



Original Research Article

Microbiological Association with Histopathological aspects of Autopsy Cases

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Abstract

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To determine the microbiological and histopathological association of medicolegal post-mortems with causes of death. Observational cross sectional study. Department of Pathology, KEMU from 1st January 2019 to NOV 2020. Sixty medicolegal autopsies were carried out from Autopsy Laboratories, Department of pathology, KEMU. Demographical details including age, sex, residence, causes of death were recorded after taking consent from the authorities. Microbiological and Histopathological examination of the received organs were done. Forty four (73%) were males and 16 (27%) were females. Majority of cases 28 (37.33%) were ages between 18 to 65 years. Sudden death was the most frequent cause of death in 12 (20%) followed by gunshot and road traffic accident in 26 (43%) in cases. Kidney, heart, brain, liver, lungs, spleen and Fracture of bones were the most frequent effected organs. The microbiological isolates were obtained from CSF, heart blood, pleural and pericardial and tracheal aspirates. Most common isolate was Klebsiella in 25 cases. Atherosclerosis and Pneumonia and were the frequent pathology findings. Microbiological and Histopathological examination is very effective and important for the medicolegal postmortem cases. Sudden death was the most common cause of death. The most common organs involved were, heart, brain, kidney and liver.

Keywords: Post-mortem, Cause of death, Medicolegal cases, Histopathology.

INTRODUCTION

An autopsy (also referred to as a post-mortem examination or necropsy) is that the examination of the body of a dead body and is performed primarily to work out the explanation for death, to spot or characterize the extent of disease states that the dead body may have had, or to work out whether a specific medical or surgery has been affected. Autopsies are performed by pathologists, medical doctors who have received specialty training within the diagnosis of diseases by the examination of body fluids and tissues. In academic institutions, autopsies sometimes also are requested for teaching and research purposes. Forensic autopsies have legal implications and are performed to work out if death was an accident, homicide, suicide, or a happening. The word autopsy springs from the Greek

word autopsy: "to see with one's own eyes (Shojania et al., 2003). "An autopsy post-mortem examination, necropsy, or autopsy cadaverum) may be a surgery that consists of a radical examination of a body by dissection to work out the cause, mode, and manner of death or to evaluation any disease or injury which will be present for research or educational purposes. Autopsy is a crucial implement in medicolegal cases to spot the cause and manner of death (Spagnolo et al., 2019). Medicolegal cases like overtime, road traffic accident and assault involve organs which are susceptible to infections, inflammations, occupational and neoplastic diseases. Hence, these organs may show incidental findings (Liu et al., 2018). Histopathological examination is important for evaluation of specimens and to correlate the explanation

for death. Forensic histopathology may be a vital branch of forensic pathology (Khare et al., 2017). It deals with the microscopic analysis of varied changes at cellular/tissue level throwing light on explanation for death, solving a criminal case which is unknown. It's microscopic study of tissues of the dead body (Jani et al., 2009). To be complete histopathologist, one has got to be competent in handling microscopes and histo-techniques. The utility of histopathological findings in death due to electrocution and poisoning has been reported by various authors while the other authors believe that histopathological examination isn't of much useful modality in cases of medicolegal autopsy (Jhajj et al., 2013). A study literature reported that have reported in their studies that histopathology examination in autopsy should be utilized in a way which is more rational (Akarte et al., 2019). This study was conducted aimed to work out the microbiological and histopathological association of medicolegal post-mortems cases.

MATERIAL AND METHODS

This observational Cross sectional study was conducted at Department of pathology, King Edward Medical University , Lahore from 1st January 2019 to December 2019. Demographical details including age, sex, residence, causes of death were recorded after taking consent from the authorities. Microbiological and Histopathological and examination of the received organs was done. A total of 60 medico-legal autopsy cases were collected from Post-mortem Laboratories, King Edward medical University Lahore. Demographical details including age, sex, residence, causes of death were recorded. Previously autopsied cases, police encounter deaths were excluded. Specimens from all the cases were preserved for histopathology examination in 10% formalin solution, which were sent to pathology department of same institute for further proceedings. We reviewed the histopathological findings of major organs e.g. brain, kidney, spleen, heart, lungs, liver and compared the results with gross anatomical findings observed during post-mortem examination. We tried to find out whether histopathological examination is affecting the cause of death and legal status of the case in any way or it can be avoided in routine autopsy examination. Microbiological examination was done to all the cases. The microbiological isolates were obtained from CSF, heart blood, ascetic fluid, pleural and pericardial fluid and tracheal aspirates. All the data was analyzed by SPSS25.

