

Frequency of Unascertained Cause of Death in Exhumed Bodies: Multicentric Experience in Interior of Sindh

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ABSTRACT

Objective: To look for rate and its possible reasons of failing to determine the cause of death in exhumed bodies.

Place and duration: The study was conducted in the Forensic Medicine Departments of Chandka Medical College Larkana (CMCHL), and Peoples Medical Collage Nawab Shah (PMCN) from July 2001 to June 2011.

Study design: Prospective, descriptive.

Material and methods: On the request of heirs or state exhumations of 197 bodies were performed by members of exhumation board from CMCL & PMCN in different districts of interior of Sindh. With the completion of all formalities, bodies were dug out from the graves. After identification of deceased by near relatives, bodies were thoroughly examined, different tissues taken for chemical analysis and histological reports. The cases in which cause of death determined, were excluded from the study. In cases where all methods and tests failed to reach the cause of death were included in the study.

Results: In 66(33.5%) exhumed bodies, cause of death remained undetermined. Of these 49(74.24%) were males and 17(25.76%) females. Majority of bodies 42(63.64%) were in advanced stage of putrefaction. The time between death and performance of exhumation was more than 5 months in 49(74.24%) of cases.

Conclusion: Undue delay of many months to perform exhumation after the death of person due to lengthy state procedures is the main reason for failure to reach at the cause of death.

Keywords: Exhumation, Autopsy, Unascertained cause of death.

INTRODUCTION

Exhumation carried out after obtaining an appropriate permission from the state, is digging up or removal of buried body from the grave or ground¹. The main purpose of performing the exhumation is to determine the cause of death when foul play is suspected², but this is also done for identification purposes required in some civil and criminal cases³. Though it is a key to determine the cause of death especially in homicidal cases but some times it is not determined and acknowledged as unascertained because examination of disinterred body is by no means infallible in revealing the cause of death⁴, and herein no abnormality is detected on gross examination of

body and histological, toxicological and microbiological procedures are insignificant⁵. Decomposition is not only a bar to successful examination but it may also reduce the possibility of obtaining samples, resulting in failure to establish the cause of death⁶. Various factors influencing the decomposition are time elapsed between burial and exhumation, seasonal environment, soil conditions and coffin material⁷. Other reasons for unascertainable cause of death are infectious diseases, cardiac lesions, metabolic & blood disorders, allergy, anaphylactic reactions, acute neurogenic cardiac failure, electrical injuries, sudden infant death syndrome etc⁸. This study was planned to look for rate and its possible reasons of unascertained cause of death in exhumation carried out in interior of Sindh since no such study has ever been conducted before in Pakistan.

MATERIAL & METHODS

This was the prospective descriptive study conducted in the forensic medicine departments of Larkana and Nawab Shah Jointly by exhumation boards of CMCL and PMCN. A total of 197 bodies were exhumed in various districts of Larkana & Sukkur regions in

