

## Original Article

### RETROSPECTIVE ANALYSIS OF DEATH DUE TO BURNS IN RURAL REGION

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## Original Article

### RETROSPECTIVE ANALYSIS OF DEATH DUE TO BURNS IN RURAL REGION

Dr. U Gonnade, Dr. JM Farooqui

#### Abstract:

Death due to burning is not uncommon in India, which is mostly amongst the married women. Therefore investigation of these cases is essential to find out various preventive measures for health policies. The present study was undertaken at Rural Medical College, Loni in Department of Forensic Medicine. In present study deaths were retrospectively analysed from the available records of burns victims of 5 years, between year 2006 to 2010. In present study data was analysed in view of age, gender, marital status, percentage of burns, hospital stay of victim of thermal burns. Analysed data was tabulated and represented graphically.

**Key words:** Burns, percentage of burns, rural region.

#### Introduction:

Burning of married women in India is a major concern for the Government, law enforcing authorities, the judiciary, the police and medicolegal experts all over the country. The impact of burns, especially severe ones, is worse in the developing countries compared to high income countries because of infections and lack of adequate physiotherapy. (1)

#### Aims and Objectives:

- i. To collect data to find out information related to age, gender, marital status & surface area of burn to prepare policy to prevent occurrence of burn in rural society.
- ii. To know the trends of death due to burns.
- iii. To know the demographic distribution of burns.
- iv. To identify vulnerable individual.
- v. To know the magnitude of mortality due to burns.
- vi. To know the survival period.

#### Material and Method:

The present retrospective study was conducted in the Department of Forensic Medicine and Toxicology, Rural Medical College, PIMS (DU), Loni (M.S.), for the period between 01/01/2006 to 31/12/2010. Information regarding age, gender, hospital stay, address was gathered from the data available in the department. All cases of burns admitted in hospital of rural medical college between the year 2006-2010 and the bodies which were received in the institution for post-mortem examination, were included in this study. Whereas the bodies received brought dead to the hospital and those died of burns other than Flame Burns were excluded from the study.

#### Results:

Out of total 958 autopsies which were conducted at Department of Forensic Medicine and Toxicology, Rural Medical college, PIMS, Loni, (M.S) during the study period from 1st January 2006 to 31st December 2010, 168 deaths were due to burns. 160 cases were admitted in the hospital and 8 cases were brought dead to the hospital. There was no regular pattern in the incidence of burn over the study period.

Table:-1 Gender wise Distribution of cases of burns.

Sex	No. of Cases	Percentage
Male	44	27.50
Female	116	72.50
Total	160	100

It is observed that out of 160 cases of burn 116 cases were female and 44 cases were male and the male: female ratio was 1:3. Regarding the gender distribution Female deaths are more than the Male. (Table-1)

Table:-2 Marital status of victims.

Marital status	Number of cases	Percentage %
Married	142	88.75
Unmarried	18	11.25
Total	160	100

Maximum numbers of burns victims were married. Amongst those, maximum number of burns victims were females i.e. 106 (about 75%). 18(11.25%) were unmarried burns victims and amongst those 12 (66.66%) were females.

Table-3: Age and Gender wise distribution of the victims of burns

Age group	Male	Female	Total
0-09 years	05	05	10
10-19 years	01	08	09
20-29 years	09	54	63
30-39 years	10	31	41
40-49 years	13	13	26
50-59 years	05	00	05
60-69 years	01	04	05
70-79 years	00	00	00
80-89 Years	00	01	01
Total	44	116	160

It is observed that maximum number of cases were found in the age group of 20-29 years, and minimum number of cases were found in the age group of 70-79 years, and no cases were found above the age 90 years. More male victims were present in age group 50-59 years and more female victims in age groups of 10-19 years, 20-29 years, 30-39 years, 60-69 years and 80-89 years. The mortality was same for males and females between the age groups 00-09 years, 40-49 years and 70-79 years. (Table- 3)

Percentage of Burn	Number of cases	Percentage of cases
00-10%	00	00
11-20%	00	00
21-30%	02	01.25
31-40%	05	03.125
41-50%	13	08.125
51-60%	19	11.875
61-70%	24	15.000
71-80%	30	18.75
81-90%	25	15.625
91-100%	42	26.25
Total	160	100

Survival Period	Number	%
< 24 Hrs	32	20.000
1-3 days	11	6.875
3-5 days	32	20.000
5-7 days	26	16.25
1week-1 month	43	26.875
>1month	03	1.875
Not known	13	8.125
Total	160	100

Table-4:-Distribution of burns over Total Body Surface Area. Table-5 Survival period of victims of burns

Taking the body surface area into consideration, it was observed that more than 80% of body surface area is involved in 67(41.875%) cases. (Table-4)

Out of 160 cases 147 cases studied for the period of survival and 13 cases, where time of death is not available are included in not known category. Maximum period of survival was more than one month in 03 cases. Maximum number of cases died within 24 hours of admission i.e. 32 (20%). 91(63.125%) cases died within one week of admission. (Table-5)

### Discussion:

Burns in developing countries like India is endemic and continues to be a major challenge to the health care provider and society.<sup>2</sup> Though there is no time trend in this region, yet it constitutes 17.70% of the total deaths coming for autopsy at mortuary, but in study of virendra kumar et al<sup>2</sup> this incidence is reported as 19.40%.

Total number of postmortem examination conducted at department from 2006, 2007, 2008, 2009, 2010 were 183, 151, 175, 203 and 246 respectively. Total number deaths due to burns were 22, 23, 25, 48 and 42 in respective year of 2006 to 2010. Thus the percentage of death due to burns during year 2006-2010 is 12.02%, 15.23%, 14.28%, 23.64% and 17.07% respectively. Data shows increase in Burns deaths from year 2006 to 2009 and then a decreasing trend is seen. Hence, out of the 958 autopsies performed on all types of unnatural deaths between 1st January 2006 to 31 December 2010, 160 (16.70%) were the cases of burns, which is 3% less from the study of Virendra Kumar et al<sup>2</sup>. These 160 fatal burns cases forms the material of this study in respect to data of age, gender, marriage, percentage of burns and hospital stay.

Out of total 588 suicidal deaths 71.4 percentage were married and 28.6 percentage were unmarried and total 108(18.3%) burns deaths were observed by the Mohanty S et al<sup>3</sup> In present study data shows that death due to burns are more common amongst the married person may be due to the reason associated with the marriage. Both in married and unmarried person female were the common victims.

Seventy five percent of female burns victims were observed from Virendra Kumar et al<sup>2</sup>. In present study we find that incidence of burns is more common among females in all age groups except in the elderly and age group 50 to 59 years of age, where male are at higher risk and among all age groups 72.50% are females.

