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Medicolegal evaluation of cause of death of unknown dead bodies brought to the mortuary of Assam medical college and hospital, Dibrugarh, Assam

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Abstract
Every unidentified or unknown dead body brought to the medical examiner; indirectly or directly relates a person to missing friends or family. In each of these cases the body remains un-identified where the police/investigating agencies deal with missing clues to pursue the investigation; which denies prevailing of justice and closure of case.
The present study consists of 92 unknown cases taken from medico legal autopsies conducted in the department of forensic medicine, Assam medical college, Dibrugarh during the period 1st June 2015 to 31st may 2016.
A total of 1358 autopsies were conducted the study period, of which 92 cases were unknown deaths which constitutes 6.7% of total autopsies. Male cases were 74 (80.43%) and female were 18 (19.57%); male: female ratio was 4:1. Maximum cases were from the age group 40-49 years, with 25 numbers of cases. It was also observed that highest number of cases constitutes natural death 45 cases (49.91%) followed by unnatural deaths with 41 cases (44.57%).
This study reflects the political commitment and administrative efficiency towards implementation and drafting legislation for management of unknown dead bodies.

Keywords: unknown dead body, medico legal autopsy, natural death

Introduction
The absence of reverence paid to unknown bodies is indeed a great embarrassment/dishonor for humanity and even the deceased soul depriving its last rites to heavenly abode. Every unidentified or unknown dead body brought to the medical examiner; indirectly or directly relates a person to missing friends or family. Without proper relation to their family, there occurs a never ending quest to bring the concerned home, as to have closure of rites to put the dead to rest. Only when these intense emotional issues are or can only be addressed to some extent; by the medical examiner and the concerned investigating authority. The solution of problems implicate with cause and manner of death: to issuing certification of death which will lead to entailing of death benefits. Other legal implications and hurdles cited are of homicide and suspicious deaths, besides mutilated and decomposed bodies.
In each of these cases the body remains un-identified where the police/investigating agencies deal with missing clues to pursue the investigation; which denies prevailing of justice and closure of case.
Unknown or unidentified dead bodies that are brought for medicolegal autopsies although comprise a meager fraction of annual autopsies in our forensic department, yet these cases are ought not to be neglected. Most of these cases require time consuming formalities as required by law, waiting for a span of 72 hrs, publication of photos in dailies, TV etc.
Establishment of identity of an unknown person not only rests with the medical examiner but also with the law enforcement agencies and can be categorized into positive, presumptive or unidentified status. Leaving aside identity; a forensic expert also needs to opine regarding cause and manner of death, with the help of data gathered along with the help of modern tools of science i.e. x-ray, biochemical examination etc.
More grave the problem arises when the forensic expert receives an unknown entity e.g. bones, mutilated body parts found unattended roadside, in which case the question arises to ascertain or differentiate it from human and non-human origin; apart from other belongings found from the scene of event/crime, viz. clothes, documents and tattoo marks over body.
Moreover partial or complete decomposition, destruction in RTA, mutilation of body by animals, miscreants, late arrival of cases make it difficult for the forensic expert to opine about cause and manner of death.
Yet on many occasions efforts on our ends prove futile; the reasons being inadequate or no history, disinterested investigating officers unwilling to properly work out the case, absence of laboratory investigations due to lack of resources and man power from the state.
Research work conducted earlier regarding the unknown yield mostly towards natural cause i.e. people dying of terminal diseases, mostly Tuberculosis, homeless people having inadequate shelter facing the wrath of nature, and unnatural causes mostly cite to RTA, drowning etc. Besides age, male preponderance, malnutrition also play an important role.
In those cases it is of outmost importance for the forensic expert to conduct autopsies as well as aid the police in identification for establishing the cause, helping the family members if any. So a proper evaluation of the aforesaid issues are lacking in concern as no study over the topic has been done in our area yet; which directly or indirectly may help authorities to formulate policies of prevention; paying heed to suggestions cited.