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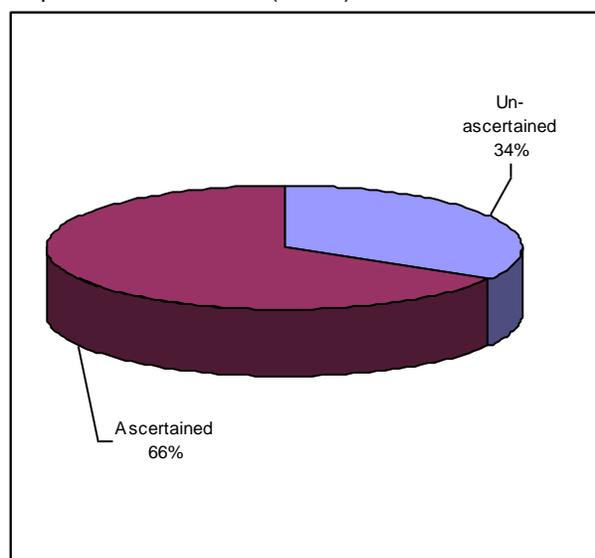
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interior Sindh during the period of ten years from July 2001 to June 2011, by Larkana and Nawab Shah boards constituted by Director General Health Services, Hyderabad under the orders of district and session Judge of respective districts, comprising of police surgeon, forensic expert, pathologist, lady doctor in case of females bodies as members and Medical superintendent as the chairman. The team, led by area magistrate along with police escort, used to arrange the digging after proper consent and identification of deceased by heirs or relatives. After recovering the body it was to be placed at covered area to maintain the privacy in the grave yard for thorough external and internal examination, to look for any injury, bony fracture, presence of any bullet, pellets etc. For assessing the age and sex bones were examined. Viscerae were to be collected for histopathological / toxicological examination. Earth samples were also to be collected in cases of alleged poisoning. Cases of deceased where cause of death was determined either by external and internal examination or by histological examination / chemical analysis of viscerae were excluded from study. Partially decomposed, advancedly decomposed or skeletonized bodies, with no internal or external injuries sufficient to cause death and histological and toxicological reports failing to reveal any abnormal findings, were included in the study. Different variables of bodies e.g., sex, age, time of death & disinterment, corpse condition and burial site were analyzed using statistical package for social services (SPSS) version 13.

RESULTS

Out of 197 exhumations performed, 66(33.5%) were found to have unascertainable cause of death while in 131(66.5%) bodies cause was ascertained and excluded from study, as shown in graph-1. The time elapsed between death & exhumation was 1 to 4 months in 17(25.76%) cases, 5 months to 8 months in 30(45.45%) cases and above 8 months in 19(28.79%) cases as shown in Table-1. Amongst 66 cases, 10(15.15%) bodies were partially decomposed, 42(63.64%) in advanced stage of decomposition & 14(21.21%) were almost skeletonized as shown in the table-2. There were 49 (74.24%) males and 17(25.76%) females as shown in the graph-2. Of the 66 cases, 47(71.21%) belonged to Rural areas while 19 (28.79%) to urban areas of the various districts tagged with CMCL & PMCN exhumation boards as shown in Table-3. The majority of the victims were in the age group 31-45 years (54.55%), followed by 16-30 years (34.85%), the least number of cases were seen in over 45 years (10.60%) as shown in the Table-4.

Graph1: Cause of death (n=197)



Graph 2: Gender distribution (n=66)

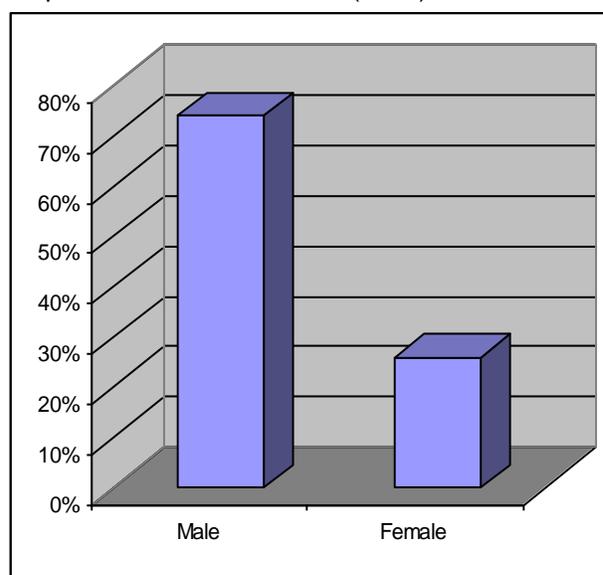


Table 1: Frequency distribution according to time between death & disinterment (n=66)

Time of disinterment	No.	%age
1-4 months	17	25.76
5-8 months	30	45.45
>8 months	19	28.79
Total	66	100

Table 2: Frequency distribution according to condition of the corpse (n=66)

Condition Of The Corpse	No.	%age
Partially decomposed	10	15.15
Advancedly decomposed	42	63.64
Almost Skeletonized	14	21.21

