

# Unanticipated Ligature Strangulation: A Case Report

Mukul Sharma<sup>1</sup>, Kimi Soumya Padhi<sup>2</sup>, Manas Ranjan Sahu<sup>3</sup>, Utkal Keshari Suna<sup>2</sup>, Govinda Balmuchu<sup>2</sup>

<sup>1</sup>Senior Resident, <sup>2</sup>Junior Resident, <sup>3</sup>Associate Professor, Department of Forensic Medicine & Toxicology, All India Institute of Medical Sciences, Bhubaneswar

## Abstract

Strangulation is a form of mechanical asphyxia by compression of the neck with an outside force either by a ligature or hands, in which a constricting force other than the weight of the body is directly applied. Such deaths are generally considered homicidal. Here we present a case of 60-year-old female, who got trapped in the rice huller machine with the saree she was wearing and accidentally got strangled.

**Key words:** Mechanical asphyxia, Occupational hazard, Farm equipment, Autopsy, Strangulation

## Introduction

India is an agricultural country, where agricultural workers play an essential role. They operate animal-drawn equipment, tractors, power tillers, self-propelled and power-operated machines. The population of agricultural workers in the country is about 242 million, of which 50% are female workers<sup>1</sup>. Thus, there is a significant role of farmworkers in the country's agriculture. Attention needs to be given to their safety and occupational health issues to have higher productivity and fewer accidents. Strangulation is a form of mechanical asphyxia by compression of the neck with an outside force either by a ligature or hands, in which a constricting force other than the weight of the body is directly applied<sup>2</sup>. Such deaths are generally considered homicidal unless proved otherwise<sup>3</sup>. Here we present a case with compression of the neck and crush injuries, where the victim got accidentally strangled in a rice huller machine.

## Case Report

A 60-year-old female, collecting husk from the rice

huller machine, got trapped in it with the saree she was wearing which resulted in accidental strangulation along with near total amputation of the left upper limb. She succumbed to the injuries on her way to AIIMS, Bhubaneswar, where she was declared as brought dead. Medico-legal autopsy was conducted on the same day of her death. On external examination, a friction abrasion with contused margins was present over the anterior aspect of neck, starting at a point that was 11 cm below the left mastoid and running downward in an oblique fashion crossing the thyroid cartilage and reaching on the other side of the neck at a point which was 10 cm below the right angle of the mandible (Figure 1). The maximum width of the abrasion was 4 cm which was at a point adjacent to the left side of the thyroid cartilage, and the total circumference of the abrasion was 21 cm. A layered dissection of the neck revealed contusions in the subcutaneous plane and strap muscles of the neck corresponding to the external mark of compression. The thyroid cartilage, hyoid bone, carotid, and jugular vessels were intact. The deceased had sustained a crush injury of the left upper arm with visible humerus bone (Figure 2). A laceration (17 cm x 8 cm x skull deep) was present over the scalp in the right temporal region, starting at a point, 12 cm above the right mastoid, moving anteriorly and reaching at a point which was 7 cm medial to right parietal eminence. Margins of the laceration were contused

---

**Dr. Kimi Soumya Padhi:**

**Junior Resident**

Email- kimi.soumya@gmail.com

Department of Forensic Medicine and Toxicology,  
3<sup>rd</sup> Floor, Academic Block, AIIMS, Bhubaneswar

(Figure 3). There was a grazed abrasion (38cmx 18cm) over the left back involving the inferior axillary area of the left side. On opening the thoracic cavity, chest wall on the left side was contused. The body of the sternum was fractured in the middle with a substernal hematoma of 60mg. On the left side, 2<sup>nd</sup> to 6<sup>th</sup> ribs were fractured

in the midaxillary line and lung was collapsed with multiple perforations, the left pleural cavity contained one liter of fluid blood. The cause of death was opined to be hemorrhage and shock arising out of multiple injuries sustained, which could be fatal even if present alone in the ordinary course of nature.



Figure-1 Showing abrasion around the neck



Figure-2 Showing crush injury of left upper arm



Figure-3 Scalp Laceration

## Discussion

The accidental strangulation associated with agriculture happens due to entrapment of wearing apparel like stoll, gumcha (towels), and saree which are common in Indian wear in the crop thrashers, rice huller machines, etc. Zine et al<sup>4</sup> reported ligature strangulation by Indian garment saree caught by crop thrasher with injuries to neck and avulsion laceration of scalp, which is quite similar to our findings in the reported case. Parchake et al<sup>5</sup> presented a case of accidental ligature strangulation around the neck, which described the possible mechanism could be because of the rotating motion and pulling action of machineries. Arun et al<sup>3</sup> emphasized on adoption of fitting a guard to prevent entanglement of clothing in moving belts as well as avoiding loose apparel while working in close proximity. Souza et al<sup>6</sup> described the mechanism of death depends on two factors: the amount of resistance made by the victim and the amount of force of the moving machine. Verma et al<sup>7</sup> mentioned strangulation can occur accidentally if someone moves into the vicinity of a moving object without caution. In the present study the findings are consistent with the studies mentioned above.

## Conclusion

Education and training to the population involved in agricultural practices dealing with various types of types of machinery is an essential requirement to prevent occupational hazards. Encouragement for the use of safety gear like helmets, body fit clothing, rubber boots, etc. The concern for us here is that the vicinity of these operating equipment should be taken care of in order to avoid preventable accidents.

**Conflict of Interest:**None

**Source of Funding:**None

**Ethical Clearance:** Taken from Institution Ethical Committee, AIIMS Bhubaneswar. The identity of the deceased was not revealed in the manuscript.

## References

1. Gite LP, Khadatkar A, Tyagi KK. Farm machinery accidents in Indian agriculture. *Ergonomics for Everyone- Proceedings of International Ergonomics Conference, HWWE 2009; Kolkata.*
2. Knight B. Suffocation and asphyxia. In: Knight B, 4th ed. *Forensic pathology.* London: Arnold; 2016:364–6.
3. Arun M, Kumar RH, Kumar GP, Chandrakanth HV, Nagesh KR, Menezes RG. Accidental strangulation by a hot belt: an occupational medico-legal case report. *Medico-Legal Journal.* 2013 Sep;81(3):132-4.
4. Zine KU, Tandle RM, Varma NM, et al. Accidental ligature strangulation with avulsion of scalp. *J Indian Acad Forensic Med.* 2011;33(3):267–8.
5. Parchake MB, Kumre V, Kachare RV. Accidental strangulation due to entrapment of saree in crop thrasher machine in an elderly women working at agricultural field. *The American journal of forensic medicine and pathology.* 2016 Sep 1;37(3):187-9.
6. Souza DHD, Vaswani VR, Badiadka KK, Shenoy VK, Babu B (2013) An accidental death due to electric grinder: dupatta as a strangulation hazard. *Arch Med Health Sci* 1(1):46 –7
7. Verma SK, Aggarwal NK, Kohli A. Accidental ligature strangulation deaths in East Delhi (India). *Medicine, science and the law.* 2005 Jan;45(1):47-51.