Aims and Objectives
1. To study the cause of death and its nature in all unknown cases

2. To ascertain time since death in such cases
3. Evaluation of cause of death in relation to age and sex

Materials and Methods

Materials for the present study consists of 92 unknown cases taken from medicolegal autopsies conducted in the department of forensic medicine, Assam medical college, Dibrugarh during the period 1st June 2015 to 31st may 2016. During this period a total number of 1358 autopsies were conducted out of which unknown cases constituted 92 cases. Data will be collected from the autopsies conducted on unknown dead bodies with the aid of accompanying documents from police viz. forwarding letter, inquest and dead body challan; besides hospital record of death of unknown admitted patients at Department of Forensic Medicine, Assam Medical College and Hospital. The details about the history if any available were collected from escorting police, local people, and treatment history or case sheets.

Detailed autopsy will be performed using routine procedure; examination of all the organs will be done and sent for HPE/chemical analysis, (whenever necessary).

Results and Observations

A total of 1358 autopsies were conducted during the study period, of which 92 cases were unknown deaths which constitutes 6.7% of total autopsies (Figure1).

Male cases were 74 (80.43%) and female were 18 (19.57%); male: female ratio was 4:1 (Figure2).

It was observed that highest number of cases were in the age group of 40-49 years, 25 cases (27.17%), followed by 50-59 years and 60-69 years with 24 cases (26.09%) and 16 cases (17.39%) respectively (Table1)

Findings of the study showed that highest number of cases were seen in the month of December and September 13 cases each (14.13%), followed by August 12 cases (13.04%); least number of cases were seen in the month of October with only 3 cases (3.26%) (Table2)

We had found that maximum number of cases were recovered from hospital 32 (34.78%) (Table3).

It was also observed that highest number of cases constitutes natural death 45 cases (49.91%) followed by unnatural deaths with 41 cases (44.57%).

Detailed study of natural deaths showed that pulmonary tuberculosis constitutes 17 (37.7%) cases, followed by septicemia 13 (28.89%) cases (Table4).

In cases of unnatural deaths, it was accidental in nature in 38 cases (41.3%), suicidal in cases 2 (1.84%) and homicidal cases 1 (1.09%). In accidental deaths, 30 victims were male (Table5).

It has been observed that pulmonary tuberculosis and drowning constitute 17 (18.48%) cases each, followed by head injury and septicemia 13 (14.13%) cases each (Table6).

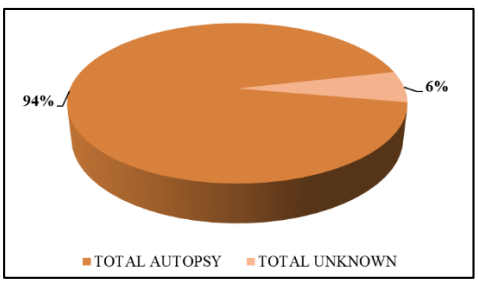

Fig 1: Showing distribution of Unknown cases

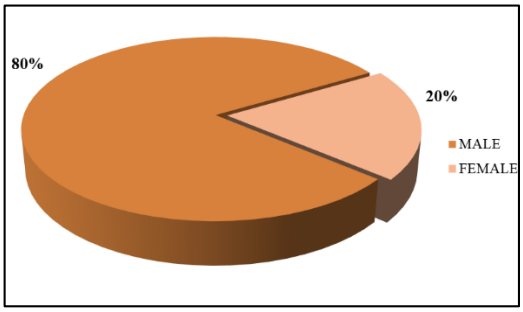

Fig 2: Sex distribution of cases

Table 1: Showing age wise distribution of unknown cases

Age group in years	Male	%	Female	%	Total	%
0-9 yrs	2	2.70	5	27.78	7	7.61
10-19 yrs	1	1.35	0	0.00	1	1.09
20-29yrs	2	2.70	1	5.56	3	3.26
30-39yrs	7	9.46	4	22.22	11	11.96
40-49yrs	22	29.73	3	16.67	25	27.17
50-59yrs	23	31.08	1	5.56	24	26.09
60-69yrs	12	16.22	4	22.22	16	17.39
>70yrs	5	6.76	0	0.00	5	5.43
Total	74	100	18	100	92	100

Table2: Month wise distribution of cases

Month	No of cases	Percentage
January	7	8
February	8	9
March	6	7
April	5	5
May	5	5
June	6	7
July	9	10
August	12	13
September	13	14
October	3	3
November	5	5
December	13	13
Total	92	100

Table 3: Place of recovery of dead bodies

Place of recovery	No of cases	Percentage
Hospital	32	34.7%
Pond/river	14	15.2%
Railway track	10	10.8%
Roadside	07	7.6%
Foot path	05	5.4%
Others	22	23%
Not known	02	2.1%