In a study of virendra kumar et al<sup>2</sup>, about 78% of the victims were in the age group of 11-40 years. Highest deaths reported between age 21-30 years in study conducted at North Karnataka by Tapse SP et al<sup>4</sup>. In Manipal Palimar V and Raghavendra Babu Y.P<sup>5</sup> conducted 14 years retrospective study in age below 18 years and found that, out of total 42 cases, maximum cases 18 (42.8%) of burns present between the age 13-18 years. In our study about 53% of the victims were in the age group of 21 to 40 years, and about 70% of the victim were in the age group of 11 to 40 year

In the study of virendra kumar et al<sup>2</sup>, the overwhelming majority (92.50%) of the victims had more than 40% of total body surface area (TBSA) burns indicating the incompatibility with life even at a tertiary care center. About 94% mortality are over 40% of TBSA reported in study from North Karnataka by Tapse SP et al<sup>4</sup>. In Manipal, in study of Palimar V et al<sup>5</sup>, below 18 years of age, (23/42) 54.9% of deaths were reported with burns above 60% of TBSA. In our study, 95.62% mortality are over 40% of TBSA.

Tapse SP et al<sup>4</sup>, in their study reported about 49% burns deaths below one hours, and about 08% deaths between 3 to 7 days and 78% death within one week. In our study 63.12% of burns deaths are within a week and 36.25% burns deaths between 3-7 days of the incidence of burns.

### **Conclusion:**

The present study highlights the following features pertaining to the burn deaths:

1. Majority of deaths occurred in the married (about 89%) subjects.
2. Majority of the burns victims are females in child bearing age (about 71%).
3. Peak incidence of mortality due to burns is in adolescent and young age groups (11-40 years).
4. Most of the mortality (96%) present above 40% of TBSA.
5. Majority of deaths occurred within a week of the incidence (about 63%).

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## Case Report

### FATALITY IN SCUBA DIVER

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## Case Report

### FATALITY IN SCUBA DIVER

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#### Abstract:

The term scuba stands for Self-Contained Underwater Breathing Apparatus. Several underwater heavy works are carried out easily by SCUBA divers with the help of advance technique and apparatus. Working in the hyperbaric condition underwater is a difficult task. Due care and trained persons are always required. Still unavoidable accidents occurs rarely. Decompression sickness, barotraumas, previous systemic diseases, fatigue and physical trauma are the main causes of fatality. It has been recommended that the autopsy itself should be conducted in a decompression chamber in order to prevent the post-mortem dissipation of gas. This is hardly possible [1]. So the autopsy should be done with some protocol and in water seal condition, especially thorax dissection. The case presented here illustrates the autopsy findings to ascertain cause of death in case of a SCUBA diver death.

**Key words:** SCUBA, barotraumas, autopsy, hyperbaric, decompression

#### Introduction:

Both SCUBA and skin diving have unusually serious accident potential. So the investigation of diving fatality is multi-faceted, involving inquiry into number of areas; including

- Past medical history,
- Past diving history,
- The circumstances of dive,
- The equipment used,
- The events before and after the fatal accident,
- The resuscitative measures taken,
- The medical finding at post-mortem examination.

Civil suits for compensation may arise and in these circumstances a forensic pathologist may well become involved as expert witness providing the autopsy evidence [1].

#### Case report:

A corpse of 41 years old SCUBA diver referred to morgue of forensic medicine department, Government Medical College, Mumbai. The diver found dead underwater in the deep sea nearly 70 meter depth. The police papers & clinical summary written by doctor on the deck of the ship revealed that; he was a skilled SCUBA diver with occupation of engineer involving in a skilled underwater work. As a regular part of his job he went underwater with all equipment for the job assigned to him of cutting the metallic leg guard. He took approximately 1 hour to reach at work place underwater, which was at 70 meters depth. After discontinuation of communication between diver and operator at ship, another diver went underwater. Another diver found deceased unconscious at place with broken and displaced oxygen mask. He carried out deceased on the floor in pressure chamber. On-floor doctor of ship examined him and declared dead. The accident was registered after noting fall of heavy girdle of 5 tons on the diver. Body sent for post-mortem examination. While cutting the girdle probably it fell on him and caused fatality.

On external examination a well-built body of male with tattooing done all over trunk and hands was observed. The face is markedly congested and swollen. Rigor mortis was fully developed all over body. Post-mortem lividity present over back, fixed and purple. The skin over chest and neck were crepitant and gritty, on palpation. Also skin over trunk and legs has granular and puckered appearance. There was a transverse abrasion resembling ligature mark around neck, at the level of thyroid cartilage, 18 cm in length and 1.5 cm in breadth. The underlying skin was parchmented. Another abrasion present over right anterior part of chest, half-moon shape, oblique, of size 27 cm in length and 7 cm in breadth. Lower border of abrasion was straight and upper border convex. Another linear abrasion present over right side of chest, near anterior axillary line, red, 8 cm in length, vertical.

On further dissection of neck, the anterior neck muscles and para-tracheal tissues show haemorrhages with blood clots. There was thyroid cartilage fracture. Right sided first five ribs in mid-clavicular line, and clavicle at medial end were fractured. There were tiny bubbles beneath fatty layer of skin.



Photo 1: Semi lunar shaped abrasion over chest, and transverse abrasion resembling ligature mark over neck.



Photo 2: Transverse fracture of body of C-7 vertebrae, with transection of spinal cord

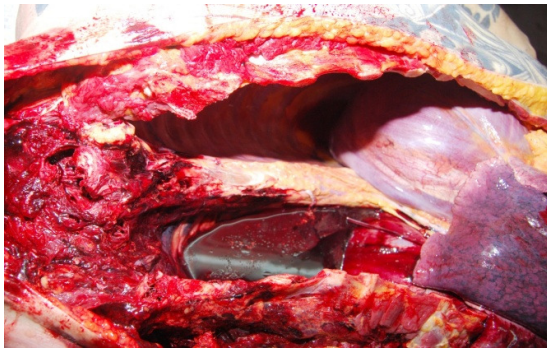


Photo 3: Massive hemo-thorax on right side.



Photo 4: Puckered and Granular Appearance of skin with tattoo on trunk. (Goose skin)

On dissection of chest underwater after making compartment with the help of skin flaps, shows escaping of large amount of air through right side, suggestive of air within pleural cavity at right side of thoracic cage. After opening chest cavity there was a massive hemo-pneumothorax approximately 2 litres. Right pleura and lung were lacerated at places with emphysematous bullae present over apex. Left lung was collapsed, showed some



emphysematous bullae over surface. Heart dissection did not reveal evidence of air embolism. There was no frothy fluid in trachea. Stomach was empty, with congested mucosa. On brain dissection after tying all vessels, no evidence of any air in vessels was detected but cut surface shows petechiae. All other organs were congested and normal.

On inspection of spine there was a complete transverse fracture of 7th cervical vertebrae body. This was associated with transection of spinal cord at C-7 level. No other significant injuries found over the body.

Radiological examination was non-significant.

### **Discussion:**

Adequate investigation of a fatal diving accident demands more than a meticulous autopsy [2]. SCUBA diving fatality should be investigated in an organised way. WAIT (Water Accident Investigating Team) is one of the agencies for proper investigation [3].

In the present case after perusal of the history, obtained through police inquest, discussion with colleagues and co-workers of the deceased, safety officer and the ship medical officer before autopsy we ruled out other contributing factors responsible for death. Diver didn't have any past medical disease history. He was appointed after regular training and was continuously engaged in diving profession. There was no history of alcohol or any other drug consumption. The equipment was functioning in good condition.

