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Case Report

Survival after accidental strangulation (Isadora Duncan Syndrome): A case report

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Article Info

Abstract

Key words

Accidental strangulation
Survival
Asphyxia

Strangulation is a form of asphyxia caused by constriction of the neck without suspending the body. Homicidal strangulation is commonest whereas suicidal is not so common and accidental being the rarest. The first reported case of accidental strangulation was that of world famous dancer Isadora in 1929. After that many cases of similar incidences were reported in different literature. Until 2001, there was no reported case of survival after accidental strangulation. Few cases of survival have been reported thereafter with spinal injury and injury to the deep structures of neck. However, cases of such accidental strangulation without any injury to the neck structures and spines are extremely rare. This paper intends to report such a rare case which was admitted to the tertiary care centre of Dibrugarh, Assam in 2013 with respect to its medico-legal examination of wounds and its interpretation.

1. Introduction

Strangulation is a form of asphyxia caused by constriction of the neck without suspending the body. They are usually homicidal in manner, suicidal is not so common and accidental being the rarest.^{1,2} Accidental strangulation if at all occurs, it is mostly seen at the extremes of life or individual under the influence of alcohol or any other drugs.^{3,4,5} Such accidental strangulation that has been reported so far

are mostly amongst female population resulting from entrapment of clothing, wearing specially around neck (chunni, dupatta etc.) in moving machinery. First reported case in the literature was that of the world famous dancer Isadora Duncan who died on 14 September 1929

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following her long scarf accidentally caught in the wire wheels of her bugatti car causing constriction around the neck.⁶ Following this incident, all deaths resulting from accidental entrapment was known as "Isadora Duncan Syndrome" or the "Long Scarf Syndrome". Even though many cases of accidental strangulation were reported survival was no recorded until 2001, when Gowens et al. illustrated a similar case where the victim survived in spite of neck injury.⁶ here we present a case of injuries on neck with an unusual type of causation brought to the otorhinolaryngology department of tertiary care centre, Dibrugarh, Assam. In this paper, the case along with her injury has been described and nature was confirmed from history, clinical findings and circumstantial evidence.

1. Case history

A 32 years old lady, a staff nurse by profession was brought to the hospital at 3 pm on 12/11/13; after she was coming home from her duty shift in an auto rickshaw. She took the front seat on the left side of the driver. She was wearing salwar-kameez and a dupatta loosely encircling the neck, one of the two free ends lying over chest and the other end over the back. Road was a narrow concrete one with dilapidated condition. The auto rickshaw was moving in a speed more than its average limit for the road. While the vehicle took a sharp turn towards right side to cross a railway crossing, the lady lost control over herself due to her loose grip and was about to fall towards the left side through the unguarded open door. The driver suddenly caught the free end of the dupatta lying over chest to prevent her falling but could not prevent her falling; rather it caused tightening of the dupatta around the neck. She felt down on the road with the constricting dupatta in situ and there was transient loss of consciousness for few seconds. Although the driver managed to stop the vehicle, she was dragged for a distance of 2-3 feet causing injury to the legs. Dupatta was unfolded immediately and she was brought to the casualty of our tertiary centre. She had injury over neck, face and legs with mild dyspnoea and dysarthria while attended. The patient was admitted under the department of Oto-rhino-laryngology and

Head & Neck Surgery. All the necessary investigations were done to rule out any bony injury. Wounds were managed conservatively with oral corticosteroids, antibiotics and pain killers. The patient recovered completely after few days and was discharged.

3. Findings on examination

General examination:

Consent of the victim was taken before starting examination. The patient was confused and apprehensive on arrival. All her vitals were stable with a Glasgow Coma Scale score of 15/15. She complained of difficulty in swallowing and articulation in a low pitched voice.

Injuries:

Following injuries were seen while examining the patient bedside (all photographs shown are taken on her 3rd day of hospitalization):

1. An abrasion of size 26 cm x 2.5 cm present over neck just below the level of thyroid cartilage, starting from the midpoint of front of neck; going towards left side, encircles the neck and ends over right lateral aspect of neck. It was transverse in position and grooved; 8 cm below the centre of the chin, 6 cm below the left angle of jaw and 6.5 cm below the right angle of jaw. Although, there was non-continuity between the two ends involving an area of 9 cm; they were connected by two superficial abrasions, one (injury number "1a") above and the other (injury number "1b") below the level of the primary injury (injury number 1). Injury number "1a" was an inverted "V" shaped, measuring 12.5 cm x 2.5 cm (including both limbs of V) and injury number "1b" was forming a curve like impression with the convexity upwards (dimension 10.5 cm x 3 cm). All three injuries showed signs of healing (fig. 1,2,3,4).
2. A sutured wound of length 5 cm with four stitches seen over the left side of face, 7 cm

from midline and 3.5 cm below the later canthus of the left eye.

