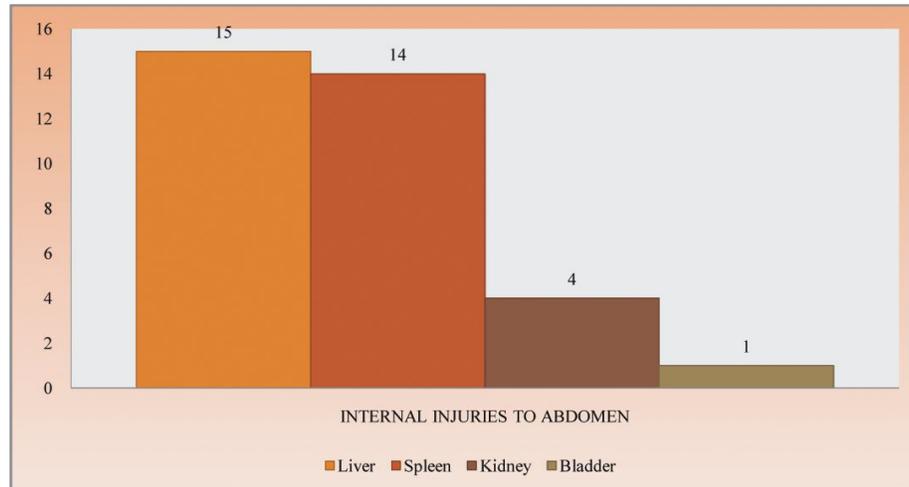
Injuries to the internal organs in the abdominal

Table 1:

Organ involved	No of cases	Percentage
Liver	15	20.27%
Spleen	14	18.91%
Kidney	4	5.40%
Bladder	1	1.35%

Liver was the most commonly injured organ seen in 15 (20.27%) cases. Spleen was next with 14 (18.91%) cases. Injury to kidney was observed in 4 (5.40%) cases. Bladder was involved in 1 (1.35%) cases.

Fig. 1: Distribution of internal injuries to abdomen.



Injuries to Abdomen observed either in combination or in isolation. The pattern of internal injuries to abdomen is summarized in following table-

Table 2:

Pattern of injuries to internal organs	No of cases	Percentage
Only Liver	6	8.10%
Only Spleen	2	2.70%
Only Kidney	0	0%
Only Bladder	0	0%
Liver+ Spleen	6	8.10%
Liver +Spleen+ Kidney	3	4.05%
Liver+Kidney	0	0%
Kidney+Bladder	0	0%
Spleen+ Kidney	2	2.70%
Spleen+Kidney+Bladder	1	1.35%
Total abdominal injuries	20	27.02%
No internal injuries to organs	54	72.97%

Injuries to the internal organs in the abdominal cavity were observed in 20 (27.02%) victims. Injuries to liver alone and combination of liver with spleen were observed in 6 (8.10%) victims respectively. Combination of liver +spleen + kidney was observed in 3 (4.05%) victims. Combination of spleen+ kidney and only spleen injury was observed in 2 (2.70%) cases each. Injuries to abdominal organs were not observed in 54 (72.97%) victims.

Fig. 1: Pattern of injuries to abdomen

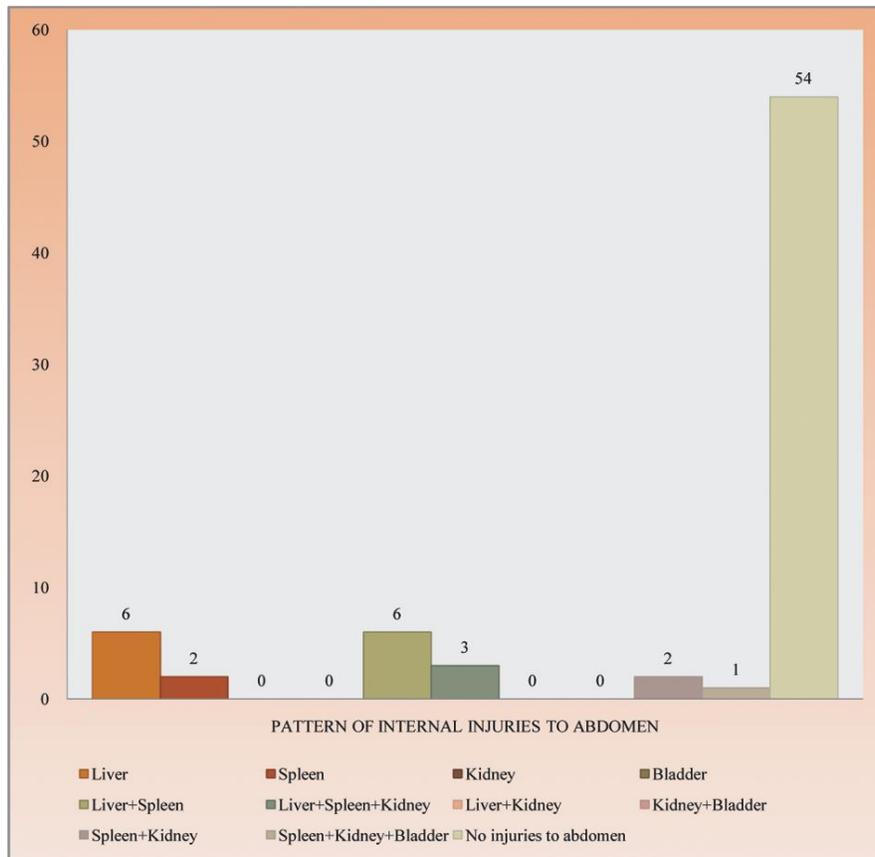


Photo 1: Risky Behaviour of peoples while travelling



Photo 2: Crush injury involving abdominal region



cavity were observed in 20 (27.02%) victim.

Liver was the most commonly injured organ in 20.27% cases. Spleen was next with 18.91% victims. Injury to kidney was observed in 4 (5.40%) victims. Bladder was involved in 1 (1.35%) victim.

In the study done by *Patil Ajay et al (2000)* [11] where injury to liver was present in 36% cases. The Study done by *Sabale PR and Mohite SC (2005-2008)*¹⁷, observed that liver was the most common injured organ 22.69%, spleen was next with 14.02%. Injury to kidney was observed in 7.75% cases. Both author's observation was similar to our study as far as injury to our liver is concern. It is clearly stated by *V. V. Pillay* in his text book that liver is an organ which is very vulnerable to injury [20].

As far as concern to combination of injuries to internal vital organs in our study it is observed that Injuries to liver alone and combination of liver with spleen were observed in 8.10% victims. Combination of liver, spleen with kidney was observed in 4.05% victims. Combination of spleen with kidney and only spleen trauma was observed in 2.70% cases each.

No other author described this type of observation except *Sabale PR and Mohite SC (2005-2008)* [17], their observation point out that injuries to liver alone was observed in 11.44% cases, followed by Combination of liver, spleen and kidney, observed in 4.24% cases.

Summary & Conclusion

- ❖ Liver was the most commonly injured abdominal organ followed by spleen.
- ❖ Out of 74 victims of railway accident deaths, 68(91.89%) were identified and in 6 (8.10%) cases the identity could not be establish.

- ❖ Liver was the most common injured organ 22.69%, spleen was next with 14.02%. Injury to kidney was observed in 7.75% cases.
- ❖ Highest number of cases showed injuries to the all over body.
- ❖ Laceration was the commonest type of injury.
- ❖ On external examination combination of abrasion, contusion and laceration was observed most commonly.

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