

# An Autopsy Study of Medicolegal Aspects of Burn Death among Married Females

Neelesh Kumar Shakya<sup>1</sup>, Pratibha Shakya<sup>2</sup>, S.K. Panday<sup>3</sup>

<sup>1</sup>Assistant Professor, Department of Forensic Medicine & Toxicology, Integral Institute of Medical Sciences and Research, Integral University, Dasauli, Lucknow, <sup>2</sup>Assistant Professor, Department of Anatomy, Integral Institute of Medical Sciences and Research, Integral, University, Dasauli, Lucknow. <sup>3</sup>Professor, Department of Forensic Medicine & Toxicology, Institute of Medical Sciences, Banaras Hindu University, Varanasi

## Abstract

**Background** - Burn injuries are very common cause of morbidity and mortality among Indian populations specially the bride burning cases which are related to dowry deaths. The study was aimed to analyze the epidemiology, pattern, cause and manner of deaths to formulate burn the possible preventive strategies.

**Methods** - In present study we analyzed the autopsy done in the department of forensic science & toxicology, Institute of Medical Science, BHU, Varanasi, U.P., India from the period of March 2014 to August 2015. We reported total 155 unnatural deaths of women who died within seven years of their marriage and out of them total 96(62%) cases were due to burn.

**Conclusion**- The most of the cases (51%) reported within 2 to 5 years after marriage and majority (70%) of them happened in kitchen where cooking gas was most common (64%) source of burn. Maximum (35%) case were having total body surface area(TBSA) 51-60% and 92% of victim died in hospital and septicemia was major (60%) cause of death. Most of the deaths (56.25%) were suicidal in nature. Such bridal deaths are major concern toward the society, health agencies and law enforcing agencies.

**Key words** – Autopsy, Bridal burning, Dowry death.

## Introduction

Burn injuries are commonly caused by flame, cylinder and stove blast, electricity, radiations, hot water and other liquids and chemicals. Which can involve any part of body from the most superficial layer to deepest part i.e. muscles, visceral organs and even bones of the body. The burn cases are reported from all over the world and pose a serious global public health issue with approx 195000 death annually from fire related burn only.

Fire related cause are 15<sup>th</sup> leading cause of death for children and young adults aged 5-29 yrs. Highest

morality is observed among children less than 5 yrs and among older people over 70yrs of age. Many of survivors suffer lifelong disability and disfigurement after resulting in stigma and rejection<sup>1</sup>.

The important issue is that most of female deaths within 7 years of their marriage found to be due to burn injuries. The common causes of such unnatural deaths among females within 7 years of their marriage are dowry, dissatisfaction in married life either due to drunkenness of husband or financial issues, unnecessary interference by in-laws and marital infidelity<sup>2</sup>. Many of such deaths can be prevented by timely medical invention and strict implication of law. Dowry deaths are punishable under 304B & 498A IPC<sup>3</sup>.

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**Corresponding author:**

**Pratibha Shakya**

Assistant Professor, Department of Anatomy, Integral Institute of Medical Sciences and Research, Integral University, Dasauli, Lucknow

## Aim & Objectives

To study the burn source, pattern, extent of burn, cause and manner of death to formulate the possible

social, medical and legal preventive strategies.

**Material & Methods**

The study was carried out on female deaths who died due to burn within seven years of their marriage and brought for autopsy in the dept. of Forensic Medicine & Toxicology, Institute of Medical Science, BHU, Varanasi, U.P., India from period of March 2014 to August 2015.

We analyzed the autopsy findings, panchnama papers and bed head tickets. We also have taken history from the family members, relatives and neighbors of deceased as well as police personals.

Data has been analyzed in respect of age, religion, habitat, duration since marriage, Dowry demand, torture, socioeconomic status, place of incidence, delay in treatment, type of hospital, source of burn, area of burn, cause of death, nature of death etc. Finally the data was compiled, tabulated, analyzed and concluded.

**Result and Discussion-**

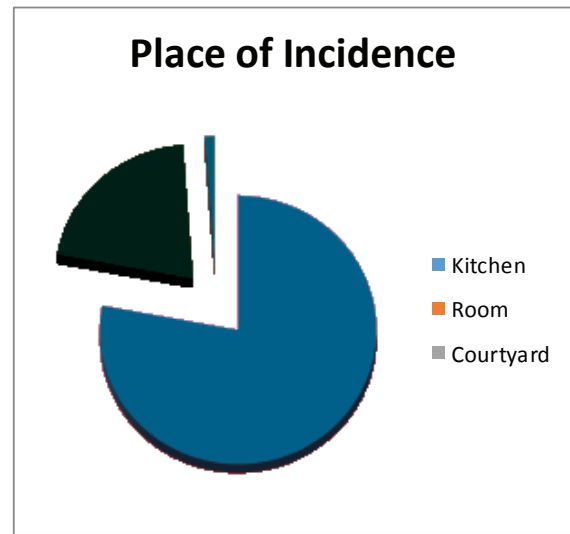
The present study demonstrate the pattern of burn death in females within seven years of their marriage were total 96 burn deaths were reported out of total 154 death due to all cause.

**Table-1 Duration since marriage-**

| Duration in years | Number | %     |
|-------------------|--------|-------|
| <1 yr             | 14     | 14.58 |
| 1-2 yrs           | 15     | 15.62 |
| 2-3 yrs           | 18     | 18.75 |
| 3-4 yrs           | 14     | 14.58 |
| 4-5 yrs           | 17     | 17.70 |
| 5-6 yrs           | 6      | 6.25  |
| 6-7 yrs           | 12     | 12.5  |
| Total             | 96     | 100   |

Table-1 shows that in present study maximum 49(51%) deaths were reported between 2 to 5 years after marriage. least number of deaths 6(%) were reported

between 5 to 6 years after marriage. These findings are contradictory to Radhika R.H. et al<sup>4</sup> where maximum deaths 44(73.33%) were reported within 3 years after marriage.



