Original Article

Frequency and Postmortem Findings of Exhumation Cases in Sukkur Division

Postmortem Findings of Exhumation Cases

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ABSTRACT

Objective: To describe the frequency and postmortem findings of exhumation cases performed in Sukkur division.
Study Design: Observational retrospective analysis
Place and Duration of Study: This study was conducted at the different areas of the Sukkur Division from January, 2016 to December, 2021.
Materials and Methods: 77 dead bodies were excavated from different regions of Sukkur division during the specified period within 1 year of burial at the graveyard site. Different variables e.g., sex, age, condition of the dead body, cause and manner of death were analyzed.
Results: Males were more (n=59, 76.6%) victims than females. The age range of cases was 21-30 years (mean age 37.44 ± 11.78 years). Only in 25 cases (32.46%), the cause of death was determined, of which most (n=15, 19.48%) deaths occurred due to intracranial hemorrhage and shock due to hard blunt head trauma, followed by Fire arm injury (n=5,6.49%), Poisoning(n=3, 3.89%) and drowning (n=1, 1.29%). In two-thirds of cases (67.53%), the cause of death remained undetermined because of advanced putrefaction of bodies. Partial decomposition was observed in (33.76%) of cases whereas (61.03%) of the bodies were moderate to severely decompose.
Conclusion: Males are more victims in exhumations performed with young adolescent cases are common. The most common manner of death reports is homicidal while the cause of death is not determined in the majority of cases due to advanced putrefaction. Whereas, intracranial hemorrhage and shock due to hard blunt trauma followed by Fire arm injury are the common causes of death.
Key Words: Exhumation, Postmortem examination, homicidal, accidental

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INTRODUCTION

Exhumation is defined as the procedure of legally excavating a buried dead body for forensic reasons.[1] This procedure is usually trailed by carrying out autopsy of dead body in order to find the various disease processes and their mechanisms that eventually proceeded towards death. It is also executed to identify the dead body, to clarify the doubt of unnatural death, or as a requirement for medical insurance.[1,2,3,4] A former autopsied and buried body can also have the exhumation for the postmortem examination (EPME). This could be done as a follow-up procedure if the deceased's surviving family members believe the doctor neglected them while they were receiving treatment, if they have reason to believe that the police investigation were improper, or if they believe the first autopsy was not done correctly. It is referred to as the Second Autopsy in this instance.[2,5] EPME can be utilized to evaluate formerly assigned death certificates and earlier death inquiries.[4] EPME is also useful in assassination cases after rape. The forensic analysis of semen assist in these cases to distinguish assailant and victim.[6] A dead body can be excavated after several years of burial for DNA analysis to verify paternity.[7] EPME is not performed in routine cases. Conventional post mortem is usually preferred.[5,8,9] Success in finding the cause of death relies upon the state of dead body when excavated. If the soft tissue of dead body is severely decomposed, it becomes very hard to reach at

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the cause of death. Also it becomes very difficult to decide with confidence whether it is ante mortem or otherwise.[10] The present study was designed to describe the frequency and postmortem findings of exhumation cases performed in Sukkur division, Sindh, Pakistan.

MATERIALS AND METHODS

The current descriptive retrospective analysis was taken from records of exhumations performed from January 2016 to 31st December 2021, pertaining to different areas of the Sukkur Division. From the records, it was found that 77 dead bodies were excavated from different regions of Sukkur division during the specified period, underneath the commands of district and session Judges of relevant districts. Team was consisted of Medical superintendent (MS), police surgeon, forensic specialist, pathologist, and female doctor in case of female dead bodies. Medical superintendent served as Chairman of team. After reviewing the Police reports of each case, postmortem was accomplished instantly after exhumation. Standard procedures were opted and performed for all cases. Detailed history, demographic information, and post-mortem observations were documented for all cases. The team, directed by magistrate of that area along with Police force was utilized for excavation purpose after permission and identification of the dead body by family members. Dead bodies were thoroughly examined, to find marks of any injury or fracture etc. Bullets or pellets were also searched out in bodies. For determining age and sex, bones were examined. Body organs were separated for further histopathological examination. Soil samples were collected in cases of suspicious poisoning cases. Analysis of different parameters such as gender, age, timing of death & postmortem, state of dead body and graveyard, and cause and manner of death was carried out using SPSS version 23.

RESULTS

A total of 77 exhumations were performed during the specified study period including 59 male and 18 female cases. All bodies were exhumed within a year of burial. Majority of cases were lying in the age range of 21-30 years followed by 10-20 years. The youngest dead body exhumed was of a 2-3 days old male infant and the oldest dead body was of 77-year old male, with a mean age of 37.44 ± 11.78 years (Table I).

Table No.1: Age and sex distribution of exhumation cases (n=77)

Gender	Age (Years)							Total
	0-10	10-20	21-30	31-40	41-50	51-60	61-70	
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
Male	3 (3.8)	16 (20.7)	24 (31.1)	5 (6.4)	8 (10.3)	1 (1.2)	2 (2.5)	59(76.6)
Female	1 (1.2)	0	11 (14.2)	1 (1.2)	2 (2.5)	1 (1.2)	2 (2.5)	18(23.3)
Total	4 (5.1)	16 (20.7)	35 (45.4)	6 (7.7)	10(12.9)	2 (2.5)	4 (5.19)	77 (77.0)

Out of all cases, only in one-third the cause of death was determined, out of which the majority of these cases were of death due to intracranial hemorrhage and shock due to hard blunt trauma followed by Firearm injury, Poisoning, drowning and other. Due to advanced putrefaction of the dead bodies, the cause of death was not found in majority of cases. (Table 2).

