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**Case Report**

# Extreme complication of somnambulism: death due to accidental fall from height

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## ABSTRACT

Somnambulism is NREM sleep disorder which associated with severe injuries and violence and even death. We reported an extreme complication of somnambulism i.e. death due accidental fall from height leading to head injury. Twenty-one-year-old male fell from a terrace of a three-storey residential building (13-14 meters) in the early morning. Police and relatives thought it to be suicidal or homicidal death. On inquiry, he had a history of somnambulism (SA) and sleep talking [somniloquy (SL)] since childhood. He never had severe injuries due to somnambulism except for minor injuries. Autopsy findings showed multiple comminuted fractures of the skull, but no evidence of long bone and spine fractures. Multiple graze abrasions on both the sheens, right knee, and toes; these were suggestive of brushing or hitting with enclosure wall of a terrace. Other injuries were suggestive of impact with the hard surface of ground. He died due to a complication of somnambulism, which was accidental in nature. We suggest safety practices, regular psychiatric and psychological assessment for a person suffering from somnambulism.

**Keywords:** Accidental, Fall from height, Sleepwalking, Somnambulism

## INTRODUCTION

Sleep-walking (SW) or somnambulism (SA) is a type of automatism seen during non-REM sleep. It occurs in an early part of the night. It commonly observed in the age group of 5 to 12 years. They are difficult to wake and unable to answer due to deep sleep. They may occasionally harm themselves and need protection from injury. They need safety measure in the house and instruction about safety and prevention of sleep deprivation.[1]

Its occurrence is familial and highest prevalence at the age of 12 years. Six percent prevalence is seen in the adult after the age of 12 years who do not recover from the SA. Patients may seek medical help in severe cases of injuries and violence.[2] It is commonly seen during periods of stress or family disturbances.[3] SA may be associated with aggression, anxiety, panic disorder, Tourette's syndrome, and migraine.[4] The automatic motor activities may range from simple to complex and person may remain partially aware. It includes walking, urinating, eating, and exiting from the house. Even agitation or violence may result in attempted awakening. It is seen in stage 3 or 4 of NREM sleep and the first 2 hours of the night. Recurrent episodes may be seen in 1-6% of patients.[5] We are reporting a rare case of death following fall from height due to somnambulism.

## CASE REPORT

Twenty-one-year-old person was brought dead to tertiary care Hospital, Mumbai due to fall from a terrace of three-storey residential building (13-14 meters) in the early

morning. On prima facie Police and relative thought it to be suicidal or homicidal death. After the police inquest and statement of neighbors and on a personal inquiry of his relative, he had a history of SA and sleep talking [somniloquy (SL)] since childhood. He was taking treatment for SA and SL in-consistently, whose details were not available with family. Personal history revealed that he used to hit the wall during somnambulism and he was warned by the relatives and friends for the same. He was also advised not to sleep on the open terrace of his residential building. But, he ignored the warnings by relatives and roommates. He continued to sleep over the terrace of the building during the night in a summer season. As per police inquest, accidental death report and statement copies of relatives he fell from the terrace of his building at 1.20 a.m. and succumbed to the injuries.

We visited the crime scene (terrace and ground floor) in the morning. We observed height and width of enclosure wall were 52 cm and 25 cm respectively. We found evidence of blood stain on enclosure wall and ground floor where body found.

***Autopsy findings***

On external examination, Multiple graze abrasions were present over the both the sheens and right knee between 12 cm and 45 cm, proximal to heels (Figure 1).