Table 3: Frequency distribution according to urban and rural areas (n=66)

Area	No.	%age
Rural	47	71.21
Urban	19	28.79
Total	66	100

Table-4: Frequency distribution according to age (n=66)

Age group	No.	%age
16-30	23	34.85
31-45	36	54.55
Above 45	07	10.6
Total	66	100

DISCUSSION

Exhumation though considered as sacrilege, is some times requested by the heirs of deceased when there are mysteries about the cause of death⁹. In this region the undue delay to conduct exhumation is due to fear of dishonor and elders of the family usually avoid disinterment of near and dear ones. In this study cause of death remained undetermined in one third of cases (33.5%). Our results are almost similar to one national study (34% failure rate) conducted by Qazi et al¹⁰ in 2004. However Memon U & Memon A¹¹ have reported higher percentage of 42.85% of cases in which cause of death could not be determined. In various German studies, failure to reach the cause of death in exhumed bodies have been reported by Verhoff et al⁷, Seibel et al⁹, and Grellner et al¹² to be 0.8%, 4.23% and 22% respectively. Higher percentage of failure to reach the cause of death in exhumed bodies in our areas is because of early putrefactive changes due to hot climate, water logging and salinity and improper drainage system around the grave yard. Further more in neurogenic death, no pathological changes can be detected⁹. High successful exhumation rates in Germany is due to delayed putrefaction of corpse because of cold season in many months of year and application of sophisticated diagnostic techniques like immunocytochemistry¹³.

Despite the limitations, exhumation may provide surprisingly good results about the cause of death but the same is less likely to be achieved with passage of every day¹⁴. In our study majority of bodies 74.24% (49) were exhumed at 5 or more than 5 months after the death, and most of the bodies, 84.8% (56) were in stage of advanced decomposition or fully skeletonized. Our observations are consistent with Hussain et al¹⁵ who found advanced putrefaction in 80.4% of bodies exhumed from 4 months to 01 year after the death. How ever Breitmeier et al¹⁶ have shown evidence of significant morphological features in soft tissues and internal organs sufficient to diagnose the cause of death in exhumations

performed after several years. Marked decomposition observed in exhumed bodies many months after the death of persons is responsible for failing to reach the conclusion, as the cause of death is to be inferred from soft tissue in majority of cases¹⁷. But delay in putrefaction observed in European countries like Germany improves the positive yield in exhumations many months or even years after burial of deceased.

In our study males were more victims (74.24%) than females (25.76%) in the ratio of about 3:1. This finding is comparable with one national study conducted at Peshawar⁵ where male fatalities are reported in 86.4% of cases. Females in this society being least victims of violent deaths are due to fact that they hold honorable place even by enemies and spared from tribal and family disputes because of religious, cultural and traditional customs^{10, 18}. In this study majority of victims belonged to rural areas (about 71.21%), and some 54.55% were middle aged in between 31-45years of age. Our study is comparable with Qazi et al¹⁰ who have reported rural folk involvement in 77% of cases. Regarding age our findings are in contrast with an international study conducted at U.K⁶ where the incidence of unascertained death appears higher in children and young adolescents. Predominance of rural people in our study is due to high illiteracy rate and their ignorance about codal procedures causing delay in conduct of exhumation process. More cases of middle age may be due to involvement in violent activities and this age is more vulnerable to different diseases like acute myocardial infarction where no positive findings are found on disinterment.

CONCLUSION

1. Delayed exhumation due to lengthy legal procedures involved in carrying out this process leading to decomposition of bodies, resulting in unascertainable cause of death.
2. Early decomposition of bodies due to multiple reasons like hot climate, water logging and salinity, improper drainage of graveyards etc is a bar to ascertain cause of death.

RECOMMENDATIONS

1. On the basis of findings in our study we can recommend that:
2. Legal procedures may be simplified so that exhumation can be performed as early as possible to avoid putrefactive changes.
3. Proper drainage of graveyards be maintained to avoid early putrefaction.

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