After the detail autopsy examination, findings were suggestive of trauma under water and cause of death was confirmed as death due to complete transection of the spinal cord as a result of fracture and dislocation of seventh cervical vertebrae. The possible events correlated as when the diver went under water at depth of 70 meters and was doing his job of cutting the leg guard, there was accidental fall of heavy girdle on his right side of body, the hit of which dismantled the mask, leading to impact on neck, resulting in fracture dislocation of cervical vertebrae with transection of spinal cord, resulting in sudden death. This impact also resulted in injuries over neck, trunk causing fracture of ribs of right side, with development of hemo-pneumothorax. As death was immediate after sustaining trauma, no air embolism was observed

Air might have forced through the lacerated lung parenchyma and entered into pleura space and percolated into subcutaneous tissue under skin resulting in crepitanity at few places. The cause is same as for air embolism; over expansion of the lungs causing air to leak through the alveoli and bronchial tubes into surrounding tissues[4]. This gives the crepitant feeling to skin. It must be recognised that the very act of decompression is likely to allow bubbles to form within the body; even if they were not there; when death took place. Thus the finding of gas in the vessel and tissue interpreted in the knowledge that they may be an artefact; part of differentiation is quantitative [1].

The physical effects related to increased pressure are referred to as barotraumas- otherwise known as dysbarism [5]. The three syndromes in which pulmonary barotraumas are manifest are pneumothorax, interstitial emphysema and air embolism [3]. Drowning is the terminal event but it is important for the investigation to explore and identify potential underlying causes- inability to swim, fatigue, decreased level of consciousness, natural diseases, trauma, physical disability, equipment malfunction.

### **Conclusion:**

The fatalities in SCUBA diver are not uncommon. The major deaths are accidental. The event of accident can be interpreted by obtaining history from all available sources. Meticulous autopsy specially looking for air embolism, decompression sickness, aggravation of natural diseases leading to fatal consequences and most vulnerable injuries both external

and internal with adequate investigation including chemical analysis plays an important role. However in under water sudden death, the classic typical finding of decompression syndrome may not be observed.

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## Case Report

### A CASE OF NITROBENZENE POISONING

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## Case Report

### A CASE OF NITROBENZENE POISONING

Dr. MB Chandurkar, Dr. SS More, Dr. PS Bhole, Dr A Jadhavar, Dr. S Garkal

#### Abstract:

A young female referred as a case of unknown poisoning was diagnosed as a case of methemoglobinemia due to Nitrobenzene poisoning from history and clinical examination she was treated with intravenous methylene blue with complete recovery.

**Keywords: Nitrobenzene, Methemoglobinemia, Cyanosis, Methylene blue**

#### Case:

A 16 yrs young female referred from private practitioner with alleged history of consumption of about 25ml of unknown compound around 11 pm after domestic quarrel with parents. Patient had history of 4-5 episodes of vomiting after consumption. There was no history of excessive salivation, convulsions, and loose motions. No h/o breathing difficulty, loss of consciousness, headache or giddiness. Patient's relatives had not brought the container of compound consumed on admission. There was no significant past history of major medical, surgical or psychiatric disorder. No history of suicidal tendencies or similar attempt in past.

Patient's general and systemic examination was normal on admission. There were no signs of organophosphorus or sedative poisoning, no smell of any compound to soiled clothes or gastric lavage. Patient received gastric lavage, antiemetic and was referred with nasogastric tube and Foleys catheter insitu. Within four hours after admission patient developed peripheral and central cyanosis and was not maintaining oxygen saturation as seen on pulse oximetry. Chest was normal on clinical examination, X-ray chest was normal and patient was hemodynamically stable. Arterial blood gases ABG PH: 7.1, PCO<sub>2</sub>: 27, PO<sub>2</sub>:105, Hco<sub>3</sub>:10.3, SO<sub>2</sub>: 96%.

Complete blood count on admission was Hb:11.5gm%, TLC:21,500/cumm, DLC: meta+band:7%, N:85% and L:8%. Platelet count: 3,40,000/cumm, PBS: Normocytic normochromic RBC. Other investigations like renal and liver function tests were normal. By this time patient's relatives had brought container of compound consumed. It was achemical used to enhance flowering of plants with nitrobenzene as one of its component (Photo 1).

In view of cyanosis with blood gases showing metabolic acidosis and container of compound of nitrobenzene, a diagnosis of methaemoglobinemia due to nitrobenzene poisoning was made. Patient was immediately treated with intravenous Methylene blue (Photo 4). Patients ABG returned to normal after Inj. Methylene Blue. ABG after injection methylene blue pH: 7.35, Pco<sub>2</sub>: 31, Po<sub>2</sub>:182, Hco<sub>3</sub>:15.3 and SO<sub>2</sub>: 100%. Cyanosis disappeared and patient made an uneventful recovery and was discharged on fourth day of admission.

#### Discussion:

The first report of poisoning due to nitrobenzene was in 1886 and subsequently several cases have been reported (1). Nitrobenzene, a pale yellow oily liquid with an odor of bitter almonds is used as intermediate in the synthesis of aniline dyes, and as a solvent for the manufacture of cellulose ethers and acetate, as a flavoring agent, as a perfume for soap and in rubber industry (2).

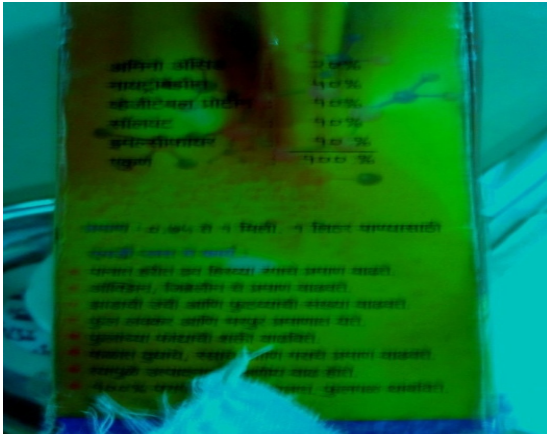


Photo: 1



Photo: 2



Photo: 3



Photo: 4

Nitrobenzene is an oxidizing nitrite compound. Acute ingestion of nitrobenzene leads to rapid development of methaemoglobinaemia (3). Methaemoglobin is normally present as less than 1% of the total hemoglobin under physiologic conditions (4). Levels above it are defined as methaemoglobinaemia. The estimated lethal dose ranges from 2 to 6 gms in adults; and doses less than 0.8mg/kg/day does not normally cause methaemoglobinaemia (5). In normal individuals methaemoglobin level must be greater than 10% to be clinically recognized and only mild symptoms, headache, fatigue and nausea occur at level of 20-30% (6). Dyspnoea on exertion, lethargy and tachycardia at 30 to 45% levels, and at 50 to 70%, arrhythmias, coma, seizures, respiratory distress and lactate acidosis. Levels greater than 70% cause cardiovascular collapse and have a high degree of mortality if left untreated (7). With significant nitrobenzene poisoning with methaemoglobinaemia, arterial blood gas analysis reveals lactate metabolic acidosis, tissue ischemia and hypoxia. PaO<sub>2</sub> remains normal, measured (not calculated) oxygen saturation will be low (3). Transcutaneous pulse oximetry estimation of oxygen saturation is lowered by methaemoglobinaemia. Spuriously high pulse oximetry readings are possible with increasing concentrations (2). Patients with symptomatic methaemoglobinaemia require intensive monitoring until symptoms clear or the methaemoglobin level is below 15% (4).

