

## CASE REPORT

### **OCCUPATIONAL INJURY – THE NAIL THAT CAUSED DEATH**

**Imran Shaikh<sup>1</sup>, Anil Bishnoi<sup>2</sup>, P C Vyas<sup>3</sup>**

1. Senior Demonstrator, Department of Forensic Medicine, Dr. S. N. Medical College, Jodhpur, Rajasthan, India

2. Resident, Department of Forensic Medicine, Dr. S. N. Medical College, Jodhpur, Rajasthan, India

3. Professor, Department of Forensic Medicine, Dr. S. N. Medical College, Jodhpur, Rajasthan, India

#### **ABSTRACT**

Work place, especially factories in Indian set up are infamous for their low standards of safety and fewer precautionary measures for the labourers. The people working are always at risk of sustaining mechanical injuries some of which go unnoticed at times. A meticulous post-mortem examination is required in cases where death is sudden and no obvious external findings are visible to know the cause of death[1]. One such case is being discussed here in which death due to occupational mechanical injury was revealed after meticulous post mortem examination though history given by relatives and the police was different.

**Keywords:** - occupational injury, accidental, meticulous

#### **INTRODUCTION**

Mechanical injuries in factory setup are common occurrence in India, though not always fatal most of these can be attributed to lack of precautionary and safety measures. Nearly 48,000 workers die in the country due to occupational accidents.[6] Most of the said injuries are grossly visible, but in certain cases as the one being discussed there was minimal external injury just a “nail-head” sized, and no resting symptoms but a fainting attack that too hours following the actual trauma incident. Lack of primary health care and first aid at nearby premises is an alarming feature. It was only after Post mortem that it was revealed that cause of death was due to punctured lacerated wound and a nail was found embedded insitu near sternum and piercing the pericardial sac and heart with minimal exterior injury or bleeding.

#### **Case report**

A 19 year old Hindu male, furniture factory worker was brought dead by police to Mathuradas Mathur Hospital with history of sudden death following an episode of vertigo (chakkar) while riding as a pillion on a motorcycle while returning from work on 23/07/2017 at 7.50pm.

#### **Autopsy finding:-**

It was the body of an averagely built and averagely nourished boy with brown coloured t shirt and green shorts lying in supine position on autopsy table both eyes are closed, mouth is

closed. Post mortem lividity present over dependent parts except pressure points over the back side. Following injury was noted.

1. A 3mm diameter oval shaped punctured lacerated wound present over the sternum 2 cm left of midline at the level of 4<sup>th</sup> intercostal space with red coloured scab over it.

On dissection there was subcutaneous and intramuscular hematoma of size 3cm x 3cm below the lesion and a metallic nail of 4cm length was present embedded in and passing through the body of sternum, puncturing the pericardium and the anterior wall of right ventricle of the heart. There is collection of about 80 ml of clotted blood in the pericardial cavity encircling the heart. All 4 chambers of heart are empty and the heart is in a contracted state. All other organs including the lungs, kidneys, liver, spleen, stomach, intestines were intact and no abnormality detected. The cause of death was hemorrhagic shock as a result of nail injury causing penetrating wound to the heart and pericardium.

### **Discussion**

Severe mechanical injuries in a factory setting hardly go unnoticed, especially by the victim. Here the nail that penetrated the victims sternum was thin and 4 cm long but he was either unaware of the injury or he considered it too trivial to report and did not get medical help which proved to be a big mistake. The point also to be noted that though the patient suffered from penetrating cardiac injury, he was not complaining of any symptoms earlier and only fainted to his death. Penetrating cardiac trauma is highly lethal injury and even those surviving to hospital have a mortality rate of 80%.[4] Cardiac tamponade is a medical emergency in which blood or fluids fill the space between the sac that encases the heart and the heart muscle. This places extreme pressure on the heart. The pressure prevents the heart's ventricles from expanding fully and keeps the heart from functioning properly. The heart can't pump enough blood to the rest of the body when this happens. This can lead to organ failure, shock, and even death. Cardiac tamponade is usually the result of penetration of the pericardium. The causes of pericardial penetration or fluid accumulation might include gunshot, stab wounds or accidental penetrating injuries. Treatment of cardiac tamponade is surgical and earliest hospitalisation is warranted.[2]

### **CONCLUSION**

Penetrating cardiac injuries, with its attendant mortality, presents formidable clinical challenges. There is no other injury which demands expeditious diagnosis, rapid surgical exposure and adherence to precise technical principles. If these tenets are followed in treating this deadly injury, reasonable survival can be achieved Penetrating cardiac injuries, with its attendant mortality, presents formidable clinical challenges. There is no other injury which demands expeditious diagnosis, rapid surgical exposure and adherence to precise technical



principles. If these tenets are followed in treating this deadly injury, reasonable survival can be achieved Penetrating cardiac injuries, with its attendant mortality, presents formidable clinical challenges. There is no other injury which demands expeditious diagnosis, rapid surgical exposure and adherence to precise technical principles. If these tenets are followed in treating this deadly injury, reasonable survival can be achieved Penetrating cardiac injuries with its attendant mortality, presents formidable clinical challenges. There is no other injury which demands expeditious diagnosis and rapid surgical intervention [5] In depth assessment of such injuries is crucial to both surgical planning and forensic case reconstruction. If these tenets are followed in treating this deadly injury only than reasonable survival can be achieved.[7]

Factory laborers face a number of occupational health and safety risks on the job. Reduction of vulnerability depends on recognition of these risk factors and implementation of effective prevention strategies. Thus it is recommended that the owners of both small and large scale industries have to give more attention for improving occupational safety measures and safe working environment through training, routine use of protective devices to foster health of the valuable work force.[3]

## REFERENCES

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## IMAGES



EXTERNAL SITE OF PUNCTURE.



METALLIC NAIL EMBEDDED IN STERNUM.



SITE OF PUNCTURE IN ANTERIOR WALL OF RIGHT VENTRICLE.