RESULTS

Forty four (65%) were males and 21 (35%) were females. Majority of cases 28 (37.33%) were ages between 18 to

35 years. Sudden death was the most frequent cause of death in 12 (20%) followed by gunshot and road traffic accident in 26 (43%) electrocution in 10(16.66%), 7(11.6%) had assault, 2(3.33%) had fall, Poisoning in 3(5%) cases respectively in cases.

Above Figure 1 showed that percentage of subjects is higher in age group 41 to 50 years. Above Figure 2 showed that percentage of subjects is higher in low socioeconomic status. Bacteria were observed significant microbiological cause of death. (Figure 3 and 4)

DISCUSSION

The microbiological isolates were obtained from CSF, heart blood, pleural and pericardial and tracheal aspirates. Commonest isolate was Klebsiella in 25 cases. Atherosclerosis and Pneumonia and were the frequent pathology findings (Gahine et al., 2018). In present study Microbiological and Histopathological examination is extremely effective and important for the medicolegal postmortem cases. Overtime was the foremost common explanation for death. The foremost common organs involved were, heart, brain, kidney and liver. During this study pneumonia, coronary atherosclerosis, congestion, liver cirrhosis, and acute tubular necrosis were the foremost frequently diagnosed pathology among organs received for autopsy. Mukherjee et al reported that brain hemorrhage was seen in 14 patients, infarct in 10 cases, abscess in 03 cases, edema 62 cases, lung abscess in 2 cases and pneumonia 19 cases, lung abscess in 02 cases, liver cirrhosis (Bonds et al., 2003).

To our knowledge, this is often the primary study conducted in Sub-Saharan Africa focused on clinico-pathological discrepancies supported complete diagnostic autopsy and including extensive serological and microbiological evaluation comprising HIV testing, also as classical cultures and molecular tests for bacteria, fungi, viruses, and parasites.⁹ There was a high frequency of clinico-pathological discrepancies during this series of adult autopsies administered during a tertiary-referral hospital (Ordi et al., 2019), with most being major errors. Importantly, in most patients a change in clinical management could have significantly modified the prognosis (Kandy et al., 2015). The proportion of discrepancies was above the speed reported in most studies, but almost like the share observed in our previous study on maternal deaths within the same institution and also supported complete autopsy. Clinical errors were more frequent in patients with infectious diseases than in patients with tumor's or other diseases (Ashraf et al., 2014). A high rate of false negative diagnoses was found for infectious diseases (100% for toxoplasmosis, 82% for fungal infections, 75% for bacterial sepsis and bacterial meningitis, 65% for tuberculosis, and 54% for bacterial pneumonia). Interestingly, the sole clinical symptom related to an