Methylene blue is the antidote of choice for acquired (toxic) methemoglobinemia (8). It acts as an exogenous co-factor which greatly accelerates the NADPH dependent methaemoglobin reductase system (8). Methylene blue is indicated for acquired methaemoglobinaemia when the level is greater than 35 to 40% and the patient has cardio-

respiratory symptoms (4, 8). The initial dose is 1 to 2 mg/kg or 0.1 to 0.2ml/kg of the 3% solution given intravenously over five minutes (3). Response occurs within 1 hour and reduces the elimination half-life of severe methaemoglobinaemia to 45-90 minutes. Methaemoglobin levels should be checked 1 hour after infusion and a repeat dose may be warranted if levels remain high and the patient is still symptomatic.

In higher doses, methylene blue itself is an oxidizing agent and as little as 5 mg/kg has caused asymptomatic methemoglobinemia (9). Cumulative doses greater than 7 mg/kg have an increased risk of methaemoglobin induction and can cause chest pain, nausea, vomiting, dizziness, hypertension, confusion, diaphoresis, tremor, dyspnoea and cyanosis.

If methylene blue is contraindicated or ineffective, ascorbic acid is often mentioned as an alternative therapy, but its reducing effect is probably too slow to have significant benefit (8). Exchange transfusion is indicated in severe cases, when both fail. Exchange transfusions equal to or less than the total volume and up to / greater than twice the volume have been used (3). The case represents an uncommon poisoning with nitrobenzene, which was managed successfully with intravenous methylene blue.

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## Case Report

### DELAYED DEATH IN SUICIDAL HANGING:A case report.

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## Case Report

### DELAYED DEATH IN SUICIDAL HANGING: A CASE REPORT.

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#### Abstract:

Hanging is one of the most common methods of committing suicide in India. Instantaneous death occurs in cases of hanging. However, few cases have been reported in literature in which death has occurred after a certain period of time or the patient has survived after prolonged resuscitative measures. Here we present four cases of delayed deaths following suicidal hanging in which the victims survived for variable duration after their rescue from hanging.

**Key words:** delayed death, suicidal hanging, early rescue and resuscitation, new life.

#### Introduction:

Hanging is a common mode of committing suicide among suicide cases<sup>[1]</sup>. Hanging is a form of asphyxial death, which is caused by suspension of body by ligature that encircles the neck, the constricting force being the weight of the body<sup>[2]</sup>. The death occurs within few minutes of hanging<sup>[3]</sup>. The process is invariably fatal unless the body is brought down in time and ligature released<sup>[4]</sup>. In hanging, cause of death can be asphyxia, venous congestion, combined asphyxia and venous congestion, reflex vagal inhibition, fracture or dislocation of cervical vertebrae. Death delayed for several days is rare<sup>[5]</sup>. If a person survives in attempted hanging, he/she may have secondary effects as hemiplegia, epileptiform convulsions, amnesia, dementia, cervical cellulitis/retropharyngeal abscess, parotitis<sup>[6]</sup>. Mainly respiratory and neurological complications such as pulmonary or neurogenic oedema resulting in post obstructive pulmonary distress, aspiration pneumonitis, ARDS, seizures, hypotension, neck vessel compression and cerebral hypoxia, and multiorgan failure can arise as fatal complication of hanging<sup>[7]</sup>. Here we present four cases of delayed death of suicidal hangings where victims succumbed to death due to one or more fatal complications after surviving for variable time duration.

#### Case 1

A 38 year old female was admitted to the hospital on 21/09/2012 by her relatives in an unconscious state. She had a history of partial hanging with the help of sari to a hook in the roof, at her residence. The patient was in shock and an incomplete ligature mark was noted on the left side of the neck. Despite rigorous treatment, her neurological status worsened and she died 48 hours after admission. Postmortem findings showed nutmeg appearance of lungs with pulmonary congestion and oedema and cerebral oedema. The liver showed centrilobular hemorrhage on microscopy. The opinion as to the cause of death was, "Hypotension and cerebropulmonary oedema as a complication of partial hanging".

#### Case 2

A 17 year old male student attempted suicidal hanging with the help of towel to ceiling fan on 23/12/12, at the hostel room. It was noticed by his friends, who brought him down from suspension immediately and admitted him to the hospital in semi-comatose state. A faint and incomplete ligature mark was noted on the neck anterolaterally. On 2<sup>nd</sup> day, tracheostomy was



done to relieve respiratory distress. Even after that the condition was worsening, so he was put on ventilation. During hospital stay, his respiratory and neurological condition worsened day by day and he succumbed to death after seven days. The patient suffered refractory hypotension with severe bronchospasm along with excessive tracheobronchial secretions just before his death. Postmortem examination revealed congested and oedematous lungs which on histopathology showed aspiration pneumonitis. The cause of death was given as, "aspiration pneumonitis as a complication of hanging".

### Case 3

A 30 year old male was found in hanged condition by his wife on 21/12/2012 with the help of sari to the ceiling fan, at his residence. He was then rushed to hospital in unconscious state. A faint and incomplete ligature mark was noted on the neck. As per the relatives, there was history of two episodes of generalized tonic clonic seizures while bringing him to the hospital. He also developed decerebrate posture. Initial clinical evaluation suggested hypoxic ischemic encephalopathy. MRI showed hypoxic ischemic insult of frontoparietal and temporal lobes. On next day, he developed labored breathing and was put on ventilation. Tracheostomy was done on 4<sup>th</sup> day of hospital stay. The neurological and respiratory conditions worsened day by day and he died on 17<sup>th</sup> day of hospital admission, despite all resuscitative measures. Postmortem examination revealed congested and oedematous lungs which on histopathology revealed aspiration pneumonitis and oedematous brain which on histopathology showed hypoxic brain injury. Final opinion as to the cause of death was given as, "complications following hanging".

### Case 4

A 34 year old male was found in hanged condition with the help of sari to ceiling fan on 13/03/2013. He was then brought to hospital in unconscious state. A faint and incomplete ligature mark was noted on the neck. On the same day he had one episode of generalized tonic clonic seizure. Clinical evaluation showed left hemiparesis and hypoxic insult to brain was suspected. The CT scan showed fracture of antero superior part of C4 vertebra. On next day, he was shifted in ICU and put on ventilation. Despite of all resuscitative measures, his respiratory and neurological condition worsened and he died on ninth day of hospital admission. Postmortem examination revealed Fracture of antero superior part of C4 vertebra, congested and oedematous lungs, which on histopathology revealed aspiration pneumonitis. Cause of death was given as, "complications arising from fracture of the cervical vertebra sustained during the attempt of hanging".

