

Analysis of Asphyxial Deaths at Rural Hospital, Ambajogai, Dist. Beed of Maharashtra: An Autopsy Based Retrospective Study

Vitthal S Karad¹, Ravikumar M Kamble², Viswajeet G Pawar³, Rajesh V Kachare⁴, Shailesh M Raut⁵, Arif K Shaikh⁶

How to cite this article:

Vitthal S Karad, Ravikumar M Kamble, Viswajeet G Pawar, et. al. Analysis of Asphyxial Deaths at Rural Hospital, Ambajogai, Dist. Beed of Maharashtra: An Autopsy Based Retrospective Study. Indian J Forensic Med Pathol. 2020;13(3):439-441.

Abstract

A retrospective study of post mortem examinations conducted between years 2014-2018 at Rural Tertiary Care Hospital, Ambajogai, Dist. Beed was carried out to know the incidence of asphyxial deaths with respect to age, sex, month, diurnal variations and type of Asphyxial death. Out of total 2168 autopsies conducted during that period, 350 deaths were asphyxial deaths, which constitute 16.14% deaths. Most commonly involved age group was 21-30 years (92 cases i.e. 26.28%), followed by 31-40 years (69 cases i.e. 19.71%). The incidence of asphyxial death was more in males than females with the ratio of 2.09:1. Maximum cases were noted in the month of January (44 cases i.e. 12.57%), followed by May (35 cases i.e. 10.00%). Maximum deaths were in the morning hours (131 cases i.e. 37.42%), followed by afternoon (113 cases i.e. 32.28%) cases. In this study, we found that among all asphyxial deaths, Hanging was most common (228 cases i.e. 65.14%) followed by drowning (89 cases i.e. 25.42%) and strangulation (11 cases i.e. 03.14%) respectively.

Keywords: Mode of death; Asphyxia; Hanging; Drowning.

Introduction

Mode of Death refers to the abnormal physiological state that existed at the time of death. According to Bichat, there are three modes of death depending upon the system most obviously involved, irrespective of what the remote cause of death may be. These are Asphyxia, coma and syncope.¹

Asphyxia commonly means 'lack of oxygen'. Adelson defined asphyxia as, "the physiological and chemical state in a living organism in which acute lack of oxygen available for cell metabolism is associated with inability to eliminate excess of

carbon dioxide". Hypoxia is inadequate supply of oxygen to the tissues or an impairment of the cellular utilization of oxygen for any reason.²

Hanging produces painless death for the victims and there is no costs involvement other than that of the ligature material. A thin rope around the neck will cause unconsciousness within 15 seconds.¹ Hanging and drowning are commonly seen in suicidal cases, while strangulation including throttling is usually homicidal in nature. In addition, accidental compression or trauma to chest that prevents respiratory movement, which is known as traumatic asphyxia or crush injury, is also one of the causes for violent asphyxial death.³

This study was conducted in a rural region where majority of population make their both ends meet by cultivating the farm. Remaining population is composed of farm labours who depend on farm work. Adverse conditions such as drought, scanty water supply, non-breeding of crops are prevalent. Financial condition of society is poor and

Authors Affiliation: ¹Junior Resident, ²Assistant Professor, ³Associate Professor, ⁴Professor and Head, ^{5,6}Junior Resident, Department of Forensic Medicine and Toxicology, Swami Ramanand Teerth Rural Government Medical College Ambajogai, Maharashtra, 431517, India.

Corresponding Author: Rajesh V Kachare, Professor and Head, Forensic Medicine and Toxicology, Swami Ramanand Teerth Rural Government Medical College, Ambajogai, Maharashtra 431517, India.

E-mail: drkachareraajesh@gmail.com

above mentioned adverse conditions makes the population vulnerable to commit suicide. Hanging is adopted as most common method for suicide as it causes painless and sure death as compared to other methods. Being a male dominated society males are more exposed to financial stress. That's why we decided to study the prevalence of asphyxial deaths with respect to socioeconomic factors.

Material and Method

In this study, autopsies conducted at rural tertiary care hospital, Ambajogai, Dist. Beed between the years 2014 to 2018, were considered for retrospective study. The data was collected from police requisition form, postmortem report. The cases were studied to know the incidence of asphyxial deaths with respect to age group, sex, month, diurnal variation and type of deaths.

