



## ACCIDENTAL BURNS OR SUICIDE: A CASE REPORT

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Article Info	ABSTRACT
<p>Received 04/07/2015 Revised 19/07/2015 Accepted 24/07/2015</p> <p><b>Key words:</b> Kerosene, Burn injuries, Kerosene poisoning, Brain tumor, Suicide.</p>	<p>Kerosene is among the most frequently used fuels for cooking, lighting and heating among people living in low-income communities lacking electricity in under developed and developing countries. Kerosene is relatively inexpensive and a wide range of appliances are equipped to burn it, but it can endanger human health from burns and poisoning. Generally kerosene poisoning is most commonly seen in children and burn injuries are mostly seen in females while cooking. Though kerosene can also be used for suicide, homicide, assault, or arson attempts, fires due to kerosene can be particularly dangerous in low-income urban communities, where dwellings are densely located and constructed of flammable materials such as wood and cardboard. Burn injury cases caused by kerosene is routinely seen in casualty and wards, and in routine postmortem cases also we see burn injuries which are mostly by kerosene but kerosene poisoning along with burn is rarely reported specially in a young adult female. In this paper we present such a case in which a 35 year old female individual came to casualty with burn injuries alleged to be accidental in nature but autopsy revealed that she had also consumed kerosene.</p>

### INTRODUCTION

Kerosene is a thin, clear liquid consisting of a mixture of hydrocarbons.[1] The word kerosene comes from the Greek word 'keros', meaning 'wax'. In the UK, kerosene is also known as paraffin and home heating oil. Kerosene is produced on an industrial scale by distilling crude oil in a process similar to that used to produce diesel or petrol. The use of kerosene in homes has substantially decreased since the Second World War due to improved electrical and gas supplies. However, kerosene is still extensively used for cooking, heating and lighting in the developing world. Kerosene is relatively inexpensive and a wide range of appliances are equipped to burn it, but it can endanger human health from burns and poisoning. Cases of accidental poisoning by children are still relatively common in such countries. Kerosene poisoning remains the commonest household substance involved in accidental ingestion, it accounted for 40.7% as reported by Wani *et al*

[2] in 2004 though other studies like Sharma & Sexana [3] reported 33.7% in 1974 and Satpathy & Das [4] has reported an incidence of 55% in 1979. Kerosene oil ingestion results in toxicity of gastrointestinal, respiratory and central nervous system [5]. Aspiration pneumonia was the commonest complication observed but responded within 1-2 weeks [2]. Kerosene is not particularly poisonous. However, if a child or adult accidentally swallows kerosene, medical advice should be obtained immediately as there is a risk of pulmonary complication if aspiration takes place. Frequent skin exposure may lead to skin damage (dermatitis). Kerosene has a strong smell and taste. It cannot be used as a homicidal poisoning. Suicidal poisoning is very rare [6]. Most poisoning cases are accidental in nature, when a child ingests kerosene. This is generally because of negligence, ignorance of risks and a lack of parental surveillance. Kerosene is mostly stored in



those utensils or bottles, which are used for drinking purpose, and these being stored in such places easily accessible to children. If a parent has stored kerosene negligently resulting in accidental intake by a child, he is liable to be prosecuted u/s 284 of IPC (negligent conduct with respect to poisonous substance; 6 months and / or Rs1000 fine) [1]. It may be taken by mouth, or poured onto cloths and the clothes then ignited (self-immolation). Homicidal attempts by pouring kerosene on the clothes and igniting them are not uncommon in our country (dowry deaths). However, most fatalities are accidental [7]. We came across such a case in which a 35 years old married female brought to casualty with alleged history of accidental burn but a meticulous autopsy and careful history taking indicate that she had committed suicide.

### CASE PRESENTATION

The case related to a 35 year old female who was brought to the department of accident and emergency, Pt. B.D. Sharma PGIMS, Rohtak, Haryana (India) with alleged history of accidental burn while boiling water. Patient attendant gave a history that she was a known case of seizure disorder. From past 2-3 years she was on treatment. Patient had a past history of brain surgery in 2006 for brain tumor at AIIMS New Delhi. On examination she had superficial to deep burns present over body. 90-95% body was burn. She was unconscious at the time of arrival. General conditions were poor. Pulse was not palpable; BP was 82/60mm Hg. On auscultation of chest, bilateral air entry was decreased. Vene-section was done and IV drip started along with antibiotics. Patient's condition deteriorated despite all efforts and she succumbed to her condition and expired on the same day. The body was brought for autopsy to the Department of Forensic Medicine, Pt. B.D. Sharma PGIMS, Rohtak. The

following observations were made at autopsy.

### External Examination

The length of the body was 160 cm. There was no ligature mark around the neck. The body was found to be wrapped in a white sheet of cloth and a red color shawl. The body was naked. Scalp hairs shows singeing along with eye brows and eyelashes. Both eyes were closed. Yellow metallic koka (nose pin) present over left ala of nose. Mouth was opened. A white surgical bandage present over right elbow having two stitches with a vene-section wound. Red color thread present over left wrist. Superficial to deep burns present all over the body except both feet and lower 1/3<sup>rd</sup> of both legs along with left buttock area. Red line of demarcation present between burn and unburned area. Burnt pieces of cloths present over the body. The total burn area was 90-95% of total body surface area. Kerosene smell was coming from the body.

