

Original Research Article

Frequency of artefacts occurrence in the dead bodies with burn injuries - an analytical study**Dr. Ashwini Kumar J¹, Dr. T. Krupal Singh², Dr. B.V Naga Mohan³**¹Associate professor, Department of Forensic medicine, Mediciti institute of Medical sciences, Ghanapur, Medchal, Hyderabad, Telangana.²Professor, Department of Forensic medicine, Kakatiya Medical College, Warangal, Telangana³Professor, Department of Forensic medicine, Kakatiya Medical College, Warangal, Telangana***Corresponding author**

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Abstract: Artefacts from medical intervention are frequently present in medico legal autopsies and must be distinguished from injuries of forensic interest, particularly in death from trauma. The present study was aimed at the different types of burns and the artifacts related to their production. A total one hundred cases are selected from both sexes, with different manners of death. Artefacts are the common finding seen in burns cases. About 198 artefacts are seen in 100 cases. This is due to presence of many artefacts in a dead body that were co-existing. Pugilistic attitude was another finding, which was mostly seen in spot death cases, but it developed in some cases, which died with 24 hours of infliction of burns.

Keywords: Artefacts, Suicide, Burns, Homicides

INTRODUCTION

Death of a human being imposes a variety of problems for a medical practitioner, as in understanding the process and mechanism, which leads to the failure of organs and systems resulting in death [1, 2]. Declaring the death, as early as possible, in keeping view of cadaver organ transplantation, and as late as possible, in keeping view of consumer protection act and criminal negligence charges [3].

Many times Autopsy Surgeon is facing lot of problems to come to a conclusion about the cause of death and more dependent on findings written in the inquest and the hospital records, apart from the findings noted during the autopsy, before concluding. Sometimes the details, which are given in the inquest, may not be conclusive because, many times the details may not be entered properly in the case sheet for various reasons. All these things make the process of autopsy more confusing, especially for an inexperienced surgeon.

Added to this, if artefacts are not identified properly during the autopsy, then the confusion becomes many folds. Burns is one area in the entire autopsy session

where it will be more confusing regarding the differentiation of artefacts from the natural findings [4]. Whenever a dead body is recovered from a burnt area, it carries a number of artefacts with it. Some of them will be misleading the medical Officer in taking a wrong decision about the cause and manner of death [5, 6].

Hence, it is observed that, it needs a clear understanding about the different types of artefacts that are encountered in cases of burns, their frequency of occurrence, the different methods of clarifying the findings and any others methods to differentiate them the normal findings. The present study is conducted on those dead bodies in which burns are present, which are subjected to postmortem examination in the Mortuary of Kakatiya Medical College, Warangal. This study is mainly conducted to know the different types of artefacts that co-exist in the dead bodies having burn injuries and their frequency of occurrence.

MATERIALS AND METHOD

The present study was aimed to make a critical analysis of the deaths occurring due to burns and a focus is made on the presence of artefacts in related to their production and extension. These cases are

collected from the postmortem examinations conducted by the Department of Forensic Medicine, Kakatiya Medical College, and Warangal. The study included the deaths occurred in M.G.M. hospital, Warangal or other hospitals in Warangal, while undergoing treatment. Some of them died on the spot, i.e. at the scene of offence and some people died on the way to hospital, while they were shifting.

A total number of 100 cases are selected from both sexes, with different manners of death. The postmortem examination reports, Inquests, Panchanama of scene of offence, Photographs, Personal enquiry reports collected from the relatives, especially about the previous diseases and treatment history, previous

unsuccessful attempts in case of suicides are perused thoroughly, and the data is analyzed for this study. In some cases visit to the scene of offence is also made to collect some more information. All the above data is sorted in respect to the artefacts and their production and conclusions are made by comparing them with the previous studies. Statistics are prepared in that aspect.

RESULTS

A total number of 1595 postmortem examinations were conducted. Out of them 429 were total deaths occurred due to burns. Only 100 cases out these were selected for the present study, which had some of the artefacts with them.

Table-1: Distribution of cases according to age and sex.

