

Spectrum Of Histopathological Lesions In Lungs At Medico Legal Autopsy: A Ten Years Study

Research Article

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Abstract

Introduction: Various histopathological findings unrelated to the cause of death are noticed in routine histopathological examination of medico legal autopsies. Lungs are unique among all internal organs in that they are exposing themselves directly and constantly to the surrounding atmosphere and are important vital organ in human body. They are vulnerable for a wide range of inflammatory, infectious and neoplastic conditions. Despite recent advances in diagnostic technology, pulmonary diseases are sometimes nonspecific, pathological examination gives exact cause of death and helps to correlate clinical scenario. Organ specific pathological changes that are seen during autopsy give a clear picture of the cause of death and help to correlate with clinical features.

Materials And Methods: This retrospective study was done in the department of pathology, Sri Devaraj Urs Medical College on medico legal autopsies after taking ethical clearance from the institution. In all the cases available clinical details (age, sex, clinical diagnosis) was collected from medical records. Later gross details of lung specimens were collected. Gross and microscopic details were studied in details and analysed

Results: Total of about 154 lung specimens were studied. Male to female ratio was 1.8:1. Commonest age group was 20-29 (22.72%) 3rd decade. Most common cause of death was Road traffic accident (19.48%). Pulmonary oedema was the most common histopathological finding.

Conclusion: Autopsy is the gold standard to confirm the cause of death. Male to female ratio was 1.8:1. Commonest age group was 20-29 (22.72%) 3rd decade. Most common cause of death was Road traffic accident (19.48%). Pulmonary oedema was the most common histopathological finding in the medico legal autopsy of lung.

Keywords: Histopathology; Lungs; Autopsy.

Introduction

An autopsy is a medical practice that consists of a thorough examination done on a body after death and should be a gold stranded to ascertain the cause of death[1]. Medico legal autopsies are performed on the instructions of the legal authority in circumstances related to suspicious, sudden, obscure, unnatural or criminal deaths[2,3]. Various histopathological findings unrelated to the cause of death are noticed in routine histopathological examination of medico legal autopsies[4,5].

Lungs are unique among all internal organs in that they are exposing themselves directly and constantly to the surrounding atmosphere and are important vital organ in human body [6]. They

are vulnerable for a wide range of inflammatory, infectious and neoplastic conditions[6,7]. Despite recent advances in diagnostic technology, pulmonary diseases are sometimes nonspecific, pathological examination gives exact cause of death and helps to correlate clinical scenario[8,9]. Organ specific pathological changes that are seen during autopsy give a clear picture of the cause of death and help to correlate with clinical features[6,9].

Materials And Methods

This retrospective study was done in the department of pathology, Sri DevarajUrs Medical College on medico legal autopsies after taking ethical clearance from the institution. In all the cases available clinical details (age, sex, clinical diagnosis) was collected

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from medical records. Later gross details of lung specimens were collected. Details regarding type of specimen, size and weight, characteristic of lesions (Shape, size, consistency, colour, and distribution), Extent and distribution of abnormalities noted in the lungs. Also noted changes seen in pleura (Color, thickness, plaques, nodules). Later bits were taken for microscopic study. At least one block from each lobe to include normal, most abnormal, and intermediate areas. At least one block of the large airways (if present). At least one block from pleura and Nodes was taken. In cases of neoplastic lesions careful description of the appearance and extent of the tumour was done with particular reference to invasion of adjacent structures. After routine processing, staining was done with Haematoxyline and Eosin (H&E) All the histopathological sections were reviewed from the department archives (microscopic findings), findings were noted. Special staining was used wherever necessary (Periodic Acid Schiff). Microscopic findings were analysed in details and tabulated.

Inclusion Criteria

All medico legal autopsies of cases aged more than 10 years.

Exclusion Criteria

Autolysed specimen

Results

Total of about 154 lung specimens were studied. The following observations were made; male to female ratio was 1.8:1. Commonest age group was 20-29 (22.72%) 3rd decade. Table 1 shows age group distributions of lung autopsies

Most common cause of death was Road traffic accident (19.48%) followed by sudden death (18.18%), poisoning (12.98%), hanging (11.03%), found dead (11.03%). Table 2 shows frequency of cause of death in medico legal lung autopsies

The most common gross finding was congestion of lungs accounting to 25.32%, followed by lung consolidation in 22.32%. Other gross findings were shown in table 3.

The most common histopathological findings was pulmonary oedema (38.31%) followed by normal lung (20.77%), lobar pneumonia (9.09%) and interstitial congestion (7.79%). Tuberculosis was seen in 4 cases, two in younger age 19 years and 30 years. Grossly grey white nodules were seen. Two cases were seen in

older age group. One case was cavitary lesion in an 86 year male, another case in 65 year female patient presented with large area of consolidation. Autopsy of 67 years male lung revealed adenocarcinoma of lung presented grossly as a grey white nodule at the periphery with central necrosis. Cause of death was sudden death. Table 4 shows spectrum of histopathological lesions seen in lungs at medico legal autopsy.

Discussion

Autopsy has been regarded as a gold standard tool for the assessment of clinical diagnosis. Lung examination is the most important part of both the medico legal and clinical autopsy. Pathological examination of autopsy lungs gives valuable information on various stages of diseases and may reveal diagnosis which may not be suspected clinically [1,2,3].

