

Value of crime scene visit in an unusual accidental electrocution death - A case report

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Abstract

The advent of electricity, modernization and industrialization are boon to mankind but at the same time there is rise of accidental deaths due to flouting of safety norms, callousness and ignorance. Electrical injuries are common, and fatalities are rare but not uncommon. It is often difficult to locate the site of entry and how it would have occurred. The source of leakage of electricity is very important to conclude and as well prevent mortality and morbidity in future. Often, dogmatic opinion is a must to claim compensation. The Forensic Expert should visit the death scene before the autopsy at least in complicated cases (if it is feasible), and especially when one fails to come to a logical conclusion by perusal of the documents like sketches, photographs etc. prepared by the crime scene investigation team. Many intriguing medicolegal deaths may be resolved amicably by death scene investigation. A visit by forensic expert to the scene of crime helps in observing the body in the context of its surroundings. One can pick up relevant trace evidences to arrive at crucial conclusions viz. time since death, aid investigating officer to trace the accused. Autopsy surgeon can correlate & interpret findings during autopsy. A rare case of electrocution is presented where the site of exit of electricity was confusing. The Autopsy surgeon's scene visit cleared the doubts and enabled the investigating officer to accurately comprehend the manner of death, entry and exit, and cause of death.

Keywords: Electrocution, crime scene, scene of occurrence, psychological autopsy

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Introduction

Death investigation is a complicated process, which involves police department as well as other forensic disciplines working together. The principles of establishing, managing and investigating a crime scene is to secure, identify and preserve evidence that may have value in a subsequent court setting (1). In unnatural death cases such as suspected homicide, and other suspicious or obscure cases, the forensic expert should visit the scene of occurrence

before body is removed. In a large proportion of instances, crime can rapidly be excluded in favor of accident, suicide or even natural causes. Scene visit is a most useful and cost effective function (2). Thorough and meticulous investigation is the key to success and a tool to prove criminal case beyond reasonable doubts in the court. A fair investigation should include, in addition to interview of concerned people, details about identification, collection of various evidences and interconnecting them before

presentation in the court (3),(4).Crime scene visit may be of great help for proper investigation of the case. Relevant history & facts of the case help in proper interpretation by a doctor (5).Scene of crime visit by forensic expert minimizes the chances of introduction of artifacts due to passage of time and misinterpretation (6).Visit to the crime scene, helps to find out whether death is the result of thermal injuries, smoke inhalation, or combination of these at the scene of fire, electric short circuit case etc(7). Routinely the autopsy surgeon has to rely upon information furnished by police officers. Team approach of crime investigation and crime scene investigation is still at primitive stages in India. Ten most common errors in death investigation are noted by Vernon J Geberth (8). Most of the errors occur at crime scene.

1. Improper response to the scene by police.
2. Failure to cordon off and protect scene.
3. Not handling suspicious deaths as homicides.
4. Responding with a preconceived notion.
5. Failure to take sufficient photographs.
6. Failure to manage the crime scene process.
7. Failure to evaluate the victimology.
8. Failure to conduct an efficient canvass.
9. Failure to work together as a team.
10. Command interference or inappropriate action.

“A great many people think they are thinking when they are merely rearranging their prejudices”. – William James

Failure to conduct victimology as regards to ascertain the motives and intent is one of the mistakes in investigations (9).A preconceived notion in investigation ruins the case and leads to progress in a wrong direction. This was proved again in the sad demise of high profile officer in March, 2015 in Karnataka State. The case also exposed how primitive is crime scene investigation in India.

In India, in accordance with Sec. 174 and 176 of CrPC, police officer in charge of station or magistrate visits the scene of crime and conducts inquiry. Magistrate invariably relies on police and merely signs the inquest report. It is superior to police inquest only on paper. It is unfortunate that Medical Examiner's System is not in vogue, even with availability of plenty of doctors & forensic experts in India (10). The rudimentary age old system of examining the body only in the mortuary continues. Role of autopsy surgeon starts at crime scene and

ends at autopsy table after meticulous autopsy. However in India in some rare occasions the autopsy surgeon's request for visit to scene of crime is honored by Investigating Officer (IO) but after the autopsy!

A case has been narrated where crime scene visit helped to solve the case.

Case Report

On 15/09/2008, body of 24 years old male was brought for autopsy by T S Halli Police Station booked with UDR No 11/08, U/S 174(c) CrPC. Information furnished by police was alleged h/o accidental electrocution while cleaning poultry shed with electric pump.

External Findings

Length of body was 5'6". It was moderately built and nourished and Brown in complexion. Body was stiff due to preservation in cold storage. Livor mortis purplish pink was present over back.

External Injuries:-

1. Dark brown discoloration of 0.5 cm diameter over tip of left great toe.
2. Whitish crater of 0.75 cm diameter over the inner aspect of base of right thumb. (Fig: 1)
3. Bilateral sclera laceration with sub-conjunctival hemorrhage. (Fig: 2a & 2b)



Fig 1: Whitish crater

Internal Findings

Blood was dark red and in fluid state. All internal organs congested. The substance of brain, liver,

interslobar fissures of lungs showed scattered petechiae.