Age In years	Accidents		Suicides		Homicides		Total
	Male	Female	Male	Female	Male	Female	
<10	2	2	0	0	0	0	4
11-20	1	2	2	5	0	0	10
21-30	3	8	11	14	0	1	37
31-40	4	6	4	7	1	0	22
41-50	1	1	5	5	0	0	12
51-60	2	0	4	4	0	0	10
>60	1	1	1	2	0	0	5
Total	14	20	27	37	1	1	100

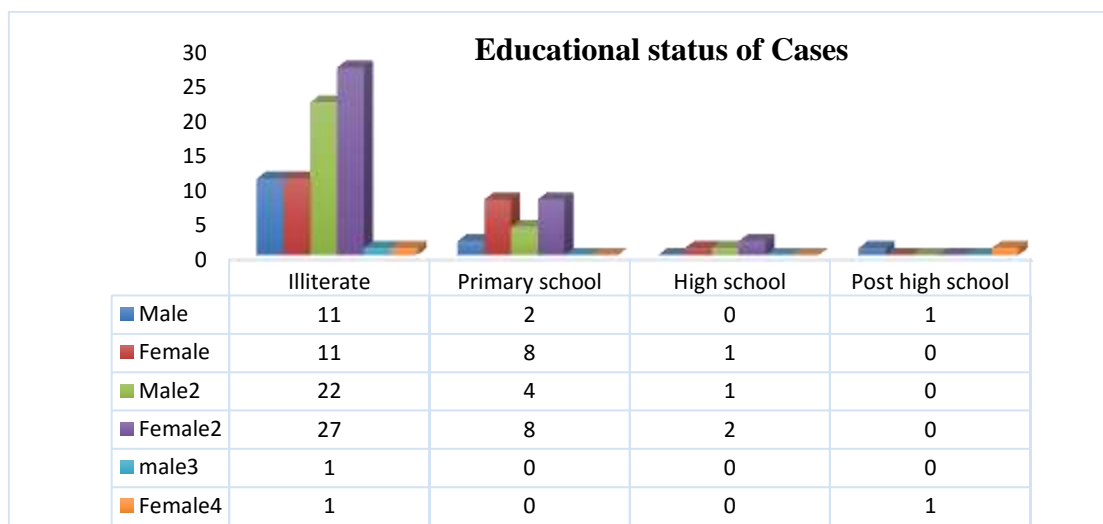


Fig-1: Educational status of cases.