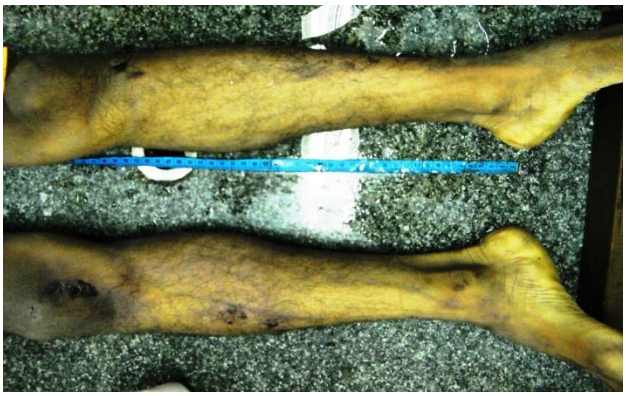

**Figure 1: Graze abrasions on both sheen and right knee.**

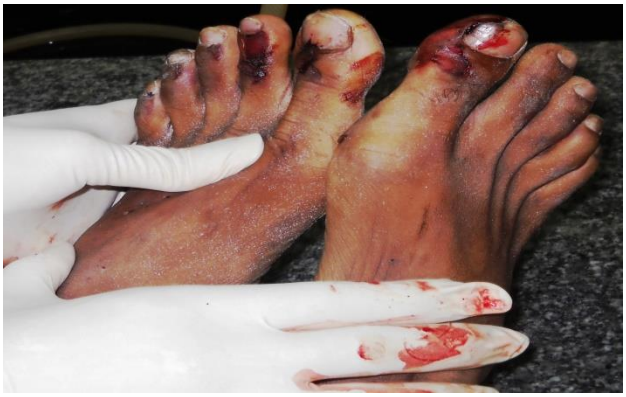

**Figure 2: Abrasions on toes.**

Abrasions were seen on toes (Figure 2). These injuries were suggestive of brushing or hitting of sheen with enclosure wall while he fell from a terrace. Multiple abrasions, lacerations, and contusions were seen over the head, and lower lip, which were suggestive of impact with the ground. On internal examination, we noticed multiple comminuted, displaced fractures of the occiput, bilateral orbital plate of frontal bone, both temporal and parietal bones (Figure 3). Brain showed lacerations of parietal, occipital lobes and cerebellar cortex. We also noticed two splenic lacerations and 250 ml of blood in peritoneal cavity. Spine, lungs, liver, kidneys and hollow organs were intact. Chemical analysis of viscera was negative for poison including for alcohol and drugs.

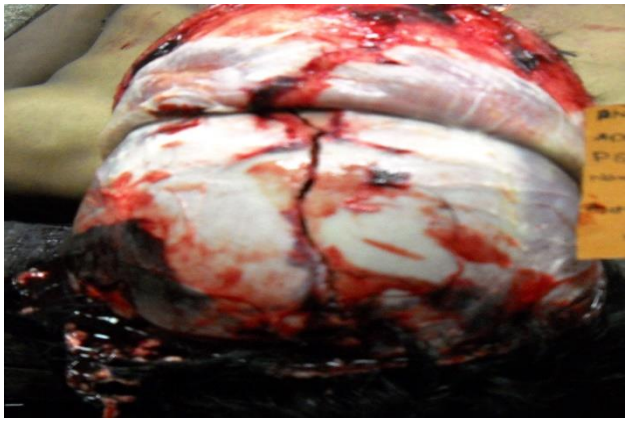

**Figure 3: Fracture of skull vault and sub-scalpal contusions.**

We excluded possibility of suicide and homicide. The injury patterns, history of SA, inquiry of near relatives were pointing towards accidental death due to fall from height in SA state.

## DISCUSSION

Sleep-related violence may be night terrors/sleepwalking, nocturnal seizures, rapid eye movement (REM) sleep-behavior disorder, and sleep drunkenness. These are treatable disorder and violence occurring due to these disorders may be misinterpreted as suicide, assault, and homicide.[6] It is sometimes difficult to diagnose the SW and sleep terror, which are treatable.[7] Broughton et al studied and reviewed a case of somnambulism with a history of homicide and attempted homicide. They stressed on evidence of somnambulism, precipitating factors, psychiatric analysis, etc.[8]

It is rarely seen in adult of age 21 years with SA; death due to its complication is also rare. Injuries or death due to SW may involve medical or legal attention and it may be misclassified as suicidal. They analyzed a case of suicidal death, which turns out to be accidental death due to SW.[9] In present case, an age of victim was 21 years and investigating officer considered it as suicidal or homicidal death. But we reviewed time of incidence,

circumstantial evidence, autopsy findings, and inquiry of relatives. We concluded manner of death as an accidental due to falling from height as consequences of SA. Sillesen et al reported case of a 64-year-old person during SA he climbed out of a second-floor toilet window. He fell from a height of 6-8 meters and fractured long bones, vertebrae and suffered a pneumothorax.[10] But in our case only skull fractures were seen and no fractures of long bones and vertebrae which indicate that his head hit the ground first.

Treatment of SW is not consistent, and up to 3% adults walk during sleep.[10] It should be discriminated from REM behavior disorder and complex partial seizures. SA has no specific treatment, but clonazepam and selective serotonin reuptake inhibitors are useful. Safe practice of sleeping should be adopted, which includes sleeping in the ground floor, closed windows and no fragile furniture.[2]

He was not taking the treatment properly and he had not followed safety practices suggested for SA. We had done meticulous study of autopsy findings, crime scene, personal and treatment history. We excluded a possibility of other neurological disorder, suicide, and homicide.

## CONCLUSION

Somnambulism may result in accidental fall which should be distinguished from suicidal or homicidal fall. In such cases, meticulous autopsy, investigation, and inquiry by police, circumstantial evidence is needed to clarify the circumstances of death and manner of death. We would like to suggest safety practices of sleeping, consistent treatment and precautions for the somnambulism.

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