3. Graze abrasion of size 7 cm x 6 cm with reddish brown scab seen over lateral aspect of left leg involving lateral malleolus. Similar type of injury also noted on the opposite leg in its inner aspect.
4. Graze abrasion of size 9 cm x 5.5 cm with reddish brown scab also noted over lateral aspect of left forearm, 7 cm below the elbow joint.

Photographs

Photograph 1: Photograph showing right lateral aspect of neck with injury



Photograph 2: Photograph showing left lateral aspect of neck with injury



Photograph 3: Photograph showing anterior aspect of neck with injury



Photograph 4: Photograph showing back of neck with injury:



Investigations

X-ray of the cervical neck region revealed no bony injury or increase in pre-vertebral soft tissue shadow. The CT scan findings of the head and neck also revealed no abnormality.

4. Discussion

In day to day forensic practice, most of the ligature strangulations are homicidal, some are suicidal and a few accidental, usually in children.⁷ Death due to accidental strangulation has been reported very often, mostly amongst Indian women due to

their traditional dresses like saree, chunni, scarf etc. Accident occurs when free floating ends of such dresses entangle in moving wheel of vehicles or other machinery, there is sudden pull causing constriction around the neck leading to unconscious and if the pull is sustained it causes death by asphyxiation.^{8,9,10} Due to its sudden pull and sustained pressure, mortality rate is very high in such incidences.

In our case, the victim; wearing a silk dupatta around the neck was about to fall while the driver took a sharp right turn in a reckless way. To prevent her falling, the driver suddenly pulled one floating end of the dupatta. However, she fell down on the road through the unguarded open door and due to pulling action of one end, there was rotational constricting movement of the dupatta around the neck. This frictional force resulted in abrasion around the neck. The force of constriction and rotational movement affected more over anterior, left lateral and posterior aspect of the neck; sparing a part over right lateral aspect due to slight lifting at the cross over point of the dupatta by sustained pulling. This produced a non continuous, oblique ligature mark over neck at the level of thyroid cartilage.

Usually, in such instances there is sudden loss of consciousness; most of the victims die because of sustained pressure and constriction by high speed rotatory wheels of vehicles or machinery. Loss of consciousness can be described by pressure over baro-receptors in carotid body resulting in inability of the victims to rescue them from sustained pressure.¹¹ But, in this case, the constricting force was transient. While falling down on the ground, the pulling force from the driver as well as counter force due to body weight of the victim was relieved immediately causing sudden release of pressure. Moreover, one of the co passengers suddenly removed the dupatta from her neck. Since the victim fell down freely, there was no jerky movement of the neck, although there was drag for 2-3 feet just before stoppage of the auto rickshaw. This explains absence of any cervical bony injury. The laceration seen over face was due to its first impact over the concrete road.

As the first impact was over face, absence of any head injury is self explanatory. Clinical features of dysphagia, hoarseness, and dyspnoea can be explained by gross oedema of internal neck structures.¹²

Here, ligature mark was alike of hanging i.e. non continuous, oblique. This point usually favors attempted hanging rather than strangulation. But when the whole scene was reconstructed, it was formulated that although the vehicle stopped immediately the lady was dragged for a distance of 2-3 feet due to skidding of tyres. Torn clothing and graze abrasion around both lower limbs can be correlated with this drag. These findings are consistent with the statement given by the victim and the driver. On the basis of this, attempted hanging and any other foul play were ruled out and nature was given as accidental strangulation.

Such type of accidental strangulation cases is reported very often, but victims who survive are very few. Another rarity in this case is absence of any cervical bony injury. In such scenario, the trickiest task is cracking the manner of injury. When the victim dies, autopsy along with circumstantial evidence can sufficiently indicate the manner of the occurrence.¹³

5. Conclusions

In our country, auto rickshaw is a common mode of transport especially in periphery. The design of such vehicles look like lack of safety measures especially over doors which are mostly unguarded and open. The front seat which is made only for the driver is modified to accommodate passengers on both sides in a confined space. This causes slippage of passengers and falling down on road through unguarded doors causing serious injury. Moreover, speed limits and safety guidelines are not followed by those vehicles very often.

Although, this kind of accidents cannot be prevented; strict regulations regarding safety measures of small vehicles along with strict traffic guidelines must be implemented. Working women should take care of their clothing while travelling

in such vehicles. Long hanging scarf must better be avoided or used very cautiously to prevent such fatal outcomes.

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