### Discussion:

The incidence of hanging in India is approximately 25% of total cases of suicide<sup>[8]</sup>. Out of four cases discussed, 3 were male and 1 was female belonging to age group 30 -40 years. Nithin MD et al reported three cases of delayed death, in which all were female victims, of ages between 20- 50 years. The patient population in existing literature on hanging is predominantly male, with an average age of forty years and history of substance abuse<sup>[9]</sup>.

Victim of hanging usually die within period of three to five minutes<sup>[10]</sup>. It may vary considerably when the compression around neck is released early and quickly<sup>[11]</sup>. In all the cases reported, the victims were found in hanged condition by their near and dear ones at the early stage. They rescued and brought the victims to hospitals immediately. Death in suicidal hanging is secondary to hypoxia and cerebral ischemia due to compression of airway and major blood

vessels of neck caused by ligature applied around neck and force of compression being the body weight<sup>[11]</sup>. A weight of 15 kg is required to compress the trachea to cause asphyxia<sup>[2]</sup>. The jugular veins are closed by tension in the rope of 2 kg. A tension of 4 to 5 kg on ligature blocks carotid arteries, and 20 kg blocks vertebral arteries<sup>[5]</sup>. The brain cannot withstand lack of oxygen for a period exceeding five minutes, beyond which permanent cerebral damage results<sup>[4]</sup>. Very rarely, the victims of hanging survive after prolonged period of unconsciousness<sup>[12]</sup>. Delayed death occurs due to, aspiration pneumonia, infections, oedema of lungs, oedema of larynx, hypoxic encephalopathy, infarction of brain, abscess of brain, cerebral softening<sup>[5]</sup>. Hocking (1961) has reported a case of a man who died seven days after hanging. Death was due to complications arising from fracture of the larynx sustained during the attempt<sup>[4]</sup>. Aggarwal et al reported a case where a 20 year old female survived for nine days in hospital after hanging episode and died due to cerebral anoxia<sup>[13]</sup>. In another case reported from Delhi, an adult male survived for 39 days after he was accidentally hanged while helping passengers trapped in lift<sup>[14]</sup>. Virendra Kumar also reported a case, where a young female survived for 15 hours after attempted hanging, and died due to hypoxic encephalopathy due to neck compression<sup>[15]</sup>. Here we discussed four cases of suicidal hanging which succumbed to death, after variable durations ranging from 48 hours to 17 days. Causes of death being various complications following hanging.

The previous authors observed that, clinical feature of patient of hanging involve respiratory and central nervous system. The common respiratory signs are respiratory distress, hypoxia, pulmonary oedema etc.; and the signs related to CNS are like restlessness, unconsciousness, muscular rigidity, convulsions, amnesia, hemiplegia etc.<sup>[9]</sup>. We found that in all cases respiratory distress was evident prominently for which either tracheostomy was done or else ventilation was provided. Neurological signs like convulsion was evident in two cases, while decerebrate posturing and hemiparesis was evident in one case.

Development of pulmonary oedema has played a major role as one of the causes of death in the 4 cases we have reported. Though the exact mechanism involved in the development of pulmonary oedema has not been elucidated, postulates include pulmonary capillary membrane damage leading to increased capillary permeability, hyperemia, in the lungs due to abrupt fall in intrapulmonary pressure following sudden removal of airway obstruction and pulmonary vasoconstriction mediated by vasoactive substances like histamine, serotonin, and kinins; the release of which is triggered by cerebral hypoxia<sup>[9]</sup>.

A patient may be saved by aggressive resuscitative measures if rescued within few minutes of suicidal hanging. Fishman et al has described two cases of ARDS following attempted suicide by hanging. Both had bilateral pulmonary oedema and were managed with tracheal intubation and positive pressure ventilation. Both survived without any neurological deficits<sup>[15]</sup>. Most often it is the inadequate oxygenation and cerebral perfusion that result in the death of the patient<sup>[9]</sup>.

Studies have showed that hanging time, presence of cardiopulmonary arrest at the scene and on the arrival, P/F ratio at the presentation and GCS on arrival represented prognostic factors of outcome in hanging<sup>[7]</sup>. Preventing re obstruction and providing adequate ventilation and oxygen are mandatory after relief of upper airway obstruction. Treatment includes supplemental oxygen and support cares, but positive end expiratory pressure and mechanical ventilation may be required for prolonged period<sup>[17]</sup>.

## Conclusion:

Fatal period in attempted hanging is not fixed. It may vary considerably with amount of constricting force as well as time of releasing the compressing force around neck. Also in every case of attempted hanging, the delayed death must be anticipated, as the patient is never out of danger. Finally early rescue, better assessment of prognostic factors and extensive and clever resuscitation can give new life to victim.

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## Case Report

### HOMICIDE DISGUISED AS ACCIDENT

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## Case Report

### HOMICIDE DISGUISED AS ACCIDENT

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#### Abstract:

Drowning is a type of violent asphyxial death. Deaths due to drowning are usually suicidal and accidental in manner, but homicidal drowning is not uncommon. Homicidal drowning can often be disguised as other manner which is misleading to the investigating officer. A case of drowning is presented herewith in which 17 years unmarried female was brought dead to GMCH Aurangabad for medico-legal post mortem examination with alleged history of accidental drowning. Autopsy revealed cause of death as "Drowning associated with ligature strangulation and insecticidal poisoning". Necessary samples for investigations were preserved. Manner of death was assigned as homicidal.

**Key Words:** Drowning, Ligature strangulation, Poisoning , Homicide etc.

#### Introduction:

Drowning is a type of violent asphyxial death where air entry into the lungs is prevented due to submersion of mouth and nostrils into water or any fluid medium. Signs of asphyxia are more pronounced in typical drowning unless death occurred immediately on submersion following laryngeal spasm, vagal inhibition, head injury, etc<sup>1</sup>.

In India, drowning is common method of committing suicide especially amongst women and more particularly in localities nearby sea, river or canal<sup>2</sup>. Accidental drowning is more common amongst non swimmers, children, drunkards, epileptics and persons suffering with underlying pathology. Homicidal drowning is one of the method of choice in infanticides<sup>1</sup>, however is not uncommon in adults and it is usually associated with marks of violence.

Strangulation is always presumed to be homicidal unless proved otherwise. Evidence of signs of struggle on the person of victim are usually noticed and if it is associated with signs of poisoning then it strongly favors homicide even in absence of signs of struggle<sup>1</sup>.

#### Case Report:

A Body of 17 yrs old unmarried female was brought dead for medico-legal post mortem examination with alleged history of accidental drowning. Body was retrieved from well in the farm situated 200 meters from her house.

P. M. Findings: The body was moderately built and nourished.

External examination:

1. Signs of asphyxia were prominent in the form of subconjunctival hemorrhage and cyanosis of nail beds.
2. Whitish, copious, tenacious, lathery, fine froth oozing from the nose.(Fig. No. 1.)
3. Pressure abrasion in the form of ligature mark over anterior aspect of neck, running horizontally at the level of thyroid cartilage.(Fig. No. 1.)
4. Abrasions present over right side of chin of size 0.5x0.5 cm and undersurface of chin of size 1x1 cm. (Fig. No. 1.)