Fig 2a: B/L Scleral laceration with Sub conjunctiva hemorrhage

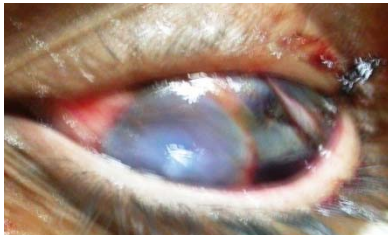


Fig 2b: B/L Scleral laceration with Sub conjunctiva hemorrhage

An unusual electric exit wound through eyes necessitated the crime scene visit.

A visit to scene of occurrence was arranged on 16/09/2008. An attempt was made to reconstruct the scene with the help of eyewitness. (Fig.3a, 3b, 3c & 3d)

A psychological autopsy was conducted by interacting with coworkers of the deceased. This analysis helped us how would the accident have occurred.

Opinion as to the cause of death

On perusal of circumstantial evidence & reconstruction of scene of occurrence, opinion as to the cause of death was as a result of failure of vital center due to passage of current through brain stem as a result of electrocution.

The photographs narrate how electrocution would have resulted in death of deceased. (Fig.3a, 3b, 3c & 3d)



Fig3a: Position of gun in Victim's hand



Fig 3b: Electrical junction box at roof



Fig3c: Gun corresponding to burnt mark



Fig3d: Forensic experts at the scene

Discussion

Commonest type of electric fatalities is accidental. Though its usage is so common in daily routine, suicidal deaths are rare and rarest being homicidal. Alternate current (AC) being used for domestic purpose is more dangerous and fatal at 4-6 times lower strength than Direct Current (DC). The muscles go for tetanic convulsions and spasm enhancing contact duration. DC is relatively less dangerous because of repulsions (11). Chances of survival are more with spark burns, arc injuries, bone & soft tissue injuries sustained by forcible fall. Electrocution mishaps are common in bathroom and kitchen because of dampness, wet skin and use of electric appliances. Wet skin greatly reduces resistance as compared to dry skin. The AC as low as 70-80 mA can be fatal (12),(13). Exit of electric current is mostly seen at feet or opposite hand when entrance is through hand. Moist skin, broad area and low voltage may not display electrical burn mark. Thick dry skin may resist electric entry but exhibit well mark in the event of electrocution. Exit mark may be absent in some fatal cases. Entry and Exit can be at rare sites and need to be searched thoroughly(14). The lesion at the point of exit is commonly more severe and often shows radiating tears. A sketch/photograph should be made by investigating officer (IO) of the scene of electrocution. This helps to preserve on record the spatial relationship of the victim, suspected tool, connections and the victims grounding contacts (15). In a rare case, entry was through urethra when person was urinating at electric pole (16). The best solution is crime scene visit by autopsy surgeon before the body is disturbed. Exit wounds are variable in appearance, often seen as splits in skin at points where the skin has been raised into ridges by

the passage of current (17). Autopsy surgeon can correlate & interpret findings during autopsy. The scene visit aids forensic expert to link injuries on body with the causative weapon and to rule out artifacts. The Investigating officer being non-medical personnel might have unduly emphasized on some changes in the body. In electrocution case with no evident entry or exit, crime scene visit with team of experts to locate leakage of current, possibility of transient electric surge becomes very much essential. In rare instances we may have to conclude the case to be that of electrocution by exclusion rather than dubbing it to be an 'Obscure case' or 'Negative autopsy'.

Conclusion

The case reported with rare exit site amply explains the importance of crime scene visit. *"When you introduce humans, you introduce human error!"* Crime scene investigation is a team work usually headed by investigating officer. Team approach minimizes human errors. To & fro transportation to crime scene is to be arranged by investigating officer. Police investigators & photographs are no substitute for forensic expert's crime scene visit. A visit minimizes introduction of artifacts and thus misinterpretation. The absence of uniform medico-legal work guideline has worsened the crime scene investigation in India (18). Any manual prepared and released by registered Forensic Medicine association must have assent by Central & State Government. It should be made mandatory throughout India. The IO, forensic scientists and experts must work in coordination without preconceived notions so as to pick relevant piece of evidence. The photographs, video graph and sketches must be critically analyzed by the team. What mind knows eyes shall detect. But camera lens detects all that is in its field. Hence the team must review photographs & video to get extra information missed when scene was visited. The need of the hour is training of police and all experts of team comprising crime scene investigation as regards to scientific approach to crime scene investigation(19). The scene visit before autopsy must be made mandatory by stringent law in all suspicious deaths.

Crime Scene Investigation Kit for doctors: A standard kit comprise (20):

Water proof apron, rubber gloves
Thermometer, syringes and needles, sterile swabs
Measuring tape & steel tape roll
Hand lens, digital camera

Clean containers (glass & plastic)
Polythene & paper envelopes
Glass slides, notebook, pen, markers, pencils
Glass vials (EDTA & oxalate) for blood and body fluids
Formalin jars for histological samples
Printed body charts to recording external injuries

Disadvantages of not visiting the Scene of Crime (21):

- Fresh injuries may be added during transit to mortuary.
- Injuries may be masked due to onset of decomposition.
- Rigor mortis may get broken down during transit.
- Cloths get disarranged, fresh tears & blood stains.

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Conflict of Interest

None

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