### Internal Examination

Scalp was charred. On opening the scalp there was a old healed oval shaped 10x7cm craniotomy wound over left temporo-perital region of skull. All vertebrae were healthy. Five stitches were present over the left temporo-perital region of dura. Brain was congested and edematous. Ribs and cartilage were healthy. Larynx and trachea shows black color soot particles. Hyoid was intact. Both lungs were congested. Pharynx and esophagus were focally congested. Stomach contained 100 ml of bluish liquid emitting kerosene smell. Mucosa shows focal congestion. Small intestine contain semi digested material and emitting kerosene smell. Large intestine contained fecal matter and gases. All viscera were congested on cut section. Bladder was empty uterus was also empty.

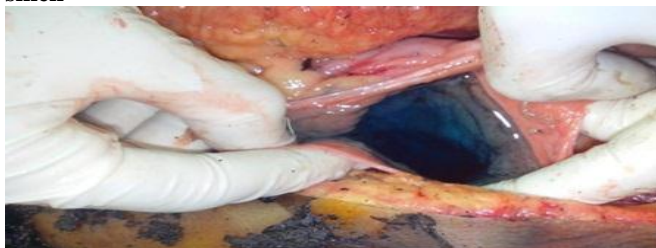
**Fig 1. Burn area at back along with red line of demarcation**



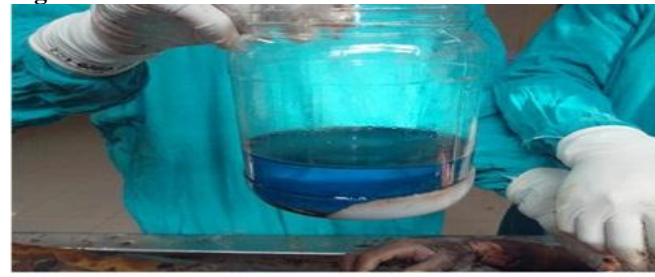
**Fig 2. Superficial to deep burns present over the body**



**Fig 3. Bluish fluid present in the stomach with kerosene smell**



**Fig 4. Kerosene recovered from stomach**



**Fig 5. Patchy congestion of mucosal surface of stomach**



**Fig 6. Stitches were present over the left temporo-perital region of dura**



**Fig 7. Healed craniotomy wound over left temporoperital region of skull**



**Fig 8. Trachea showing blackish soot particles**



## DISCUSSION

Kerosene is mostly used for cooking and lightening purpose in developing countries like India. It is available to the people on a subsidized rate. Since it is easily available even in kitchen, people attempt or commit suicide by self immolation by using kerosene. Also it is commonly used to destroy evidence after committing crime specially murder. Homicidal attempts by pouring kerosene on the clothes and igniting them are not uncommon in our country (dowry deaths). Accidental ingestion of kerosene is commonly seen in children. But since the kerosene is having a typical & unpleasant taste and smell, so cannot be used for homicidal poisoning. Most of the cases of kerosene poisoning are accidental in nature and mostly reported in children, because it is store in a water bottle which can be easily accessible by small kids and death are generally due to pulmonary complication which arises due to aspiration of kerosene. This is the reason why gastric lavage is contraindicated in kerosene poisoning specially in children. However most of the burn cases that we encounter during postmortem examination, kerosene play an important role, since most of the victims are female and most of the incidences are took place in the kitchen which is the common place for kerosene storage and the common history was “*she got burn while cooking*”. Some time this history was false. Now in this case as mentioned in the internal examination that stomach contain 100ml of bluish liquid which emits

kerosene smell and burns present over the body which also emits same smell clearly states that she pore kerosene over her body and then consumes kerosene and burn herself (self-immolation). In simple words she committed suicide. Now the question arises; why? The answer of this question is present in the history taken earlier as well as in post mortem examination. During postmortem examination we came across a healed craniotomy wound after that a retrograde history was taken. Deceased relative told that she was diagnosed as a case of brain tumor in 2006 and then she under gone for brain surgery in AIIMS New Delhi in the same year. After surgery she was under medication and radiotherapy. She was also having seizure disorder due to above said disease. She was frustrated and depressed due to her diseased condition. As we know that depression is the biggest and single most important cause of suicide. Patients who had received a cancer diagnosis had increased risks of both suicide and death from cardiovascular causes, as compared with cancer-free persons [8].

## CONCLUSION

In this case a meticulous autopsy and careful history answers most of the question and queries. The autopsy reveals that she had a burn injury and she consume kerosene before death. This clearly indicates that she had committed suicide, and the predisposing factor was her clinical condition. So history taking and meticulous autopsy both are equally important to solve many puzzles.

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