

An unusual decapitation injury

 Ashwini Kumar¹,  Rajiv Joshi¹,  Harvinder Singh Chhabra¹,  Navdeep Kaur²

Corresponding author: Harvinder Singh Chhabra
Flat No 245, Medical Campus 151203 Faridkot - India
email: dr.fmt.hsc@gmail.com

ORCID:

Ashwini Kumar: 0000-0002-9601-8584

Rajiv Joshi: 0000-0001-9998-4561

Harvinder Singh Chhabra: 0000-0003-2278-3328

Navdeep Kaur: 0000-0002-0654-3116

ABSTRACT:

Ninety-three years ago, the term "Isadora Duncan Syndrome" came to be associated with neck injuries due to the entanglement of a long scarf around the neck. Somewhere in time it became synonymous with "Long Scarf Syndrome" when more such accidental cases were reported, mainly because long scarves had become a fashion fad in the west in the early 1920s. In South Asia, however, a long scarf is replaced by a dupatta which is part of traditional attire. Many such cases have been reported, particularly when women are riding a rickshaw or a motorcycle. Driving without proper protection further increases the risk of injury. These accidents are largely preventable if proper attention is given to the causes leading to it.

Among other fatal causes, death due to decapitation, especially related to traffic accidents, is very rarely found in the practice of forensic medicine. Decapitation or beheading is defined as the total separation of the head from rest of the body; such an injury is fatal. We hereby report a case of decapitation injury involving an adult female, age 65, who died instantly when her dupatta accidentally got entangled in the rear wheel of the motorcycle on which she was riding pillion. This rare, unusual case baffled both the police and the authors. A thorough examination, however, revealed the absence of sharp or sharp, heavy-force injuries.

Keywords: Isadora Duncan Syndrome, Long Scarf Syndrome, decapitation, beheading, accident, road traffic accident.

INTRODUCTION

On September 14, 1927, dancer Isadora Duncan got strangled in Nice, France, when the long silk scarf she was wearing got entangled in the rear hubcaps of her open car. She died from strangulation and carotid artery dissection. Such strangulation injuries consequent upon the entanglement of a long scarf came to be known as "Isadora Duncan Syndrome" or "Long Scarf Syndrome" (1-3). Long Scarf Syndrome is the result of an unfortunate accident. WHO defined "accident" as an unpremeditated event resulting in a recognizable injury; they later elaborated the same to include an event,

independent of the will of a person, caused by a quickly acting extraneous force, and manifesting itself by an injury to the body or mind (4). Injuries and issues in motor vehicle fatalities can vary widely depending upon how the accident occurred.

Decapitation has been reported in cases of suicidal, homicidal, and accidental deaths; as such, various authors have put forward autopsy findings that are indicative of the manner of death (5-7). Decapitation has also been used as a death penalty in many places around the world. Circumstantial evidence, a list of the types of injuries, a crime scene examination, and a proper autopsy

¹ Department of Forensic Medicine, G.G.S. Medical College, Faridkot, Punjab, India

² Department of Radiodiagnosis AIIMS, Bathinda, Punjab, India

are always essential to reaching a correct diagnosis. The differentiation between the modes of decapitation death is usually difficult to explain for a forensic expert without proper history, weapon of offense, and the decedent's decapitated head (8). A medico-legal expert is required to note the wound morphology in detail and comment upon the nature of the injury, the time since injury, and the weapon after taking due consideration of the biomechanical and technical aspects involved in the infliction of the injury (9).

Most traffic accidents involve the collision of two vehicles; others may be due to bad weather or collisions with stray animals, etc. But there are some cases in which accidents take place due to the entrapment of a dupatta or other loose clothing that gets caught in the chains or wheels of a moving vehicle. The dupatta, or chunni, a traditional part of South Asian women's attire, is a long piece of cloth worn around the head, neck, and shoulders.

CASE

On an April afternoon, the dead body of a thinly built female (65 yrs.) was brought to the mortuary of our institute for post-mortem examination. As per police, the deceased was riding pillion on a motorcycle when one end of her dupatta got entangled in the rear wheel of the vehicle, resulting in the other end constricting the neck and ultimately resulting in decapitation. Post-mortem examination was conducted the same day. Photographs of the crime scene were taken by police. The chunni was still entangled in the axle of the motorcycle with blood stains over the rear wheel in some places (Figure 1). The head was lying separate from the rest of the body (Figure 2). A trail of blood could be seen on the road, ending at the side of the road where the vehicle came to a stop (Figure 3).