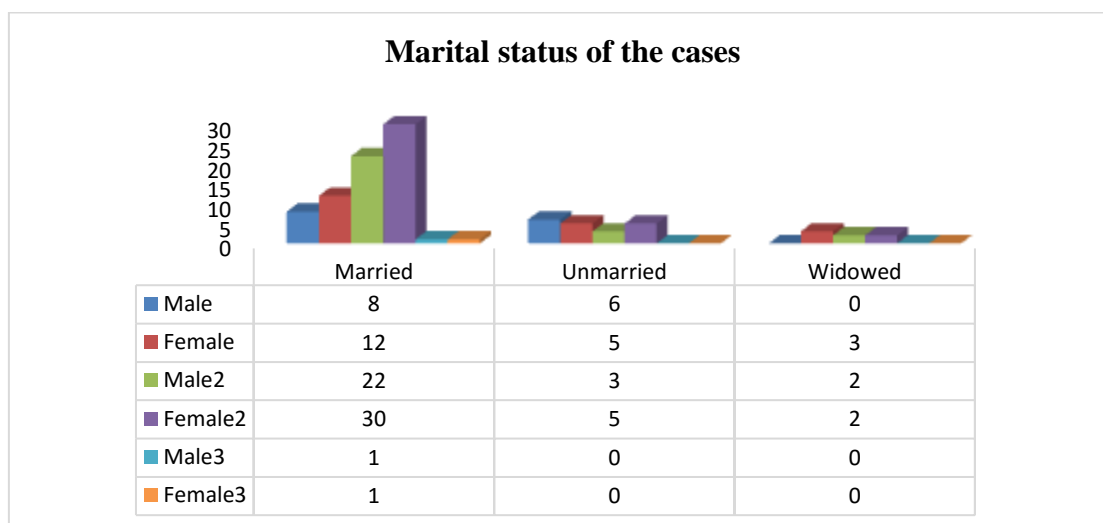


Fig-2: Marital status of cases

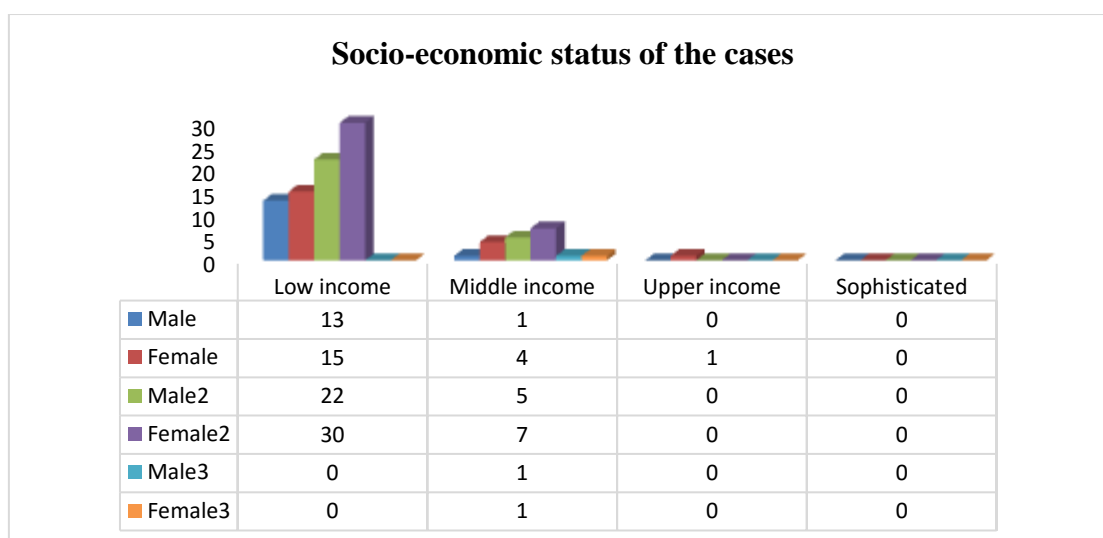


Fig-3: Socio-economic status of the cases.

Table-2: Age group and sex distribution in relation to percentage of burns

Age years	<30%		30 to 50%		50 to 70%		70 to 90%		>90%		Total
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
<10	1	1	1	1	0	0	0	0	0	0	4
11-20	1	1	1	2	0	2	0	1	1	1	10
21-30	0	1	3	6	7	5	4	7	2	2	37
31-40	0	0	2	4	0	5	3	5	1	2	22
41-50	0	0	3	1	1	0	1	1	2	3	12
51-60	0	0	1	0	0	0	1	0	4	4	10
>60	0	1	1	1	0	0	0	0	1	1	5
Total	2	4	12	15	8	12	9	14	11	13	100
	6		27		20		23		24		

Table-3: Period of survival in relation to percentage of burns

Period of survival	<30%		30 to 50%		50 to 70%		70 to 90%		>90%		Total
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Spot death	0	0	0	0	0	0	0	1	3	4	8
<24 hrs	0	0	2	3	4	5	8	10	5	6	43
24-72 hrs	0	0	3	4	4	7	1	3	3	3	28
3- 7 Days	1	2	7	8	0	0	0	0	0	0	18
>7 days	1	2	0	0	0	0	0	0	0	0	3
Total	2	4	12	15	8	12	9	14	11	13	100
	6		27		20		23		24		

Table-4: Artefacts found in dead bodies of burns in relation to percentage of burns

Artefact	<30%		30 to 50%		50 to 70%		70 to 90%		>90%		Total
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Heat rupture	0	0	0	0	0	0	1	1	2	3	7
Heat fracture	0	0	0	0	0	0	0	0	1	1	2
Pugilistic attitude	0	0	0	0	0	0	0	2	2	3	7
Heat hematoma	0	0	0	0	0	0	0	0	1	0	1
Singeing of hair	0	0	4	1	3	2	9	11	11	13	54
Venesection	2	2	6	10	6	11	9	14	11	13	84
Tracheostomies	0	0	0	0	0	0	0	0	2	0	2
Over-hydration	1	0	2	4	2	2	0	0	0	0	11
Faster putrefaction	0	1	2	8	2	6	2	4	1	1	27
Curling's ulcer	0	0	1	1	0	1	0	0	0	0	3
Total	3	3	15	24	13	22	21	32	31	34	198

Two cases were having postmortem burns, where the cause of death was due to multiple injuries, one was male aged about 49 years, and other was female aged about 42 years. These cases are not taken for statistical purposes.