**Figure-1 Place of Incidence-**

Figure 1 shows that maximum cases happened in the kitchen i.e. 67(70%) cases followed by 18(19%) cases in the room. This could be due to either accidental burn or suicidal burn. Some time homicidal is also done to simulate accidental burn.

**Table-2 Source of Burn-**

| Source                 | Number | %     |
|------------------------|--------|-------|
| Cooking Gas            | 64     | 66.66 |
| Kerosene oil & Matches | 25     | 26.04 |
| Stove Blast            | 5      | 5.20  |
| Cylinder Blast         | 2      | 2.08  |
| Total                  | 96     | 100   |

Table 2 describes that in 64 (66%) cases the source of burn was cooking gas followed by 25(26%) cases due to of kerosene oil & matches. The cases due to stove blast and cylinder blast were 5(5%) and 2(2%) respectively.

These findings are similar to the 40 females burn case study by Shankar Gowri et al<sup>5</sup> where in most of 18(45%) cases were due to cooking gas followed by

14 (35%) cases due to kerosene oil & matches. These findings are contradictory to 32 females case study of Rahul Chawla et al<sup>6</sup> where maximum 13(40%) cases were due to stove blast and only 2(6%) cases were due to clothes caught fire from gas while working.

**Table-3 Burnt body Surface area-**

| Area of burn | Number |
|--------------|--------|
| <30%         | 0      |
| 31-40%       | 5      |
| 41-50%       | 11     |
| 51-60%       | 34     |
| 61-70%       | 23     |
| 71-80%       | 10     |
| 81-90%       | 10     |
| 91-100%      | 3      |
| Total        | 96     |

Table 3 describes that majority of cases 34(35%) having TBSA 51-60% followed by 23 cases (23%) with TBSA 61-70%. These findings are contradictory to the 38 case study by Manjit Nayak et al<sup>7</sup> where majority of cases 21% having TBSA 30-40% followed by 20% cases with TBSA 20%.

**Table-4 Place of Death**

| Place           | Number | %     |
|-----------------|--------|-------|
| On Spot         | 5      | 5.20  |
| Way to hospital | 3      | 3.12  |
| Hospital        | 88     | 91.66 |
| Total           | 96     | 100   |

Table 4 shows that Most of the victims 88(%) died in hospital during treatment. In 5 cases victim died on spot followed by 3 death on the way to hospital. These

findings are similar to the 95 cases study by Pradeep Kumar Mishra et al<sup>8</sup> where 87cases (91.6%) death were reported in hospital followed by 8 (8.4%) deaths on spot.

**Table-5 Cause of death-**

| Cause  | Number | %     |
|--|--------|-------|
| Septicemia                                       | 60     | 62.5  |
| Neurogenic shock                                 | 6      | 6.25  |
| Asphyxia   | 14     | 14.58 |
| Other complication of Burn & Multi-organ failure | 16     | 16.66 |
| Total  | 96     | 100   |

Table 5 shows that most of deaths 60(62.5%) were due to septicemia followed by 16(17%) deaths due to multi organ failure and 14(14.58%) deaths due to asphyxia. Only 6 (6.25%) cases were due to neurogenic shock. These findings are similar to findings of Harish Dasari et al<sup>9</sup> who also reported maximum death 36.4% and 27.2% due to septicemia and multi organ failure respectively .

**Table-6 Nature of Death-**

| Nature       | Number | %     |
|--------------|--------|-------|
| Accidental   | 39     | 40.62 |
| Suicidal     | 54     | 56.25 |
| Homicidal    | 3      | 3.12  |
| Undetermined | 0      | 0     |
| Total        | 96     | 100   |

Table 6 shows that 54(%) victim committed suicide followed by 39(%) accidental burn only 3 cases of burn were due to homicide. These findings are contradictory to the findings by B.L.

Choudhary et al<sup>10</sup> where slightly more 37(41%) deaths were accidental followed by 33(36%) deaths suicidal in nature.

### Conclusion and Acknowledgement -

In the present study of female deaths after 7 years of their marriage. Maximum deaths were reported up to 5 yrs. after marriage. Majority of the incidences happened while victims was working in the kitchen and cooking gas was the main source of burn. Many times in-laws and husband give false history to hide the issue of domestic violence and dowry demand.

In majority of cases TBSA was 50-70% and in some case TBSA was >80% burn most of the cases she died in hospital during treatment and septicemia was most common cause of death followed by other complication like multi organ failure.

Majority of victims committed suicide followed by accidental deaths.

### Suggestions

1. Girls should be promoted to be more and professionally qualified to become economically independent.

2. Child marriage, if solemnized in any part of country must be strictly prohibited.

3. Demand of Dowry should be discouraged through various campaigns.

4. Govt. should take strict legal action if any dowry case come in notice.

5. Social boycott of such families who are found to be involved in such criminal activities.

**Ethical Clearance :** Taken from Ethical Committee, IMS, Banaras Hindu University, Varanasi.

**Conflict of Interest:** None

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**Contribution by authors**

We declare that this work was done by the author(s) and all liabilities related to the content of this study will be done by the authors.

This study was designed by Dr. S.K. Pandey, Data collection, analysis was done by Dr. Neelesh Kumar Shakya and Dr. Pratibha Shakya.

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