Photo 1

Internal examination:

1. On opening the chest cavity both lungs were ballooned. Weight of right & left lungs were 550 & 500 gm respectively. Lungs were pale pinkish, crepitant on cut section and there was exudation of frothy fluid on squeezing. (Fig. No. 2.)
2. On opening stomach, strong smell of insecticide was perceived. Stomach content was 100 cc whitish fluid and mucosa was congested at places.
3. On neck dissection, contusions were present on soft tissues over anterior and left lateral aspects of thyroid which were consistent with ligature mark. (Fig. No. 3.)



Fig. No. 2

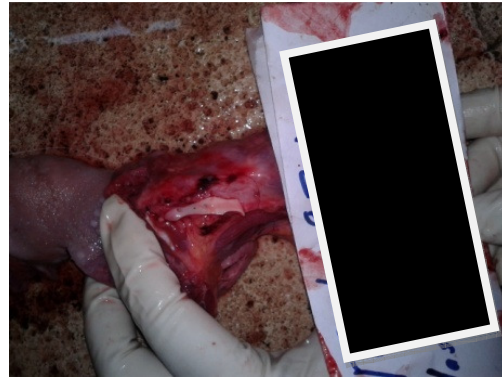


Fig. No. 3

In this case routine viscera were preserved for chemical analysis which revealed organophosphorus poisoning. Final cause of death was opined as “Drowning associated with ligature strangulation and organophosphorus poisoning, and manner of death as homicidal”.

Discussion:

An increasing death rate as a result of violence constitutes a large group in medico-legal autopsies especially deaths due to asphyxia are one of the most important cause in violent deaths<sup>3</sup>.

Drowning is one of the common forms of violent asphyxial death. Deaths due to drowning are usually accidental and suicidal in manner, but homicidal drowning is not uncommon. Homicidal drowning is not uncommon because victim's body remains concealed for some time. Identity may be difficult due to decay and injuries from predators. An adult may be intoxicated, drugged, or overpowered and then thrown into water<sup>4</sup>. Evidence of violence coupled with poisoning favors homicidal manner.

In a study conducted by Dr. SV Kuchewar, RD Meshram, SJ Gadge, and RR Khetre, manner of death as homicide in drowning was found to be in only 3.4% cases. As it is easy to disguise the case as suicidal or accidental, a thorough and meticulous autopsy is essential to conclude the manner.<sup>5</sup>

Fine, white, copious, tenacious, lathery froth oozing from the nostrils and mouth is essentially a vital phenomenon in a case of typical drowning. Similarly the lungs are ballooned, voluminous, and edematous in such cases<sup>6</sup>. In this case, these classical signs of drowning were observed which concluded that the victim was made helpless by forceful intoxication, with attempted ligature strangulation and then was thrown in to water.

Further follow up and information gathered from the police revealed that she was elderly amongst 5 sister siblings and there was allegedly difficulty in finding her suitable marital match. During the police interrogation, her father and uncle confessed her killing in the manner consistent with autopsy findings and tried to disguise as accidental death.

This case was beyond suspicion of the investigating authority to presume as homicide but meticulous and thorough autopsy guided police to proceed on the ground of homicide.

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## Case Report

### AN UNUSUAL ARTIFACT

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## Case Report

### AN UNUSUAL ARTIFACT

Dr AH Meshram, Dr DV Bhore, Dr SD Nanandkar

#### Abstract:

Artifact means alteration, modification, addition or absence of some post mortem findings due to certain causes mostly arising after death. Artifact may originate at the time of death, after death, at the site of death during transportation of body from site of crime, in the mortuary, after its arrival and before the conduction of the postmortem examination, during process of postmortem examination, while processing viscera and other materials for laboratory examination and also in the forensic science laboratory during testing of the material. So far autopsy surgeon is concerned by check and cross check of the body whenever doubt arises in his mind about something necessarily with the help of independent source till specific conclusion as to cause of death is made. Thus forensic expert through meticulous autopsy identifies the artifact and removes the doubt. A dead body of a middle aged man was referred to the department from one of the nearby district hospital in the summer season of 2013. This referral was on account of 'hanging with cut throat injury'. The body was found hanging from the gallery of first floor in the deceased home. It is not unusual for a forensic expert to encounter a victim of suicidal hanging, no lesser if the body is putrefied, but on meticulous autopsy and careful examination of the neck an artifact in the form of cut throat injury were encountered. The paper describes the unusual artifact looking like cut throat injury due to typical hanging phenomenon with self speaking illustrations.

**Keywords :** Artifact, Hanging, Cut throat injury.

#### Introduction:

An artifact is any artificial product; any structure or feature that is not natural, but has been altered by processing<sup>(1)</sup>. The term is used in histology and microscopy for a tissue that has been mechanically altered from its natural state. Any change caused or a feature introduced into a body after death that is likely to lead to misinterpretation of medico-legally significant ante-mortem findings is considered to be an artifact<sup>(2)</sup>. Post-mortem artifacts are due to any change caused or feature introduced into the body after death. They are physiologically correlated to natural state of the body or tissues or the disease process to which a body was subjected prior to death. Ignorance or misinterpretation of such post-mortem artifacts can lead to:

- a) Wrong cause of death,
- b) Wrong manner of death,
- c) Undue suspicion of criminal offence,
- d) A halt in the investigation of criminal death,
- e) Unnecessary spending of time and effort as a result of misleading findings or
- f) Miscarriage of justice<sup>(3)</sup>.

Every Forensic Expert must, therefore, be aware of missing out such crucial entities or he can really be in a "soup" of his own making!

#### Case report

A dead body of middle aged male referred for expert autopsy from civil hospital with history of ligature encircling the neck and deep cut throat injury over the neck anteriorly. As per police inquest panchnama and history given by police and relatives of the deceased the

person locked the room from inside and hanged himself with a thick nylon rope of 3 cms diameter, from the gallery of first floor in his house. He was found hanging 3 feet below the roof of gallery, the hanging was typical in nature. The body remained hanged for 18 hours inside the room. Later on neighbors of the deceased informed police about foul smell emitting from the house. The police team broke the door open and found the person in typical hanging state. The police cut the rope, doctor declared the person dead. The police officer noted the ligature mark encircling the neck with cut throat injury anteriorly. This cut throat injury created the suspicion in the minds of civil hospital doctors and police officers thinking of foul play. However considering the following autopsy findings

- a. Body was in early decomposition state
- b. Cyanosis of finger nails.
- c. Height of body 174 cms, weight 80kgs,
- d. Laceration (artifact) of size 10cms x 6cms x muscle deep over anterior aspect of neck underlying the ligature mark. The edges were lacerated, ends obtuse.

