

Saree on Fireside: Fatal Burn in an Elderly Nepalese Female

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ABSTRACT

As winter approaches, people in the land of rural Himalayas commonly use fire as the source of heat. Many accidents occur in the process, and mostly the victims are among unattended children and the elderly. We present a case from rural Nepal where an elderly female sustained fatal burn injuries. Advanced age, greater surface area, and secondary infection were the complicating factors. In the present case, the victim's clad cloth (Saree) was the harbinger to death. Prevention of infection following burn and control of sepsis still remains the mainstay of treatment in burn victims.

KEY WORDS

Burn injury, Elderly, Nepal, Saree, Sepsis

INTRODUCTION

Saree is a traditional dress commonly worn by women in the Indian sub-continent which is approximately 5.50 meters in length and 1.15 meters in breadth. It is wrapped below waist, covering the lower limbs upto the ankle, in multiple loops and entangled with the body starting from one end, while the other free end is draped around the left shoulder. The everyday wear saree is made up of light cotton fabric, which can easily catch fire. As the cloth is draped in multiple turns, it becomes difficult to remove if it catches fire thus making it hazardous if worn around a fireplace. We present a case from Nepal where an elderly female sustained fatal burn injuries when her Saree caught fire.

CASE REPORT

A 70-year-old female, wrapped in hospital bandages over both her lower limbs, was brought for autopsy. On removing the bandage, it was revealed that, she had sustained full thickness skin burn over her front and back of thighs and upper one third of both the legs in its dorsal aspect (fig. 1A). The burn had involved her perineum including the groins (fig. 1B). Her right hand had a full thickness skin burn in the ventral aspect in its lower third (fig. 1C). The total body surface area involved in burn was estimated to be 32%. The burn injuries showed pus and slough formation with multiple greenish patches. Internally, there was a collection of fluid in the thoracic cavity measuring 200 ml in the right and 90 ml in the left side. The lungs were



Figure 1. A- Full thickness skin burn over the buttocks, thighs and upper one third of both the legs in its dorsal aspect. B- Burn involving the perineum and the thighs anteriorly. C- Full thickness skin burn of the right hand in its lower one third.

boggy with prominent rib markings. The right lung weighed 750 gm and the left lung weighed 700 gm. Both the lungs were congested, and frothy fluid oozed out on cut-section. The heart weighed 280 gm and gross examination was unremarkable. The lining of the stomach mucosa was intact. All the organs were pale.

As per the police inquest and history provided by the relatives, it was a cold winter evening when the victim and her family members gathered after supper and were nattering in front of a campfire in the backyard of their house. After sometimes, all the family members left to sleep, while the victim stayed back feeling the warmth of the fire. After sometime when she tried to warm her back, her Saree accidentally caught fire. It was a sudden deflagration to which she tried to extinguish with failed attempts. She then cried for a help after which she was rescued and taken to the nearby primary health care center. Due to geographic remoteness and unavailability of the vehicle she was treated with first aid and was kept in the primary health care center overnight. The following morning, she was taken to a tertiary care center. Due to the lack of burn unit, the tertiary hospital referred her to the another hospital which had a special unit for the burn care. She succumbed to the complications of burn injuries and breathed her last in the hospital bed on 12th day of admission.

DISCUSSION

The forensic pathologist needs to determine the manner of death in cases of fatal burns. In cases of self-immolation by fire, the burn injuries are usually seen over the upper part of the body anteriorly which is accessible.¹ In cases of homicidal burn, the burn injuries are noticed in an inaccessible part of the body. There will be an evidence of

use of fire accelerant in case of homicidal burn.¹ Sometimes, the perpetrators burn the body postmortem to conceal the crime. In such cases there will be absence of carbon soot in the respiratory tract. Lower legs, particularly the sole of the foot is spared in accidental or suicidal burn, however, in case of post mortem burn, as the body is kept supine, the burn injuries might be present on the sole of the foot too. In cases of accidental burn, the victim will try to extinguish flame with the hands. Examination of the dominant hand of the victim will invariably show burn injuries.¹

The intact skin provides a barrier against infection and also protects the body from loss of body fluid.² Burn disrupts the metabolic process of the tissue and results in tissue death by coagulation necrosis. The loss of skin removes the natural innate immunity and also makes the body prone to loss of fluid and body heat.² Although the burnt part is sterile immediately after the incident, burn wound provides favorable condition for the bacteria to colonize.² Burn sepsis leading to toxic shock syndrome is the most common cause of death in burn patients. As the burn patients are usually bed ridden, the indwelling equipment and procedure make the patients vulnerable to secondary infections.^{2,3} Nosocomial infections acquired from the hospital linen or during handling of the patient for cleaning are not uncommon.^{2,3} Furthermore, the gut flora may invade and colonize the burn wound after defecation and cleaning.^{2,3}

Infection is one of the most common causes of mortality in burn victims.^{3,4} The infamous pathogens to produce burn sepsis are *Staphylococcus* and *Pseudomonas* species. The greenish patch on the wound surface is pathognomonic of *Pseudomonas* infection. Continued use of antibiotics may cause in the bacterial resistance and treatment failure.^{2,4} As the skin barrier is lost following burn, the wound is susceptible to the viral and fungal infections too, further complicating the cases. Fire related fatality in elderly population is mostly due to residential fires as seen in our case.³ Older age, total burn surface area and sepsis are the risk factors for mortality in the burn victims.⁴

As winter approaches, people in the land of rural Himalayas commonly use fire as the source of heat. Families and friends gather around the fire until the body temperature is warm enough for a night's sleep using locally available wood and timber. Many accidents occur in the process, and the victims are usually unattended children and elderlies. Advanced age, greater surface area and secondary infection were the complicating factors in the present case to which the elderly female succumbed to complication of burn injuries sustained from a fire place. In the present case the victim's Saree was the harbinger to death. Prevention of infection following burn and control of sepsis still remains the mainstay of treatment in burn.

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