Table 4: Natural causes of death (LBW: Low birth weight; NNJ: Neonatal Jaundice; IUGR: intrauterine growth retardation)

Cause	Male	Female	Total	Percentage
Pulmonary tuberculosis	13	04	17	37.7
Septicaemia	13	0	13	28.8
Chronic hepatic failure	03	0	03	6.6
Pneumonia	01	01	02	4.4
Cardiac tamponade	01	0	01	2.2
Intestinal obstruction	01	0	01	2.2
Kidney disease	01	0	01	2.2
Intracerebral haemorrhage	01	0	01	2.2
Bronchogenic carcinoma	01	0	01	2.2
Hepatocellular carcinoma	0	01	01	2.2
LBW/NNJ	01	0	01	2.2
LBW/IUGR	01	02	03	6.6
Total	37	08	45	100

Table 5: Nature of unnatural causes of death

Nature	Male	Female	Total	Percentage
Homicidal	01	0	01	1.09
Accidental	30	08	38	41.30
Suicidal	02	0	02	2.17
Total	33	08	41	45

Table 6: Causes of death of all cases

Cause of death	No of cases	Percentage
Pulmonary tuberculosis	17	18.48
Septicaemia	13	14.13
Pneumonia	02	2.17
Haemorrhage & shock	07	7.6
Drowning	17	18.48
Chronic hepatic failure	03	3.26
Hanging	02	2.17
Head injury/coma	13	14.13
Intracerebral haemorrhage	01	1.09
Intestinal obstruction	01	1.09
Opinion kept pending	04	4.35
LBW/IUGR	03	3.26
Bronchogenic carcinoma	01	1.09
Hepatocellular carcinoma	01	1.09
Cardiac tamponade	01	1.09
Chronic kidney disease	01	1.09
Electrocution	02	2.17
No definite opinion	02	2.17
LBW/NNJ	01	1.09
Total	92	100

Discussion

Prevalence of unknown cases: Just like our study Kumar *et al.* 2014 [1], Kumar *et al.* 2012 [2] found almost similar results with 4% and 3 % cases respectively. Contrary to our study, Chattopadhyay *et al.* 2013 [3] found almost one fourth (24.5%) unknown cases. The contrast findings in the present study may be due to difference in demographical profile as well as difference in population density.

Sex wise distribution of cases: We in our found almost 80% male cases; which is in accordance with Chattopadhyay *et al.* 2013(87%). Kumar *et al.* in 2014 also found similar results, with higher percentage male cases (97%). Job. C in 2009 [4] in Maharashtra in his study observed similar findings as males to be dominant in cases; citing reasons of patriarchal society which is also consistent with the present study.
The high incidence of male cases might be due to male dominated society, as well as males were more involved in bread earning, stricken by poverty, quarrel with family, insanity, illness with no one render care; lack of old age homes in this part of the country may also be a reason.

Distribution as per age and sex: Kumar *et al.* in 2014 found results similar to our study, with maximum cases belonging to the age group 41 - 50 years, (30 %).
The involvement of the aforementioned age group might be due to poverty, more susceptibility to disease, as well as malnutrition.

Month wise distribution of cases: Kumar *et al.* in 2014 [3], observed in his 5 year period study that overall, the maximum number of cases were encountered in the month of October, (12.2%); followed by June and December, (11.4%) each; while the least number of cases was seen in the months of January and March (4.1%), each, comparable with the present study.
Kumar *et al.* in 2014 [5], noted that overall, the maximum number of cases were encountered in the month of June (15%); followed by May, (13%); while the least number of cases was seen in the months of March and November, (3%), each in contrast to the present study.
The difference of cases according to month wise distribution might be due to change in geographical conditions, cold weather, poor visibility at night, increased motor vehicles etc.

Manner of death: Similar to the present study, Kumar *et al.* [3] and Chattopadhyay *et al.* 2013 [3] showed almost similar results in relation to manner of deaths showing nearly 50% cases of natural deaths. A study done by Kumar *et al.* in 2009 [6] showed a slightly higher number of natural deaths with 61% cases.