Results and Discussion

Total 2168 autopsies were conducted at this autopsy center during the study period, of which 350 cases were of asphyxial deaths (Table 1). The asphyxial deaths were more common in third decade of life followed by fourth decade followed by second decade. (Table 2). Our findings were similar to the study conducted by Srinivasa Reddy P et. al.⁴

Table 1: Proportion of Asphyxial deaths.

Year	Total no of PM	Total Asphyxial deaths	%
2014	409	69	16.87
2015	398	74	18.59
2016	448	82	18.30
2017	451	50	11.08
2018	462	75	16.23
Total	2168	350	16.14%

Table 2: Age group wise distribution of cases due to Asphyxial deaths.

Age Group (in years)	No of Asphyxial deaths(year wise)						%
	2014	2015	2016	2017	2018	Total	
0-10	06	06	11	02	03	28	08.00
11-20	07	14	13	08	15	57	16.28
21-30	15	19	22	13	23	92	26.28
31-40	16	12	17	14	10	69	19.71
41-50	12	08	08	04	08	40	11.42
51-60	07	10	02	06	10	35	10.00
61-70	03	04	05	02	05	19	05.42
>70	03	01	04	01	01	10	02.85
Total	69	74	82	50	75	350	100

Most of the asphyxial death were common in males followed by females. (Table 3). Similar findings were mentioned by Srinivasa Reddy P et. al.⁵ and the study of Sharma B R et. al.⁷

Table 3: Sex wise distribution of cases due to Asphyxial deaths.

Sex	No of Asphyxial deaths (year wise)						%
	2014	2015	2016	2017	2018	Total	
Male	47	51	53	37	49	237	67.71
Female	22	23	29	13	26	113	32.28
Total	69	74	82	50	75	350	100

It has been suggested that seasonal vulnerability is biologically determined and associated with the circannual rhythm of central serotonin neurotransmission.⁶

Maximum cases were reported in the month of January (12.57%) followed by May (10.00%) (Table 4). Tanuj Kanchan⁸ found that peak incidence of suicidal hanging was more common among males in June and females in September. Co-relation between season and suicides is variable due to various geographical, cultural and educational parameters. It vary from region to region.^{9,10} Maximum deaths due to asphyxia were reported in the morning hours (37.42%), followed by afternoon (32.28%) (Table 5).

Table 4: Month wise occurrence of Asphyxial deaths.

Month	No of Asphyxial deaths (year wise)						%
	2014	2015	2016	2017	2018	Total	
Jan	11	13	06	04	10	44	12.57
Feb	03	04	07	02	06	22	06.28
March	05	06	05	07	03	26	07.42
April	04	03	10	03	07	27	07.71
May	07	09	07	02	10	35	10.00
June	08	06	04	05	11	34	09.71
Jully	06	05	07	05	02	25	07.14
Aug	03	02	09	05	02	21	06.00
Sept	06	08	03	05	09	31	08.85
Oct	05	05	11	05	06	32	09.14
Nov	08	08	06	01	04	27	07.71
Dec	03	05	07	06	05	26	07.42
Total	69	74	82	50	75	350	100

Table 5: Diurnal Variation.

Time of death	No of Asphyxial deaths (year wise)						%
	2014	2015	2016	2017	2018	Total	
Morning	33	25	29	18	26	131	37.42
Afternoon	17	21	31	18	26	113	32.28
Evening	11	17	11	04	10	53	15.14
Night	08	11	11	10	13	53	15.14
Total	69	74	82	50	75	350	100

Hanging (65.14%) and drowning (24.42%) were most common form of asphyxial deaths (Table 6).

These findings are similar to the study of Srinivasa Reddy P et. al.⁵

Table 6: Asphyxial deaths as par Type of death.