Table No.2: Cause of death in exhumation cases (N=77)

Mode of death	n	%
Hard blunt trauma	15	19.48
Firearm injury	5	6.49
Drowning	1	1.29
Poisoning	3	3.89
Undetermined	52	67.53
Others	1	1.29

Conditions of the bodies at the time of exhumation are presented in Table 3. It can be observed from table that majority of dead bodies were in a state of moderate to severe decomposition. Bony remnants were found in very few of the exhumed bodies. Facial recognition was possible in limited cases. The manner of death in our study was found to be homicidal in majority of cases followed by accidental and others. Skull fracture was the most commonly detected finding trailed by firearm injury, poisoning with insecticide and barbiturate were found after the toxicological examination. Furthermore, the history of 2 cases of death revealed that the bodies of two pregnant ladies died may be because of some medical complication. (Table 3)

Table No.3: Findings on Postmortem examination

Condition of body	N	%
• Partially decomposed	26	33.76
• Moderate to severe decomposed	47	61.03
• Skeletonized	4	5.19
Facial Recognition		
• Possible	11	14.28
• Not Possible	66	85.17
Manner of death		
• Homicidal	19	24.67
• Suicidal	--	-
• Accidental	2	2.59
• Others	4	5.19

DISCUSSION

Exhumation is generally considered a socially unaccepted (taboo) procedure by most cultures. It is usually carried out only in cases of suspicious deaths where the cause of death is uncertain.[10] In this study, a total of 77 cases of suspicious deaths pertaining to various divisions of Sukkur were exhumed within a given time frame and the post mortem of dead bodies was carried out. Among 77 dead bodies, cause of death was recognized in only 25. In remaining 52 cases, cause of death remained undetermined, therefore, the success rate of carrying out the procedure was 32.46%, and failure rate was 67.53%. Reason for failure could be delayed exhumation leading to advanced putrefaction of dead bodies. Other reasons could be environmental conditions of the burial site as well as burial process. The success rate of exhumation also depends on the extent of morphological changes occurred in dead body and state of decomposition Even the object causing injury and the body part injured are also vital. Soil, predator animals and plants also causes a lot of changes in dead bodies [11] Still tremendous information can be gathered from dead bodies even after several years of their burial. Many other researchers reported the similar findings. [2, 12,13,14]

In Pakistan, in most of the areas, weather remains hot from March to October. Due to this hot weather conditions, the process of putrefaction begins early. Whereas in European countries weather remains cool throughout the year, putrefaction of dead bodies is slow. Furthermore, in European countries dead bodies are usually packed in coffins after applying some chemical preservative material. This procedure also slows down the decomposition of dead bodies. This is the reason exhumation is more efficacious in European countries as compared to our country.[15]

In this study, males were more victims than females. Most common age of exhumed cases was found to be 21-30 years. Our results were consistent with UK and Nigeria studies where the most common age found was children and young adolesecents.[16,17] Contrasting results were reported by Khan et al in 2007 where the most common age reported was 31-45 years.[18]

In this study, all the exhumations were carried out within a year of burial of dead bodies. Similar facts were discovered from exhumations performed in other countries during same span of time.[3,4] In present research, majority of dead bodies were in state of moderate to severe decomposition or were bony remnants. Hussain et al also revealed that 80.4% of dead bodies excavated within 1 year since death were in state of severe decomposition [9]. The main drawback of late exhumation is the loss of substantial facts and evidences linked to soft tissue injuries.[2,9,20] Marks of ferocity on the soft tissue are usually missing in cases of moderate to severe decomposition. Histopathology gives little information related to organs which are in state of severe decomposition.[21] In Pakistan, another reason of delay is viewing this procedure as a disgrace to dead bodies and due to extensive legal processes[13]

In one of a study conducted at Larkana from July 2001 to 2011, in 33.5% of cases, cause of death was not concluded due to similar reasons. In another study carried out in Sukkur and Larkana divisions, from July 2006 to December 2009, among 21 cases, cause of death was discovered in only 9 dead bodies due to similar reasons. Success rate was determined to be 42.85%.[15] Qazi et al also reported the similar results 34% failure rate in 2004. Memon et al reported 42.85% failure rate in 1995.[22,23]

Deaths can be categorized as accidental, homicidal, suicidal, natural, or undetermined in nature on the basis of manner of death.[24] The manner of death in our study was found to be homicidal in majority of cases. (n=19, 24.67%) Some previous studies were in accordance to our results.[2,4,14] Our study has a few limitations such as most of the of the postmortems were performed by the graveside. Imaging studies were not routinely done. Toxicological analysis was executed in suspected cases only, while immunohistochemistry was not conducted for any dead body. Services of anthropologist were not utilized for any exhumation case.

CONCLUSION

Males are more victims than females in exhumations performed. The majority of cases were young adolescents. Cause of death was not determined in majority of cases because of advanced putrefaction. The most common cause found was death due to intracranial hemorrhage and shock due to hard blunt trauma followed by Fire arm injury. Most common manner of death was homicidal death.

Author's Contribution:

Concept & Design of Study:	Abdul Waheed
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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