Distribution of nature of unnatural deaths: Kumar *et al.* in 2009 [6], observed that accidental deaths were (n = 233, 31.70%) and homicides (n = 26, 3.54%) Few studies on this subject have been published in India. More research is needed to identify the health-related problems of such people and possible contributory factors to mortality which is comparable with the present study.
Kumar *et al.* in 2014 [3] observed that homicide of unknown persons is a rarity unless it is done with the motive of robbery consistent with the present study.
Chattopadhyay *et al.* in 2013, noted that homicidal deaths were found in 36 cases (5.9%), out of which strangulation was the commonest cause of death (16 cases).
A contrast with the present study might be due to urbanization as well as increased population in concerned area.

Place of recovery: Contrary to our study, Chattopadhyay *et al.* found only 6.2% cases from hospitals and large number of bodies (32.2%) were recovered from river. Altun *et al.* in 1999 [7] reported that out of the 126 cases of deaths of homeless persons, 94 were found outdoors.
The present study is in contrast with the above study as the reason might be due to better ambulance facility where there is quick transportation of the victims of accidents to nearby hospital from roadside footpath etc, as well as difference of geographical location and population density which might be more in metropolitan area compared to semi urban area.

Cause of death in unnatural deaths: Chattopadhyay *et al.* in 2013 noted that unnatural death associated with drowning to be 28%, which is comparable with the present study.
Kumar *et al.* in 2012 [2], noted that "Head Injury", 26% cases. Hemorrhagic shock and multiple fractures accounted for 2 cases each (11%) in contrast with the present study.
The difference of data in aforesaid cases might be due to urbanization and more traffic leading to increasing number of accidents in day to day life.

Cause of death in natural deaths: Chattopadhyay *et al.* in 2013 noted that diseases and pathological conditions, old age leading to natural death were the commonest (48.3%) cause of death.
Kumar *et al.* in 2009, observed that most of the victims (n = 451, 61.36%) died from natural causes.
According to Deccan Herald March 2012 [8], tuberculosis is one of the leading infectious cause of death. There are nearly 1,000 deaths due to TB per day in India.

The aforesaid study is consistent with the present study but vey less data is available and more in-depth analysis is yet to be taken place regarding natural disease; besides tuberculosis is one of them common among street dwellers living in unhygienic polluted environment, superadded with habit of smoking.

Distribution as per cause of death: Kumar *et al.* in 2014 [5], noted that majority of the opinions regarding the cause of death in these cases was given as 'cranio-cerebral damage' (30%). Opinion regarding the same was reserved in 28% cases for want of the reports of the toxicological and histo-pathological analysis of the viscera sent for the same to the concerned quarters. Coronary insufficiency/ cardiac disease were responsible for 11% deaths, while multiple organ failure/disease was responsible in 7% cases in contrast to the present study.

Kumar *et al.* in 2012 [9] noted that majority of the opinions regarding the cause of death were "Opinion reserved" (37%), for want of the reports of the toxicological and histopathological analysis of the viscera sent for the same to the concerned quarters. This group was followed by "Head Injury", 26% cases. Hemorrhagic shock and multiple fractures accounted for 2 cases each (11%) in contrast to the present study.

Mittal *et al.* in 2013 [10] noted that in India, most often, female infants are killed as soon as they are born either by suffocation or poisoning. Occasionally they are abandoned which is comparable with the present study.

Gangal *et al.* in 2012 [11], observed that in case where the body is skeletonized age and sex determinations are always crucial and problematic especially when incomplete skeleton is received and when there is no other means available to identify the body comparable with the present study.

In the present study it is noted that difference of facts with the present study in case of deaths in road traffic accidents might be due increased urbanization with increase in traffic, in case of skeletons no definite opinion could be arrived, and in some cases opinion were kept pending as results of toxicological and histopathological reports didn't arrive till preparation of reports, moreover in cases of newborn they mostly died of natural cause and were abandoned by their guardians.

Conclusion

The present study is done with the basic understanding to evaluate the different causative factors. Yet the present study is not only a mere extra addition to the previous researches done in the concerned topic; as very little literature is present in our country; though meager rather it is aimed at comparing the results and opinions with the present study, which has been taken in a quite different perspective in relation to socio-demographic entity.

This study reflects the political commitment and administrative efficiency towards implementation and drafting legislation for management of unknown dead bodies. The state has ample data regarding the fate of unknown deaths; the lag is the proper drafting of legislation and policies and their implementation to keep a check on the incidence.

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