Type of death	No of Asphyxial deaths (year wise)						%
	2014	2015	2016	2017	2018	Total	
Hanging	41	46	46	36	59	228	65.14
Drowning	22	18	26	13	10	89	25.42
Strangulation	03	02	03	01	02	11	03.14
Compression of Neck	02	03	04	00	04	13	03.71
Chocking	01	01	01	00	00	03	00.85
Smothering	00	03	00	00	00	03	00.85
Throttling	00	01	02	00	00	03	00.85
Total	69	74	82	50	75	350	100

We observed that, among total asphyxial deaths, suicide was commonest (65.14%), accidental was less common (26.29%) and homicide was still less common (08.57%) (Table 7).

Table 7: Distribution of Asphyxial deaths as par manner.

Manner of death	No of Asphyxial deaths (year wise)						%
	2014	2015	2016	2017	2018	Total	
Suicidal	41	46	46	36	59	228	65.14
Accidental	23	19	27	13	10	92	26.29
Homicidal	05	09	09	01	06	30	08.57
Total	69	74	82	50	75	350	100

Conclusion

As study was conducted in a rural area and adverse conditions such as drought and scanty water supply makes financial condition of society poor leading to financial, mental stress making hanging the most common method for suicide. Being a male dominated society males are more exposed to financial stress.

A well designed and comprehensive programme, like PRAKALPA PRERANA is needed to identify the causative factors and prevention of suicidal

behaviors, which should be strengthened and should be implemented overall.

References

1. Knight B. Pelck S. Knight's Pathology. 3rd edition. London: Amold,2004. p.352-380.
2. Krishan Vij. Textbook of Forensic Medicine and Toxicology. 5th edition. Elsevir, Chennai, 2011.p.110.
3. Parikh CK: Parikh text book of medical jurisprudence forensic medicine and toxicology, 6th edition, CBS publishers New Delhi, 2002.p. 3.33-3.40.
4. Shrinivas Reddy P, Rajendra Kumar R, Rudramurthy. Asphyxial deaths at district hospital, Tumkur, A retrospective study. Journal of Indian Academy of Forensic Medicine. 2012; 34(2):146-47.
5. Sharma BR, Harish D, Sharma A, Sharma S and Singh H. Injuries to neck structures in deaths due to constriction of neck, with a special reference to hanging. Journal of Forensic and Legal Medicine. 2008; 15(5): 298-305.
6. Preti A, Miotto P and De Coppi M. Season and Suicide: recent findings from Italy. Crisis. 2000. 21: 59-70.
7. Sharma BR, Harish D, Singh VP and Singh P. Ligature mark on neck: How informative? Journal of Indian Academy of Forensic Medicine. 2005; 27 (1): 10-15.
8. Tanuj Kanchan. Day, Week and Month of Suicide by Hanging. Journal of Indian Academy of Forensic Medicine. 2010 ; 30(3): 202-06.
9. Kalediene R, Starkuviene S and Petrauskiene J. Seasonal patterns of suicides over the period of socio-economic transition in Lithuania. BMC Pub Health. 2006; p. 6: 40.
10. Mohanty S, Sahu G, Mohanty MK and Patnaik M. Suicide in India- A four year retrospective study. Journal of Forensic & Legal Medicine.2007; 14: 185-189.



Subscription Information**India**

Institutional (1 year) (Print+Online): INR16500

Rest of the World

Institutional (1 year) (Print+Online): \$1289

Payment instructions Online payment link:<http://rfppl.co.in/payment.php?mid=15>**Cheque/DD:**

Please send the US dollar check from outside India and INR check from India made payable to 'Red Flower Publication Private Limited'. Drawn on Delhi branch

Wire transfer/NEFT/RTGS:

Complete Bank Account No. 604320110000467

Beneficiary Name: Red Flower Publication Pvt. Ltd.

Bank & Branch Name: Bank of India, Mayur Vihar

MICR Code: 110013045

Branch Code: 6043

IFSC Code: BKID0006043 (used for RTGS and NEFT transactions)

Swift Code: BKIDINBBDOS

Send all Orders to: Subscription and Marketing Manager,

Red Flower Publication Pvt. Ltd.,

48/41-42, DSIDC, Pocket-II,

Mayur Vihar Phase-I, Delhi - 110 091 (India)

Mobile: 8130750089, Phone: 91-11-79695648, 22754205, 22756995

E-mail: sales@rfppl.co.in, Website: www.rfppl.co.in