

Exhumation; A Tool to Establish Cause of Death

A QAZI H K AFRIDI K AZIZ

Dept. of Forensic Medicine, LUM & HS Jamshoro, K.M.C.Peshawar, FJMC Lahore.

Correspondence to Dr. Akber Qazi, Assist Professor

Exhumation is disinterment of the dead body that has already been buried. From January 2004 to December 2005, Thirty-Five cases were exhumed and subsequently autopsied in the rural and urban areas of Sindh by the Standing Medical Board of District Hyderabad for establishing the cause of death. The results revealed that out of the total thirty-five cases, (60%) twenty-one were subjected to autopsy examination first time on exhumation (*Primary*) whereas the remaining (40%) fourteen were re-examination cases (*Secondary*). The cause of death was established in (66%) fourteen of the primary examination cases and (24%) five of the secondary examination cases. Male / Female ratio was 2.5:1 and the maximum number (62.8%) were in between 21-40 years of age. Rural population (77%) is more frequently involved than urban population (23%).

Key Words: exhumation, grave, murder, crime

Exhumation is a Latin word ("ex"- out "humus"- ground) that means out of ground or from the grave. Lawful disinterment or digging of a buried body from grave and subsequently performing autopsy is called exhumation¹. It is not uncommon in countries where the dead bodies are disposed through burial whereas in countries where the dead bodies are cremated exhumations are unheard.

The need for exhumation may arise in two situations, either for conduction of a primary examination or in some cases to carry out a secondary examination. The cases requiring primary examination are those where the bodies have been disposed after death being labeled as natural or accidental and subsequently the suspicion of foul play is raised by the aggrieved party². On other occasion the body is being concealed in the ground by the murderers. The cases requiring re-examination are those in which the death investigation including autopsy examination has been done before burial but later on the facts demand re-examination of the deceased³.

The present study aims to evaluate the importance of exhumation in establishing the cause of death and to highlight the defects in the prevailing system of death investigation in Pakistan.

Material and methods

The study was conducted over a period of two year from January 2004 to December 2005, on 35 cases of exhumation that were examined by the Standing Medical Board of District Hyderabad. The circumstances related to these cases were analyzed and police papers were scrutinized in detail. The parameters recorded were the background of the deceased that whether belonged to a rural or an urban area, place of burial, sex of the subject, type of the examination, time interval since burial, evidence of trauma, condition of the soft and hard tissues. In suspected cases of poisoning / sexual assault viscera were sent to chemical examiner for chemical analysis and their results were also incorporated in the final opinion. The cause of the death was established after performing complete medico legal autopsy

Results

Twenty-seven cases belong to the rural and the remaining eight from the urban areas of Sindh. Accordingly they were buried in their respective areas. (Table 1)

Table 1. Rural / Urban Distribution (n=35)

District	No of Cases	%age
Rural	27	77
Urban	08	23

Twenty-five deceased were male and ten were females. (Table 2)

Table 2. Sex distribution (n=35)

Sex	No of Cases	%age
Male	25	71.4
Female	10	28.6

The commonest age group of the victims was 21-40 years (62.8%). (Table 3)

Table 3. Age distribution (n=35)

Age in years	No of Cases	%age
01-20	10	28.6
21-40	22	62.8
41& Above	03	08.6

Only three of the deceased were non-Muslims (Table 4)

Table 4. Distribution according to the religion (n=35)

Religion	No of Cases	%age
Muslims	32	91.4
Non-Muslims	03	08.6

Out of twenty-one cases that were examined for the first time, three were of concealed murder and the rest were of suspicious deaths but were disposed without complete medico legal death investigations. Such cases are the types that are sometimes not reported to the police or if at all reported are not fully investigated and the dead bodies are buried without autopsy examination. (Table 5)

Table 5. Type of Examination (n=35)

Type	No of Cases	%age
Primary Examination	21	60
<i>Concealed Murder</i>	(03)	
<i>Suspicious Death</i>	(18)	
Secondary Examination	14	40

Twenty-three (65.7%) exhumations were carried out within six months and seven within 6 to 12 months of burial. Only five cases were exhumed after one year of burial. (Table 6).

Table 6. Time Interval between burial and exhumation (n=35)

Time in days	No of Cases	%age
01-90	14	40
91-180	09	25.7
181 -365	07	20
366 - above	05	14.3

Tissues were skelatonised or mummified or have transformed into an adipocere in majority (60%) while in remaining (40%), though they were putrefied but the ratio of their being identifiable or otherwise was 50:50 (Table 7).

Table 7. Condition of the body (n=35)

Condition of the body	No of Cases	%age
Soft tissues putrefied but identifiable	07	20
Soft tissues putrefied, not identifiable	07	20
Mummified / Adipocere formation	09	25.7
Skeletalized (no soft tissues)	12	34.3

The evidence of trauma on soft tissues was very difficult to pick because of inherent limitation imposed by the process of putrefaction. However in 28.6% cases the findings on soft tissues were elicited (Table 8).