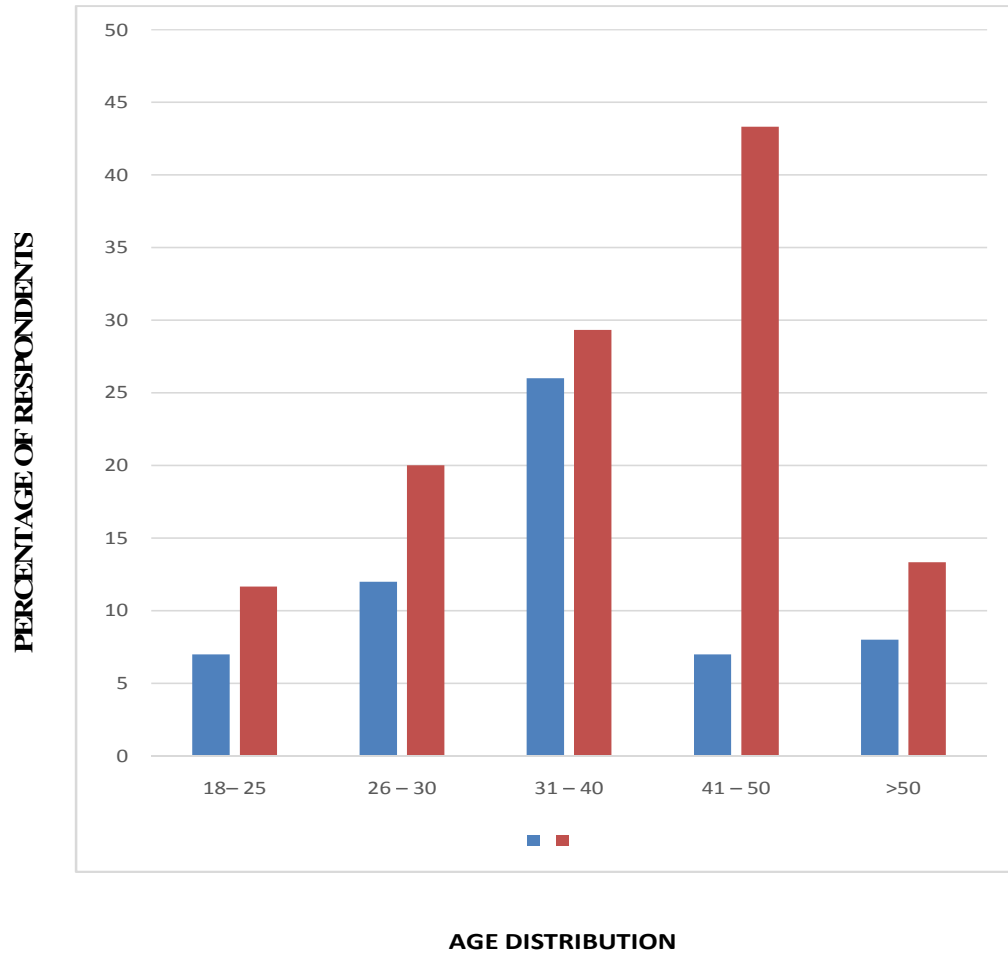


Figure 1. Age Distribution.

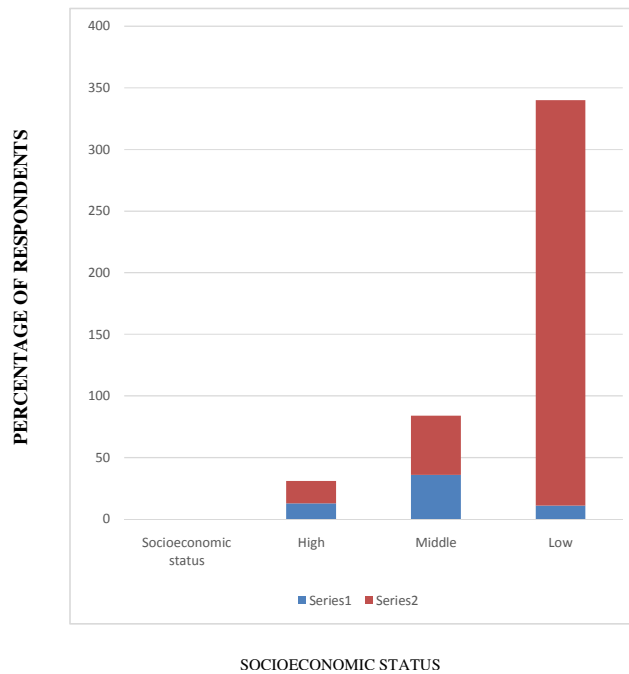


Figure 2. Distribution of Socioeconomic Status.

