



Case report

Occupational death due to bilateral carotid artery occlusion – A medico-legal case report



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ABSTRACT

Occupational deaths are work-related deaths and usually occur in the work place of an individual. A case of occupational death in a female factory worker has been described, where the *saree* she was wearing accidentally got entangled in the moving belt and caused ligature strangulation. She was unconscious throughout indicating bilateral occlusion of the carotids and died a day after the incident. The authors have described the correlation between the distribution of the injuries on the body and the manner a *saree* is worn. Investigation of the workplace revealed that the place where she was standing was located between two machines, and the space was inadequate for normal movement. Some suggestions have been offered which may decrease the incidences of occupational ligature strangulation due to entanglement of dress materials in the moving machineries.

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1. Introduction

An occupational death, commonly called as 'occupational fatality' (OF) or 'work-related deaths/fatalities' is a death that occurs while a person is at work or performing work related tasks. According to International Labour Organisation (ILO) data, an estimated 337 million workplace accidents and 2.3 million deaths occur every year, with some 6300 deaths per day.^{1,2} 350,000 of these deaths are due to accidents, and the rest are due to occupational illnesses and diseases. China and India together are estimated to account for over 100,000 accident-related deaths.² Common causes of OFs include falls, machine-related incidents, motor vehicle accidents, electrocution, falling objects etc.³ A 5-year study on OF in New Mexico reported 17% of the deaths to have been caused due to contact with objects and equipments.⁴ Entanglement of clothing's or some body part in the machine was responsible for 9.8% of occupational deaths in the old farmers.⁵

Incidents of accidental strangulation by uncovered wheels of vehicles or machineries is a common occurrence, especially among Indian women whose traditional dress is a *saree* or a *chunni*. A number of cases of such accidental ligature strangulation have been reported.^{6–11} A *saree* is worn in a manner wherein one of its free

ends dangles from the back of the left shoulder (Fig. 1A and B), making it vulnerable for entanglement in machines or wheels of vehicles. Here we report the case of a female worker of a cement manufacturing factory who succumbed to her injuries following accidental ligature strangulation in a running machine.

2. Case report

A female worker at a cement processing factory was received in our hospital with a history of accidental ligature strangulation while at work. At the time of admission, she was unconscious with a Glasgow Coma Scale score of 5/15 (E₁V₁M₃). There was no history of vomiting or seizures. Her pulse, blood pressure and respiratory rates were within normal limits. There was extensor plantar response on both sides. X-ray of the cervical spine showed no injuries to the cervical vertebra or the spinal cord. CT scan of the brain revealed a left sided middle cerebral artery territory infarct with right sided fronto-parietal infarct. She was referred to neurology who advised her intravenous mannitol along with ranitidine, aspirin and atorvastatin. She succumbed to her injuries a day after the incident. At autopsy, the following injuries were noted on her body.

1. A grazed abrasion of size 41 × 4 cm extending from the posterior axillary line of the left side, going obliquely upwards and

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Fig. 1. The way a saree is worn. (A) Front view. (B) Rear view. Note the free end dangling from the back of left shoulder.

medially above the left shoulder to the front of chest to end 4 cm below the supra sternal notch (Fig. 2A and B).

2. A ligature impression in the form of an abrasion of size 13×0.8 cm extending from 1 cm below the supra sternal notch, going obliquely upwards along the right side of neck to end behind the right shoulder (Fig. 2B and C).
3. A grazed abrasion of size 20×4 cm present on the back, extending from a point 26 cm below the external occipital protuberance and 5 cm to the right of midline, going obliquely upwards along the right infra-scapular margin (Fig. 2D).
4. An abrasion of size 10×1.5 cm present obliquely below the above-mentioned injury no. 4 (Fig. 2D).
5. A grazed abrasion of size 12×2 cm present obliquely over the left side of back, 36 cm below the external occipital protuberance and 5 cm to the left of the midline (Fig. 2D).
6. A grazed abrasion of size 11×7 cm was present adjoining and just above the above-mentioned injury no. 6 (Fig. 2D).

On internal examination, contusion of muscles of the neck was noticed underneath the injuries. The carotid arteries, laryngeal cartilages and hyoid bone were found to be intact. Brain and both lungs were congested and oedematous to a variable degree. Rest of the examination was unremarkable. Toxicological analysis of the viscera did not show the presence of any sedative or intoxicating substance. Death was due to cerebral anoxia arising as a consequence of ligature strangulation.

3. Discussion

In ligature strangulation, a constricting force other than the weight of the body is applied directly to the ligature. They are usually considered homicidal and should be presumed to be

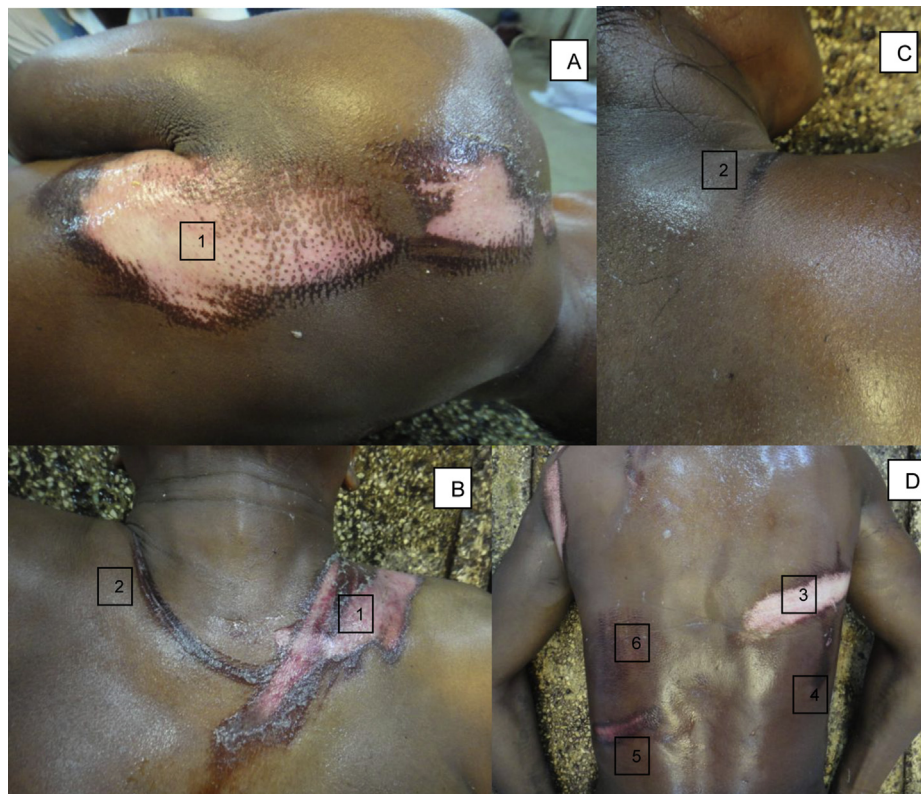


Fig. 2. Numerals denote the injury numbers mentioned in the text.

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