Table 8. Evidence of Trauma on soft tissue (n=35)

Evidence trauma	No of Cases	%age
Present	10	28.6
Not Present	08	22.8
Undetermined	17	48.6

The presence of fractures and the interpretation of the causative agent were easy to make (Table 9)

Table 9. Evidence of Hard Tissue (Bony) Trauma (n=35)

Evidence of Trauma	No of Cases	%age
Present	16	45.7
Not Present	19	54.3

The relevant samples were collected and sent to chemical examiner for detection of poison in seventeen cases and for detection of semen in four cases. The results were found negative in fifteen cases sent for the detection of poison and all sent for the detection of semen. (Table 10)

Table 10. Chemical Examination (n=21)

Samples sent to	No. of case	Results	
		+ve	-ve
Detect poison	17	02	15
Detect semen	04	00	04

The determination of cause of death is the most important job of the Forensic Examiner. In the best medico legal centers the rate of negative autopsies ranges from 2 to 10 percent of the total cases autopsied⁴. These figures relates to fresh dead bodies. In the present study that is based on putrefied dead bodies, cause of death being un-natural was established in 66.6% cases subjected to primary examination and 28.6% cases subjected to secondary examination. (Table 11)

Table 11. Determination of Cause of Death (n=35)

Cause of Death	No of Cases	%age
Primary Examination		
Determined	14	66.6
Undetermined	07	33.3
Secondary Examination		
Determined	04	28.6
Undetermined	10	71.4

In case of secondary examination additional findings were also noted in few cases. The failure to pick these findings at initial examination could be due to inadequate training of the examiner. If exhumations have not been done, a significant number of criminal cases would have been dropped from investigation once for all. The situation is very alarming and speaks that the disposal of dead bodies without complete and thorough investigations conceals the crime.

Discussion

Medico legal death investigation is a bi-faceted problem. As the name implies it has two components; medical (Doctor) and legal (Law enforcement agencies i.e. Police). Both have to shoulder their share of responsibility. Unfortunately, in Pakistan medico legal death investigations are carried out by the law enforcement agency that is the Police under section 174 & 176 Cr.P.C. and the Police Rules 1934. The doctor has practically no role or a very little role to play resulting into a complete chaos and great disappointment to the public at large.

Relevant sections of Cr.P.C:

1. The officer In charge of police station or some other police officer specially empowered by the Provincial Government in that behalf, on receiving information that a person:

1. Has committed suicide, or
2. Has been killed by another, or by an animal, or by machinery, or by an accident, or
3. Has died under circumstances raising a reasonable suspicion that some other person has committed an offence, Shall immediately give intimation thereof to

the nearest Magistrate empowered to hold inquest; and unless otherwise directed by rule prescribed by the Provincial Government, or by any general or special order of the District or Sub-divisional Magistrate, shall proceed to the place where the body of such deceased person is, and there, in the presence of two or more respectable inhabitants of the neighbourhood, shall make an investigation, and draw up a report of the apparent cause of death, describing such wounds, fractures, bruises and other marks of injury as may be found on the body, and stating in what manner, or by what weapon or instrument (if any), such marks appear to have been inflicted⁵.

2. When there is any doubt regarding the cause of death or when for any reason, the police officer considers it expedient so to do, he shall, subject to such rules as the Provincial Government may prescribe in this behalf, forward the body, with a view to its being examined, to the nearest qualified medical man appointed in this behalf by the Provincial Government, if the state of the weather and the distance admit of its being so forwarded without risk of such putrefaction on the road as would render such examination useless⁵.

3. Whenever such Magistrate considers it expedient to make an examination of the dead body of any person who has been already interred, in order to discover the cause of his death, the Magistrate may, cause the body to be disinterred and examined⁵.

Relevant sections of Police Rules 1934

Rules relating to the disinterment of bodies are:

1. An officer in charge of police station and any superior police officer lawfully making an investigation into the un-natural or sudden death of any person shall, on learning that the body of the deceased has been formally buried, record in writing the information which has reached him and the grounds on which he considers it necessary that the body should be disinterred.
2. He shall forward the information so recorded to the nearest magistrate empowered to hold inquest and ask for an order under section 176 (2) criminal procedure code, and in the mean time shall guard the grave.
3. On receipt of such order if the magistrate himself does not attend the disinterment such police officer shall in the presence of two or more respectable inhabitants of the neighborhood cause the body to be disinterred. Such police officer shall then comply with the provisions of section 174 Criminal Procedure Code.
4. Police officer shall invariably examine witnesses to prove the identity of disinterred bodies before commencing their investigation.
5. When a body has lain in a grave for a period exceeding 3 weeks no disinterment shall be made by any police officer until the opinion of the District

Health Officer has been obtained, and then only the concurrence of the District Magistrate⁶.

It is clear from the above statement of law that it is non-medical man who scrutinizes the situation and sees the dead body and then uses his discretion to send the dead body to the medical man for the conduction of autopsy.

In the advanced countries of the world the medico legal death investigation system gives due importance to Forensic Specialists. Like in USA, Medical Examiner System is in practice. In this system the deaths which are suspectedly criminal, suicidal, sudden or unexpected, accidental and in other similar instances where the doctor is unable to certify that the death has occurred from natural causes are referred to medical examiner. The medical examiner then takes charge of the dead body and is responsible for the Forensic Aspects of the investigation. As the majority of these deaths are un-natural, it is usual for the medical examiner to attend the scene of death where he makes full investigation of the circumstances and is empowered to take charge of any material which might be relevant in the investigation. He also has the power to decide whether or not, he can issue a certificate of natural cause of death⁷.

The advantage of Medical Examiner System is that a large proportion of all deaths are investigated by a trained medico legal expert, undoubtedly death with a criminal, or potentially criminal element is subjected to autopsy with full back-up of Forensic Investigations

In the light of the above it is suggested that:

1. All deaths in the society whether natural, un-natural or accidental, must be reported to the authorities.
2. The disposal of the dead body must not be allowed till the issuance of a certificate regarding the cause and manner of death either after complete and thorough investigations or after performing complete medico legal autopsy.

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