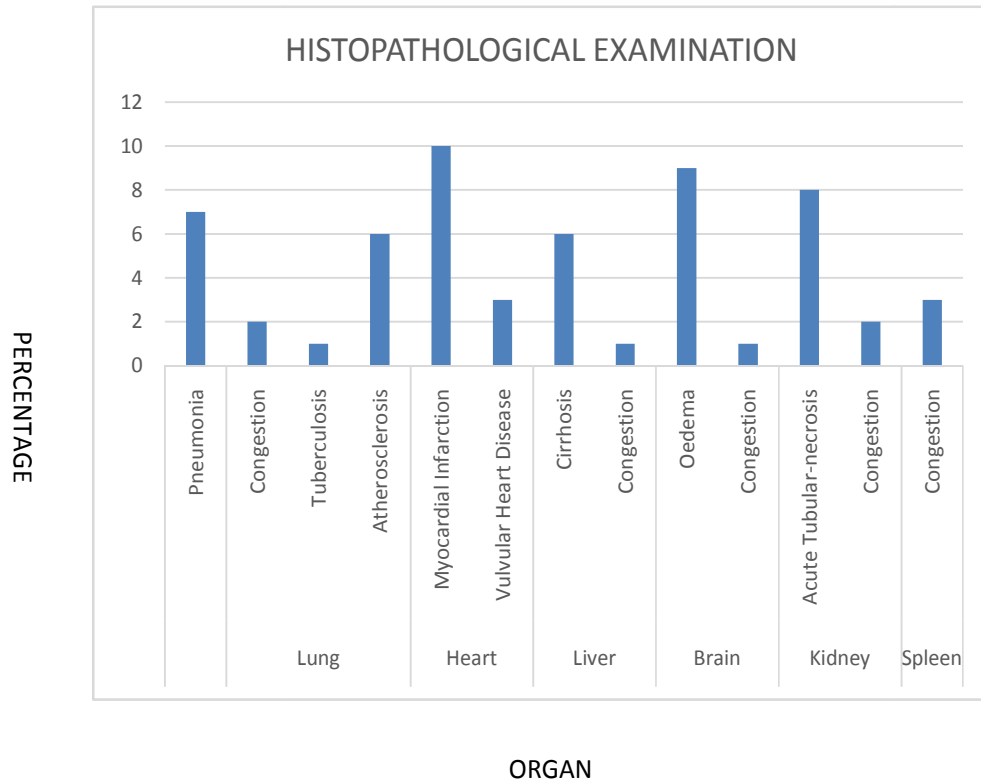


Figure 3. Distribution of histopathological status according to organ.

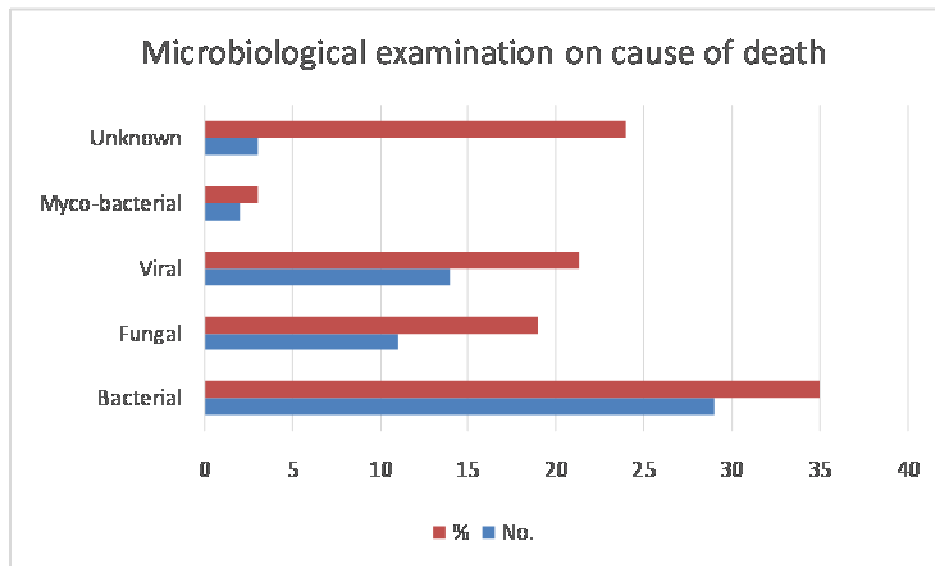


Figure 4. Microbiological examination on cause of death.

increased frequency of major errors was headache, probably associated with the high rate of false negative diagnoses in patients with infections causing meningoencephalitis like toxoplasmosis and cryptococcosis (Garg et al., 2017). No association was found between the time from admission to death and

therefore the percentage of major discrepancies.

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