Upon external examination, mud, grass and leaves were present in some places. The approximate

height of the body was 1.52 m. Rigor mortis was present in the muscles of her eyelids and jaw. Post-mortem staining was present on the back of her body except in certain pressure areas and it was not fixed. Her head was decapitated at the level of the C2-C3 joint and the line of severance was oblique (Figures 4, 5). Skin margins around the wound exhibited abraded contusions. The skin on the face was pale and showed no cyanosis, congestion, or petechiae. The hyoid bone was completely intact. The intima of the common carotid arteries and the internal jugular veins showed multiple horizontal tears, as did the vertebral arteries. At the sternal and clavicular origins of the sternocleidomastoid muscles, frank hemorrhages were found. The entire severance plane showed marked extravasations of blood in the tissue of the wound surfaces. The trachea and esophagus were torn at the level of the T1 vertebrae. Her underlying spinal cord was lacerated and clotted blood was present.

Apart from the decapitation injury, the following external injuries were noted:

- I. Reddish abrasion measuring 7 cm x 3 cm present over the chin in its middle.
- II. Reddish abrasion measuring 7.5 cm x 4 cm present over the tip of the left shoulder.
- III. Reddish abrasion measuring 5 cm x 3 cm present over the front of the left knee.

The cause of death in this case was declared as decapitation of the head due to constriction of the neck.

DISCUSSION

Decapitation can be antemortem or postmortem and can be suicidal, accidental, or homicidal. Antemortem decapitation must be considered highly indicative of a homicide (7). Suicide by decapitation is unusual. Most suicides involving decapitation



Image 1: Photograph of the motorcycle exhibiting entangled dupatta and blood at places.



Image 2: Photograph of the scene of accident.

involve the deceased placing his or her head on a trainline or tramline, resulting in severance of the head by the wheels of a moving engine (9). Distinguishing suicide from an unintentional death can be difficult in these circumstances; however, de-

capitation by train has been found to be indicative of a suicide, whereas multiple injuries from blunt trauma caused by a moving train are more often an accident (10).

Accidental decapitation due to dupatta or scarf entanglement is uncommon but not unheard of. Traffic accidents as well as occupational accidents have been reported to result in decapitation injuries. In a retrospective study performed between January 2004 and January 2006, the authors identified 25 cases of entanglement of a dupatta, of which 12 involved a cervical spine injury. Two cases had complete ligamentous disruption. Most of these injuries involved the lower cervical spine, unlike the Hangman's fracture. The author attributes this to the fact that the dupatta is worn on the lower part of the neck (11).

We, however, opine that the direction of force also plays a role. In a hanging, the direction of force is upward while in Isadora Duncan Syndrome, the direction of force is downward. In their chapter on death scene investigations, the authors discuss an accidental decapitation that occurred when a victim's scarf got wrapped around the shaft of a helix excavator. The scarf then slid around the victim's neck and tightened, causing the head to separate from the body (12).

Motorcycles serve as the primary mode of transport for many families. In India, females on motorcycles usually sit behind the rider with both their legs on one side. They cover themselves with a dupatta wrapped around their head and neck. This large, unstitched piece of cloth has a particularly high incidence of getting trapped in the spokes of the rear wheel or the driving chain of bikes, which results in cranio-cerebral injury or other injuries, of which decapitation is a rare finding. The association of such loose clothing in sustaining injuries has been documented in the literature (13-15). Thorough, complete investigation, crime scene evaluation, eyewitness statements, and autopsy findings help in finalizing the manner of death.

In this case, injuries were sustained as the dupatta of the victim got entangled in the driving chain of the motorcycle and she lost her life due to decapitation. Such injuries and deaths can be prevented



Image 3: Decapitated head lying separate from the body at the scene of accident.

by avoiding loose clothing while driving. All such injuries can be prevented by refraining from a few careless habits. Sitting alert on two-wheelers with crossed legs and tucking in long, overhanging garments like dupattas, scarves, etc. can help reduce the risk of such injuries. Obeying traffic rules, following traffic signals, wearing safety equipment, and getting educated on safe travel habits can also go a long way in preventing accidents. In addition, the absence of safety measures is known to increase the incidence of severe injuries. This is of particular significance to Indian females as it is not compulsory for them to wear helmets in several parts of the country. In the past, some females protested against making the wearing of a helmet compulsory. Helmets are, however, necessary for preventing head injuries.



Image 4: Torso of the deceased exhibiting complete decapitation with interspersed mud and leaves.



Image 5: Base of decapitated head exhibiting torn margins, a torn trachea and interspersed mud and leaves.

CONCLUSION

Dupatta entanglement is a cause of motorcycle accidents which, in many cases, results in serious injuries. The interpretation of autopsy findings with utmost care is one of the prerequisites in any medico-legal case. Before arriving at any conclusion post-mortem, proper history, crime scene investigation, and a complete medico-legal autopsy coupled with laboratory investigations should be done to differentiate homicidal complete decapitations from suicidal decapitations, accidental deaths, and post-mortem body mutilation. Doctors concerned with medico-legal work should be well-versed with these findings while concluding their opinions.

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