In the present study 154 cases of lung autopsy were studied. Male to female ratio was 1.8:1, similar to study done by [1,3,9] commonest age group was 20-29 (22.72%) 3rd decade, followed by 4th decade. Similar observations were noted by [4,10]. In a study done by [6,3] commonest age group was 4th decade. In our study, Most common cause of death was Road traffic accident (19.48%) followed by sudden death (18.18%). In a study done by [1] most common cause of death was death due to unknown cause and sudden death.

In present study, pulmonary oedema was the most common histopathological finding accounting to 38.31% seen more in males. Similar observations were made by other authors in their studies [2,6,11].

Histopathological examination of lung was unremarkable in 20.77% of autopsies. In other similar studies percentage of normal lungs varied from 2% to 26%. [1,2,4,5]. Pneumonia (lobar, interstitial and patchy) constituted 14.84%. In other similar studies pneumonia accounted to 7.99%- 26.31% [1-8]. Emphysema in our study accounted to 3.24%. In similar studies done by other authors, the percentage of incidence varies from 5.5% to 77.5%. This wide variation in incidence may be due to difference in geographic locality, different occupations, patient's habits and exposure to different air pollutions.

CVC lung was seen in 4 cases accounting to 2.59% which is less compare to other similar studies. Patel CB reported 26.44% [6], Kaur B reported 19% [3] and Kandy NC reported 18.42%. Tuberculosis of lung was seen in 4 cases accounting to 2.59%. The

Table 1: age group distribution of lung autopsies.

Age	Number of cases	Percentage
10-19	16	10.38
20-29	35	22.72
30-39	32	20.77
40-49	32	20.77
50-59	19	12.33
60-69	11	7.14
70-79	09	5.84

Table 2 shows frequency of cause of death in medico legal lung autopsies.

Cause of death	Number of cases	Percentage
Road traffic accident	30	19.48
Sudden death	28	18.18
Poisoning	20	12.98
Hanging	17	11.03
Found dead	17	11.03
Drowning	09	5.84
Assault	11	7.14
Snake bite	10	6.49
Burns	7	4.54
Bee sting	5	3.24
Total	154	100%

Table 3 shows various gross findings seen in lungs.

Gross finding	Number of cases	Percentage
Congestion	39	25.32
Consolidation	35	22.72
Firm	23	14.93
Unremarkable	16	10.38
Haemorrhage	15	9.74
Petechial haemorrhage	9	5.84
Fibrocavitary lesion	6	3.8
Frothy exudates	4	2.59
Collapse	4	2.59
Grey white nodule	3	1.94
Total	154	100%

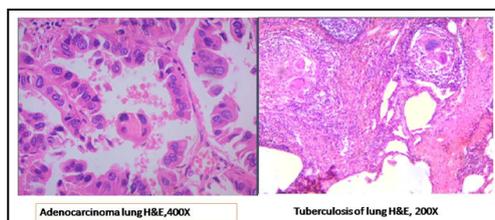
Table 4: shows spectrum of histopathological lesions seen in lungs at medico legal autopsy.

Microscopic findings	Number of cases	Percentage
Pulmonary edema	59	38.31
Normal lung	32	20.77
Lobar pneumonia	14	9.09
Congestion	12	7.79
Patchy pneumonia	6	3.81
Emphysema	5	3.24
CVC lung	4	2.59
TB Lung	4	2.59
Chronic bronchitis	4	2.59
Interstitial pneumonia	3	1.94
Granulomatous lesion	2	1.29
Micro thrombi in lungs	2	1.29
Alveolar haemorrhage	2	1.29
Lung collapse	2	1.29
Bronchi with vegetable matter	2	1.29
Adenocarcinoma of lung	1	0.64
Total	154	100%

Table 5: shows correlation between cause of death and spectrum of histopathological lesions.

Microscopic findings	Road traffic accident	Sudden death	Poisoning	Hanging	Found dead	Drowning	Assault	Snake bite	Burns	Bee sting
Pulmonary edema	8	11	7	6	7	8		5	6	1
Normal lung	10	6		5	3	2	2			4
Lobar pneumonia	2	2	5		2		1	2	2	
Congestion	4		2			3		2		1
Patchy pneumonia		1	2	1	1				1	
Emphysema	1				2	1		1		
CVC lung		1	1		2			1		
TB Lung	1	1			2					
Chronic bronchitis	1	1	1		1					
Interstitial pneumonia	1		1			1				
Granulomatous lesion	1	1								
Micro thrombi in lungs	1		1							
Alveolar haemorrhage						1				1
Lung collapse	1							1		
Bronchi with vegetable matter					1	1				
Adenocarcinoma of lung		1								

Figure 1.



percentage of incidence in other studies varies widely. It is from 1.87% to 15.78% [1,7,8,10]. In our study we had only one case of malignant primary lung lesion, adenocarcinoma in a 67 year male patient accounting to 0.64%. it similar to study done by [3,9] reported 2.08%, [1] reported 0.41% and Tanaka et al reported 3.3% of cases of malignant primary lung lesion [12].

Conclusion

Autopsy is the gold standard to confirm the cause of death. Male to female ratio was 1.8:1. Commonest age group was 20-29 (22.72%) 3rd decade. Most common cause of death was Road traffic accident (19.48%). Pulmonary oedema was the most common histopathological finding in the medico legal autopsy of lung.

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