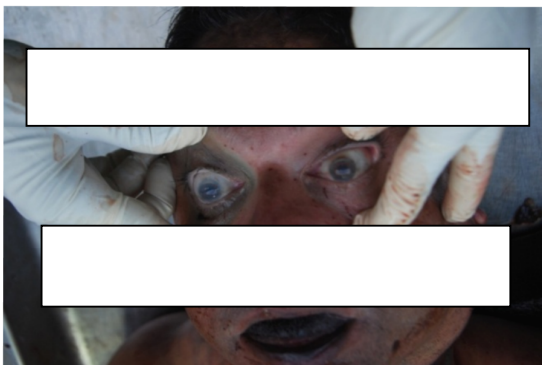
It clarified that it is an artifact and not the cut throat injury. The artifact in the form of cut throat injury is probably due to the early decomposition changes at larynx and pharynx site and external compression of neck by thick nylon rope and due to weight of the body.

#### External findings of the body at Autopsy:

The body was in an early stage of decomposition, it being the second day since the purported last date of being seen alive. Mouth open, tongue bitten, finger nails cyanosed, height of body 174 cms, weight 80kgs. There was a ligature material in the form of a nylon rope around the neck in a single ply with a fixed knot, placed high above the thyroid cartilage in oblique plane. The same was carefully removed and preserved. The ligature mark was that found in any typical case of hanging. Ligature mark of 2.5 to 3 cms in width encircles the neck with a knot mark over the occiput. An unusual finding was laceration of size 10 cms x 6 cms x muscle deep over anterior aspect of neck underlying the ligature mark. The edges were lacerated, ends obtuse. This clears that it is an artifact and not the cut throat injury. (Photograph 1- 6).

#### Internal findings of the body

The internal findings in the neck were of ante-mortem hanging. While exposing deepneck structures, an infiltration of blood were noted along the ligature mark with contusion with hematoma of neck muscles. On dissection Fracture of C2, C3 and C4 vertebrae with underlying contusion of spinal cord (Photograph 7).



Photograph 1: Showing Congestion of eyes and tongue bite.



Photograph 2: Showing cyanosis of finger nails.



Photograph 3: Showing Post mortem lividity on hand.



Photograph 4: Showing Ligature mark encircling neck.



Photograph 5: Artifact looking like cut throat injury



Photograph 6:Artifact looking like cut throat injury.



Photograph 7: Internal findings of neck underlying ligature showing neck muscle contusion with hematoma

**Opinion:**

The cause of death was opined as 'Asphyxia due to hanging' and the manner of death 'Unnatural'.

### **Discussion:**

Post-mortem artifacts are a common occurrence in all autopsies and if not accounted for with due care can lead to wrong interpretation of important findings and vice versa. Decomposition of the body is responsible for perhaps the most common and the most significant of the artifacts<sup>(4)</sup>. The red cells are the most affected, sedimenting through the lax network, but plasma also drifts downwards to a lesser extent causing an eventual post-mortem dependent oedema which contributes to skin blistering which is a part of early post-mortem decay<sup>(5)</sup>. Many a time, untrained and even very experienced autopsy surgeons reach wrong conclusions during post-mortem examinations. This unusual finding in the form of cut throat injury is due to the early decomposition changes at larynx and pharynx site and external compression of neck by thick nylon rope and due to heavy weight of the body.

### **Conclusion:**

Meticulous autopsy clearly differentiates the finding of artifacts and helps the autopsy surgeon to come to conclusion as to cause of death. This clears the suspicion of the relatives and police officers and helps in disbursement of justice.

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## Case Report

### MEDICOLEGAL EXPERT, NEED OF AN HOUR

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## Case report

### MEDICOLEGAL EXPERT, NEED OF AN HOUR: A CASE REPORT

Dr. AA Taware, Dr. VT Jadhao, Dr. HS Tatiya, Dr. SB Punpale.

#### Abstract:

In Maharashtra, usually the postmortem examinations on dead bodies are carried out by medical officers in the primary health centers, rural hospitals and district hospitals. On the grounds of 'extensive putrefaction of the body' or 'Lack of Forensic expertise' a unique "referral" system is prevalent all over the country by which a medical officer refers a dead body to the nearest Forensic department. Many a times, the medical officer fails to see wounds or injuries on the dead bodies which later are precisely noted by forensic expert while sometimes deliberate or unintentional overlooking of clearly visible injuries is done by the medical officers. This can lead to miscarriage of justice to the dead person. In doubtful circumstances, relatives of the deceased or investigating agency are not satisfied with first postmortem report and they request for a re-postmortem. The results of the re-postmortem of the body usually have a totally different scenario than that of the first autopsy. We present a case report and discuss the importance of re postmortem examination and need of a medico legal expert.

**Key words:** Miscarriage of justice, re- postmortem examination, forensic expertise.

#### Introduction:

As quoted by French medico legal expert, *Paul H Broussard*, "A surgical operation is attended with pain, and is for the benefit of the individual, an autopsy is free from pain, and is for the benefit of humanity"<sup>[1]</sup>. The word "Autopsy" is derived from two terms "autos" i.e. self and "opsis" i.e. examination (self-examination)<sup>[2]</sup>. In common usage it means postmortem examination of body. It includes external examination and dissection of internal organs to find out pathological changes. "Dead man tell tales" – will be found true if postmortem examination is carefully carried out<sup>[3]</sup>. Aims and objectives of postmortem examination are to determine cause of death, identification of unknown, find out manner of death, time since death, determination of viability in new born babies, preserve the trace evidences and viscera when needed, reconstruct the accident scenes from examination of injuries as to nature and duration etc.<sup>[4]</sup>. In India there is provision of complete postmortem examination. Every cavity of body should be examined. Even if cause of death is evident, other areas and organs to be examined to find out any contributory cause of death<sup>5</sup>. Sometimes certain avoidable/unavoidable circumstances arise compelling a second postmortem examination on an already autopsied body. These "circumstances" can be lack of forensic knowledge of the first team, non-seriousness in trying to find cause of death or disgust and resultant superficial autopsy conducted by the doctor while examining a putrefied/mutilated body. Another set of conditions can be those involving financial/political considerations<sup>[5]</sup>. In India, the Postmortem examination is mainly conducted by medical officers, working at Primary Health Centre or Community Health Centre of various parts of country. Most of them are not having basic knowledge of Forensic Medicine and Toxicology. In some cases relatives of diseased or investigating officer are not satisfied with the First autopsy report and they go for Second autopsy in higher centres<sup>[6]</sup>.

#### Case history:

A dead body of 30 year's old unknown female was brought to Forensic Medicine department of B. J. Govt. medical College, Pune, for second postmortem examination on 05/07/2011. The lady was found dead in naked condition; in the cane yard of a village in Shirur Taluka on 03/07/2011. Dead body was sent for postmortem examination to nearby primary health centre. The postmortem examination was conducted by medical officer on the same day. On external examination he noted 1] Oval bite mark, 6 x 4 x 5 cm, 2] Multiple abrasions on chest wall and upper abdomen, 3] Multiple abrasions all over back,. On internal examination medical officer could not detect any abnormality. The opinion as to the cause of death was given as- "*Opinion reserved viscera preserved for analyses*". The investigating agency was not satisfied with that opinion. Two days later they brought the dead body to Department of Forensic Medicine and Toxicology of B. J. Govt. Medical College and S. G. H. Pune and requested for second post mortem examination of the body by a panel of two forensic experts.

