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Case Report

Fatal transfer of fate– A case report

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ABSTRACT

A spinal cord injury is caused by damage to any part of the spinal cord or entire spinal cord. It also includes damage to nerves at the end of the spinal cord, known as the cauda equina. The spinal cord helps in transmitting signals between the brain and the rest of the body. A spinal cord injury often causes permanent or temporary changes in strength, feeling, and other bodily functions. People may also experience mental, emotional, and social side effects. In the meantime, treatment and rehabilitation allow many people with spinal cord injuries to lead productive, independent lives. In many occupations, employees are required to work at heights. They may have to work with platforms, scaffolds, or ladders to complete a job-related task. The main risk these employees face is that they can fall to the ground because of inadequate fall protection. Employers need to take proper steps to protect their employees who work at heights to help avoid unfortunate, serious accidents. Here we discuss a 24-year-old male working on a construction site as a semi-skilled worker, while working on the ground floor sustained injury after the fall of another male person from a height landed on him. The person who fell from height survived and the person who was working on the ground succumbed to death.

1. Introduction

Every living being in this world goes out to work for its livelihood expecting to come home safe and sound at the end of the day. But for many people, it is not so. A significant number of injuries and deaths result from objects being dropped from a height. National Crime Records Bureau (NCRB) reported 413,457 deaths due to unintentional injuries in India in 2015, an increase of 40.5% compared to 2005 (NCRB, 2015).[1] Sample Registration Survey (SRS) informs that injuries contributed 10.7% to total deaths in India in 2010–2013 (SRS 2010–13, 2014)[2]. Age stratification of injuries reveals that people in the 15–29 years age group are affected the most with 44.6% deaths due to injuries followed by the 30–44 years cohort with 25.7% deaths (SRS 2010–13, 2014). Gender segregation of SRS data informs that injuries are the cause of 12.4% of deaths in male and 8.4% deaths in females.[2] Most of these accidents were due to human error.[2] However it is impossible to eliminate all injury risks in the workplace, but measures can be taken by the employers to reduce the risk of dropped objects as much as possible. Factors contributing to accidents include faulty equipment, poor maintenance, and mainly inadequate safety measures. After road traffic collisions, workplace accidents are the next major cause of injuries in India (CGHR, 2015).[3] The International Labour Organization (ILO) has estimated that there were 47,000 fatal and 44.1 million non-fatal work-related accidents in India in 2003 (ILO, 2008).[4] ILO has also informed that workplace injuries are

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vastly under-reported in India (Takala, 2005).[5] Industrial accidents are important contributors to workplace injuries and preventable death and disability. There were 3,61,994 registered factories in India in 2014, which employed 200,34,859 workers (OHS Profile India, 2017),[6] In the same year, 1,141 fatal and 25,173 non-fatal injuries were reported in these factories (DGFASLI, Standard note, 2014).[7] In workplaces where employees regularly work at heights, handheld tools and pieces of debris are the most common objects that fall and cause injuries. The impacts of a dropped object can be catastrophic for workers. Injuries may be abrasions or lacerations or maybe more severe head injuries, spinal cord injuries, and even death. Death from falling objects is relatively rare, nonfatal head injuries and spine injuries cause long-term morbidity. In the worst scenario, head and spine injuries can prevent someone from making a decent living for the rest of their lives.

2. Case History

A 24-year-old male working on a construction site as Coolie on the ground floor sustained injury due to the fall of a male person from the second floor onto the first floor and then landed on him. He was taken to the nearest private hospital for first aid where an Accident register was made and then later shifted to our hospital. He was admitted to the hospital for 12 days. Later he died on the 13^{th} day and the cause of death as per hospital records was Grade II Anterolisthesis of C5 over C6 with Quadriplegia/ Aspiration Pneumonitis. The person who fell on him sustained minor injuries and was alive. They gave a complaint against the supervisor for not providing proper safety equipment and due to their negligence only the mishap happened.

Police booked this case under section 338 IPC @ 338, 304(A) IPC. After an inquest, we received the request for a post-mortem examination on the same day of death, and the following findings were noted.

Appearances found at the Post-Mortem- Moderately nourished male body; post-mortem hypostasis fixed on the back with areas of contact pallor; cornea – hazy; pupils - dilated and fixed.

2.1. Ante mortem injuries

1. Surgical incised wound 0.5 x 0.5 cm x bony deep on the left temporal region of scalp; surgical incised wound 0.5 x 0.5 cm x bony deep on the right temporal region of scalp; on reflection of scalp: Dark red contusions: 3 x 3 x 0.5 cm on the left temporal region of scalp; 3 x 3 x 0.5 cm on the right temporal region of scalp; surgical bony deficiency 0.5 x 0.5 x 0.3 cm on the right and left parietal bones; on removal of calvarium: Duramater: Intact; Brain: Oedematous; cut section: Normal; Base of Skull: Intact

Figure 1:

Figure 2:

2. Irregular and complete fracture dislocation of the body of C5 Cervical vertebra with surrounding soft tissue bruising and extravasation of blood; spinal cord from the level C2 to C6: Oedematous, softened, and bruised.
3. Irregular healed abrasions with brownish black scab firmly adherent to the base: a) 9 x 0.5 cm on the outer aspect of lower third of right thigh; b) 4 x 1 cm, 1 x 0.5 cm on the front of right foot; c) 0.5 x 0.5 cm on the inner aspect of right heel; d) 6 x 0.1 cm on the inner aspect of middle third of left thigh.
4. U-shaped healed abrasion with brownish black scab firmly adherent to the base 32 x 1 cm on the midline of the upper third of back -Iatrogenic.
5. Faint red contusions: a) 6 x 3 x 1 cm in the back of right heel; b) 8 x 3 x 1 cm in the back of left heel.
6. Pressure sores: a) 8 x 6 cm on the sacrum; b) 5 x 5 cm on the upper third of the left side of the back; c) 1 x 1 cm on the occipital region of the scalp.