DISCUSSION

The correct examination of a charred body is a forensic challenge. Examination, interpretation and conclusion in respect to identification, vital reactions, toxicological analysis and determining cause and manner of death are all more difficult than without burns [7, 8].

Thali MJ *et al.* developed an examination method with the new radiological modalities of cross section techniques like multi slice computed tomography and magnetic resonance imaging prior to performing the classical forensic autopsy [9].

The present study as it was mentioned is mainly aimed to identify the artefacts and their frequency of their incidence in burn deaths. Burns take a major number of lives, and accounting for about 20% of total

autopsies in the present study. It is similar to studies of other areas. Females are outnumbering males because of easy availability of kerosene like inflammable material in the kitchen. This also went parallel to other studies. The younger age people from 20 years to 40 years are committing suicides because of emotional stress and psychological imbalance. Illiterate people are becoming vulnerable, because of their ignorance and emotional component. Of course, low socio-economic status also adds to that. Young married women are at more risk for dowry deaths. Age and percentage of burns have direct effect over the outcome of the burns. Younger people of less than 20 years of age are unable to withstand even the simple burns of low percentage as 24% even. There are no deaths occurring in people of more than 25 years of age group due to burns of less than 30%. The total number of deaths of burns subjected to postmortem examination in people more than 50 years may be underscored, as they might have taken out from the hospitals while undergoing treatment.

Artefacts is one of the commonest finding in burns cases as about 198 artefacts are found in 100 cases

which are taken for the present study in a total number of 198 burns cases. Rigor mortis resulting a posture simulating pugilistic attitude is seen in 7 cases in the present study. Pugilistic attitude is an instantaneous phenomenon occurring in those bodies having more than 90% of burns and died on the spot. The rigor mortis usually sets in after a time of 3-6 hours of death. Due to unexplained mechanism, the body takes the same posture simulating the pugilistic attitude even in delayed deaths.

CONCLUSION

The present study is made on burns and the artefacts encountered during medicolegal autopsies on such bodies. Illiteracy and low economic status in general are the underlying causes for all un-natural deaths including burns. Percentage of burns had a direct effect over the outcome. More the percentage of burns less is the chance of survival and less is the survival period of after staining the burns. Various types of artefacts are found in burnt bodies, including therapeutic artefacts and artefacts produced by burns as such. Therapeutic artefacts like, venesection, fluid retention, tracheostomies, fractures produced during cardio pulmonary resuscitation etc. are found in significant number in the present study.

REFERENCES

1. Bonhert M, Pollak S. Heat mediated changes to the hands and feet mimicking washerwoman's skin. *Int J Leg Med.* 2003; 117(2):102-105.
2. Bogomolova IN, Iskhizova LN, Bogomolov DV. The forensic medical diagnosis of lifetime burn trauma by changes in the brain. *Sud Med Ekspert.* 2004; 47(6):18-22.
3. Barrow RE, Przkora R, Hawkins HK, barrow LN, Jeschke MG, Herndon DN. Mortality related to gender, age, sepsis and ethnicity in severely burned children. *Shock.* 2005; 23(6): 485-487.
4. Madea B, Schmidt P, Banaschak S, Schyma C. Homicide by burning. *Arch Kriminol.* 2001; 208 (1-2):1-9.
5. Bohnert M, Schmidt U, Perdekamp MG, Pollak S. Extent of burn lesions- an analysis of 68 burned cadavers. *Arch Kriminol.* 2001; 207(3-4): 104-13.
6. Kumar V, Tripathi CB. Burnt wives: a study of homicides. *Med Sci Law.* 2004; 44(1): 55-60.
7. Guharaj PV, Chandran MR. Forensic medicine- Thermal injuries. Orient longman-2003.
8. Bonhert M, Werner CR, Pollak S. Problems associated with the diagnosis of vitality in burned bodies. *Forensic Sci Int.* 2003; 135(3): 197-205.
9. Thali MJ, Yen K, Plattner T, Schweitzer W, Vock P, Ozdoba C and Dirnhofer R. Charred body-

virtual autopsy with multi slice computed tomography and magnetic resonance imaging. *J Forensic Sci,* 2002; 47(6):1326-31.