Details of second post mortem:

We received, studied and scrutinized the inquest papers and first autopsy report carefully, and inquired about the whole chain of incidences in great details, as it is mandatory in all cases. The first autopsy report was not conclusive. During second postmortem examination; we noted three identification marks, which helped investigating agency to reveal the identity of that unknown female. On external examination body showed early signs of decomposition in the form of greenish discoloration over right iliac fossa. Rigor mortis was absent in upper limbs and partially present in lower limbs. Finger nails showed cyanotic discoloration. The autopsy incision of first postmortem examination was present in midline extending from suprasternal notch to symphysis pubis. There were no autopsy incisions over scalp and neck regions.

Following external injuries were noticed over the body:

1. Abraded contusion present over the forehead on left side, of size 4 cm x 3 cm, irregular, dark brown in colour.
2. Abraded contusion present over the right angle of mandible, oval in shape, of size 4 cm x 3cm, irregular, dark brown in colour.
3. Lacerated wound present over the left mandibular region, extending from left angle of mandible to the chin, of size 4 cm x 3cm x muscle deep.
4. Abrasion present over the left cheek, of size 2 cm x 1 cm, irregular, dark brown in colour.
5. Abraded contusion present over anterolateral aspect of neck on left side, in middle one third region, oval in shape, of size 5 cm x 4 cm, irregular, dark brown in colour.
6. Contusion present over the right shoulder, anteriorly, of size 2 cm x 2cm, irregular, bluish black in colour.
7. Linear abrasion present over the right forearm, over extensor aspect, in upper one third region, vertical, of size 6 cm x 0.2 cm, dark brown in colour
8. Abrasion present over the right forearm, over medial aspect, in middle one third region, of size 1 cm x 0.5 cm, irregular, dark brown in colour.
9. Abraded contusion present over right wrist dorsally, of size 1 cm x 1cm, irregular, dark brown in colour.
10. Lacerated wound present over the base of right index finger, over dorsal aspect, of size 1 cm x 1cm x muscle deep.
11. Lacerated wound present over the right ring finger tip, of size 2 cm x 1 cm x muscle deep.
12. Abrasions present over tip of left index, left middle and left ring finger, each of sizes 1cm x 1cm, irregular, dark brown in colour.

13. Abrasion present over the right knee, of size 4 cm x 3 cm, irregular, dark brown in colour
14. Multiple abrasions present all over back, of sizes varying from 1 cm x 1cm to 1 cm x 0.5 cm, irregular, dark brown in colour
15. Postmortem erosions produced by ant bite seen over right side of abdomen and left thigh at places.



Photograph 1: The obvious external injuries were missed by medical officer.



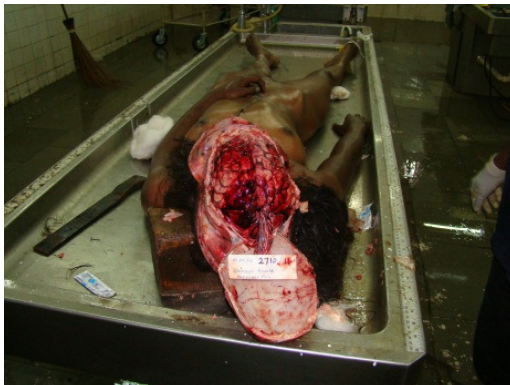
Photograph 2: The neck was not dissected.



Photograph 3: The Scalp was without any incision after first autopsy.



Photograph 4: Cranial cavity was not examined at all before giving cause of death.



Photograph 5: Obvious head injury was noted at the second postmortem examination.



Photograph 6: Neck dissection showed hematomas in strap muscles.



On internal examination:

We observed that cranial cavity and neck structures were intact, not opened and examined during first postmortem examination. Important positive findings which were noticed

- Hematoma under the scalp present over mid frontal region of size 6cm x 4cm, right parietal region 6 cm x 3 cm, right frontal region 3 cm x 2 cm. Thin layer of subarachnoid hemorrhages present at places and brain was congested and oedematous.
- On dissection of neck, hematomas were evident in the strap muscles of neck on right side of size 3 cm x 2cm, in midline anteriorly 5cm x 2cm, on left side 2 cm x 1cm.

After completion of re-postmortem examination, the opinion as to the cause of death was finalized as: "***Throttling with head injury***".

### **Summary and Discussion:**

As far as possible medico legal autopsies must be done in a well-equipped mortuary by a person with experience and knowledge<sup>[7]</sup>. In every case the autopsy must be complete, all the body cavities should be opened and every organ must be examined because evidence contributory to the cause of death may be found in more than one organ<sup>[8]</sup>. Complete autopsy is necessary to corroborate the evidence of eye witnesses and the investigations done, by investigating office, since a poor autopsy can lead to miscarriage of justice<sup>[4]</sup>. As far as possible, the first post mortem examination should be conducted in proper manner because performing a second autopsy, in addition to being emotionally traumatic to the decedent's family and expensive<sup>[9]</sup>.

In the case discussed, it was observed that, during the First autopsy examination, approach of the medical officer was casual. Medical officer noticed only three external injuries, while the re-postmortem examination revealed fifteen external injuries. Also the medical officer failed to describe injuries over the body in details, like site, color and age of injuries.

During the internal examination it was clear that, all bodily cavities were not opened and examined during initial postmortem examination. So it was because of partial autopsy and lack of forensic knowledge that medical officer could not reach to the conclusion about cause of death during first autopsy. This raised doubt in the minds of investigating agencies, which made them to opt for re-postmortem examination at the higher institute.

This is only one of the few cases, which came to the light due to awareness amongst the investigation agencies and could tell its story, but there are many which still remain untold. Presently there are also lacunae in the medico-legal system for the conduction of second postmortem. Sadly in our set up there are very few specialized forensic pathologist, and the number even fewer in the district and peripheral hospitals. The tradition of simple referral on the grounds of "highly putrefied body", or "opinion reserved viscera preserved for analyses" further complicates the matter<sup>[5]</sup>.

Today hence, Medico legal expert and improvement in medico legal work is need of an hour, as if one come to know about the root of crime then only it can be extracted<sup>[6]</sup>. Many questions which today are unanswered, like, Who is authorized to order for second postmortem?, What are the cases, circumstances or reasons who can seek for second postmortem? Who should constitute the panel of doctors and who should be in the board? What should be jurisdiction for the conduction of second postmortem? What should be minimum requirements before starting the second postmortem? and many more, must be answered.

There is really a need for incorporation of proper medico-legal guidelines in the Cr. P. C., which should be followed in second postmortem cases. This case report enlightens on the

fact that the postmortem work is very much neglected in the district hospitals and health centres at periphery. There should be some guidelines and qualification must be decided before a person is allowed to do postmortem, and also there should be timely up gradation of knowledge regarding medico legal cases among the medical officers working at ground root level with the help of implementation of national program.

### **Conclusion:**

Partial autopsies have no place in forensic medicine. In every case the autopsy must be complete, all the body cavities must be examined and one should not do unnecessary manipulations with some preconceptions in mind to reach to the cause of death. It is also to be concluded that, to improve the quality of medico legal work, Government should start the training program for medical officers at Forensic Medicine departments at various Government medical colleges.

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