2.2. No other external or internal injuries anywhere on the body

Heart: Normal in size; cut section: All chambers contained fluid and clotted blood; Valves: Normal; Both the Coronary Ostia: Patent; Coronaries and Great vessels: Normal

Lung: Voluminous and heavy; adherent to chest wall on both sides; cut section: Frothy fluid oozed out from the congested cut surface

Larynx and Trachea: Empty and intact; Hyoid bone and other laryngeal cartilages: Intact

Peritoneal cavity: Contained 750 ml straw-colored fluid.

Stomach: Contained 50 ml of reddish brown fluid with no definite smell; mucosa: Patchy areas of congestion.

Liver, Pancreas, Spleen, and Kidneys: Normal in size; cut section: Congested.

Bladder: Empty and intact.

Ribs and Pelvis: Intact.

Tissue bits were preserved for Histopathological examination and opinion was kept reserved for the want of the histopathology reports.

Sections from the portion of the Liver show Normal Histology.

Sections studied from both the portions of the Kidney show edema and acute tubular necrosis
Sections studied from both the portions of Lungs show pulmonary edema, foci of Pneumonitis, and Haemorrhage.

Sections studied from the portions of the Brain show features of Hypoxic Ischaemic Encephalopathy.

Sections studied from the portions of the Brainstem show features of Hypoxic Ischaemic Encephalopathy with foci of Haemorrhage
Sections studied from the portions of tissue sent as the Spinal cord show foci of Haemorrhage, Infarction, edema, and necrosis.

With the post-mortem findings and histopathological analysis of tissue bits, it was concluded that the deceased would appear to have died due to the effects of Cerebro-Spinal injuries.

3. Discussion

The two basic and important steps an employer must do to minimize the risk of injury from dropped objects in the workplace. First and foremost is to identify potential hazards in the workplace and assess environmental risk factors that could lead to dropped tools or materials and secondly implement practices and policies to minimize those risks. These steps should be followed proactively, and should not wait until someone gets hurt. Employers can use safety measures against this type of accident like nets that hang below the work area, dropping arrestors, and Safety harnesses to keep workers secured to the structure. However these measures can help reduce the risk of injury, but they are not 100% effective. So the workers have to be trained adequately on how to use their equipment and be aware of their surroundings at all times. Construction sites, manufacturing units, and transportation sheds are the most common industries where falling objects injure workers. These industries often have employees working at heights or near moving machinery. Construction sites often introduce the risk of falling objects because construction workers often perform tasks at a height with heavy handheld tools. Without proper precautions, it's easy for tools or debris or the person to fall and cause injuries to themselves and others.

The shape, mass, and drop height of the object decide the fatality, like a tape measure dropped from 150 - 200 feet could devastate whomever it lands, but a steel spike dropped from just a few feet could be just as devastating. A similar has happened in the above case where an 80 kg human male fell from a height of 22 feet on another human working down on the ground causing death. An object the size of your thumb could be deadly if dropped off the edge of a building. That is why construction sites need strict hardhat policies. Although housekeeping at the construction site may appear unimportant, it plays a crucial role in site safety. When tools and equipment are left lying around,

they become a potential hazard to employees. Employers can immediately create a safer environment by ensuring work sites and toolkits are organized properly. Dropped object injuries can have dire consequences for employees in the short and long term. Employers should implement safe work practices and procedures to prevent these injuries and ensure their workers are properly trained. Unfortunately, many employers do not take these measures seriously until someone gets hurt. Ultimately, employers have to protect their workers from falling objects—a responsibility they cannot take lightly.

4. Conclusion

According to data collected by Global Workers' Union Industrial, sectors such as manufacturing, chemicals, and construction report the most fatalities in India.[8] In 2021 alone, it is said that an average of 7 accidents were reported every month in Indian manufacturing industries, killing more than 162 workers.[8] India has begun reforming its labor laws through four new labour codes that include provisions for occupational safety, health, and working conditions.[8] The Indian government may also consider setting up an independent agency with sufficient human and financial resources, on the lines of the Occupational Safety and Health Administration of the United States.[8] The agency should be mandated to effectively develop, implement, evaluate, coordinate, monitor, and guide activities, and injury prevention programs to make the shop floor a very safe place. The agency should also investigate all accidents instead of the present system of setting up ad hoc committees that are more like firefighting arrangements rather than intended to bring about systemic change.

The emergency severity index (ESI) provides clinically relevant stratification of patients from acuity and resource needs (Ahrq.gov, 2018). It is a five-level triage algorithm from 1 (most urgent) to 5 (least urgent). India is moving on a fast trajectory of growth, development, and economic prosperity. This is likely to push the injury morbidity and mortality rates and burden upward. Successful implementation of injury prevention policies and programs will lead to multiple benefits including a reduction in fatal and non-fatal accidents, reduction in the number and severity of disabilities caused by injuries, an increase in the number of productive working years, a decrease in the costs associated with treatment and rehabilitation of trauma victims. There is a need to wake up to the rising trend of injuries as serious contributors to morbidity and mortality.[9]

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None.

6. Conflict of Interest

None.

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