

Histopathological Lesions of Lung in Autopsy Cases

Divyarani M.N.¹, Lakshmi Bai B. Mallapa²

¹Assistant Professor ²Associate Professor, Department of Pathology, Bangalore Medical College & Research Institute, Bengaluru, Karnataka 560002, India.

Abstract

Background: The primary lung lesion includes both neoplastic and non-neoplastic conditions. However lungs can secondarily involved in almost all forms of terminal events. Many times clinical and radiological findings in respiratory diseases are nonspecific, so prompt pathological investigation and diagnosis is essential. Autopsy is an important tool for identifying and understanding respiratory diseases

Aims & Objectives: To know the histopathological spectrum of Lung diseases and frequency of pulmonary lesions in respect to age and sex.

Material & Methods: The study was done on 250 lung specimens from autopsy cases received in the Department of Pathology, Bangalore medical College for a period of 1year during January 2014 to January 2015. Gross findings and microscopic features were recorded.

Results: The spectrum of lung lesions were seen, the commonest being edema and congestion 90 (36%) followed by pneumonia 80 (32%), Emphysema 20 (8%), Tuberculosis 18 (7.2%), Acute respiratory distress syndrome 12 (4.8%), Amniotic fluid embolism 5 (2%), Pulmonary embolism 3 (1.2%) and Lymphoma 2 (0.8%). In 20 (8%) cases we saw normal lung histology.

Conclusion: The present study is making an attempt to study the various spectrum of lung lesions, in where infectious lesions (non-tubercular & tubercular pneumonias) are still the most common preventable causes of morbidity and mortality. Hence, autopsy study can be of great value in improving the vision and diagnostic setups for better clinical assessment, timely diagnosis and therapy.

Keywords: Lung Autopsy; Pneumonia, Tuberculosis; Histomorphological Pattern.

Corresponding Author:

Divyarani M.N., Assistant Professor,
Department of Pathology, Bangalore Medical
College & Research Institute, Bengaluru,
Karnataka 560002, India.

E-mail: divyaranimn@gmail.com

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Introduction

An autopsy is a medical procedure which consists of a thorough examination performed on a body after death to evaluate disease or injury which determines the cause and manner of a person's death. Autopsy is mainly conducted in medico-legal issues or in deaths where the cause is not established [1,2].

Lungs are mainly involved in gaseous exchange between inspired air and blood. The lungs are vulnerable to various kinds of inflammation, occupational and neoplastic lesions, but they are secondarily involved in almost all form of terminal diseases. Hence it is important to identify the lesion and cause of death to establish preventive methods [3,4]

Chronic respiratory diseases are a group of chronic lung diseases which affects mainly airways and other structures. Millions of people all over the world suffer from various chronic respiratory diseases each year which can be prevented by prompt diagnosis [2,5]. Among these chronic respiratory diseases tuberculosis (TB) today remains one of the world's most lethal infectious diseases. Despite various effective treatments available, most of the cases are not identified and tuberculosis is still a cause of death in our environment [2,6].

The clinical and radiological findings of pulmonary diseases in medico legal autopsies may be nonspecific; hence pathologic examination is essential which gives valuable information about the distribution and progression of the lesion [2].

Despite recent advances, most of the diagnostic tools are still expensive. Therefore, it is very important to define the leading cause's death and take corrective and prophylactic measures which are the least expensive for preventing further pulmonary dysfunction and circumvent the need for lung biopsies [2,5,7]. The aim of the present study was to present the pulmonary Histopathological alterations identified in autopsies.

Materials & Methods

The study was done on 250 lung specimens from autopsy cases received in the Department of Pathology, Bangalore Medical College for a period of 1year during January 2014 to January 2015. Clinical findings, gross and microscopic features were recorded. Appropriate Bits from lesions if any or from random areas were taken and tissue specimens were fixed and processed. Sections from representative areas were taken and paraffin blocks were made following standard protocol. Four micron sections were cut and stained with haematoxylin and eosin. The sections were then examined.

Inclusion Criteria: The subjects were selected from medico legal autopsies irrespective of cause of death.

Exclusion Criteria: Clinical autopsies and autolysed specimen were excluded from the study.

Results

During a period from January 2014 to January 2015, a total of 250 specimens of lungs from autopsy subjects received in the Department of Pathology, Bangalore medical College. Age wise distributions of these autopsy cases are shown in Table 1.

Table 1: Distribution of pulmonary lesions in 250 autopsy cases

Sl No	Types of pulmonary lesion	No of cases	Percentages
1.	Congestion and edema	90	36%
2.	Pneumonia	80	32%
3.	Emphysema	20	8%
4.	ARDS	12	4.8%
5.	Granulomatous (tuberculosis)	18	7.2%
6.	Pulmonary embolism	03	1.2%
7.	Amniotic fluid embolism	05	2%
8.	Lymphoma	02	0.8%
9.	No specific pathology	20	8%
10.	Total	250	100%

Table 2: Age and sexwise distribution of pulmonary lesions

Sl No	Histopathological Findings	Number	Male	Female	Age wise distribution				
					0-10	10-20	20-40	40-60	>60
1.	Congestion and edema	90 (36%)	70 (77.8%)	20 (22%)	00	05 (5.5%)	60 (66.6%)	25 (27.7%)	10 (11.1%)
2.	Pneumonia	80 (32%)	60 (75%)	20 (25%)	02 (2.5%)	06 (7.5%)	45 (56.2%)	15 (18.7%)	02 (2.5%)

3.	Emphysema	20 (8%)	15 (75%)	05 (25%)	00	02 (10%)	06 (30%)	10 (50%)	02 (10%)
4.	ARDS	12 (4.8%)	05 (41%)	07 (58.4%)	00	01 (8.3%)	08 (66.7%)	03 (25%)	00
5.	Granulomatous (Tuberculosis)	18 (7.2%)	10 (55.5%)	08 (44.5%)	00	01 (5.6%)	10 (55.6%)	05 (27.8%)	02 (11.1%)
6.	Pulmonary embolism	03 (1.2%)	01 (33.3%)	02 (66.7%)	00	00	02 (66.7%)	01 (33.3%)	00
7.	Amniotic fluid embolism	05 (2%)	02 (40%)	03 (60%)	02 (40%)	01 (20%)	02 (40%)	00	00
8.	Lymphoma	02 (0.8%)	02 (100%)	00	00	00	02 (100%)	00	00
9.	No specific pathology	20 (8%)	12 (60%)	08 (40%)	00	04 (20%)	06 (30%)	08 (40%)	02 (10%)
10.	Total	250 (100%)	177 (70.8%)	73 (29.2%)	04 (1.6%)	20 (8%)	141 (56.4%)	67 (26.8%)	18 (7.2%)

Table 2 shows the sex wise distribution of lung lesions. Out of the 250 autopsy study of lungs, 177 (70.8%) were males and 73 (29.2%) were females.

Congestion and edema is seen in 90 (36%) out of 250 cases. Among which 70 (77.8%) are males and 20 (22%) are females. Majority cases (66.6% cases) were in 2nd to 4th decade of life.

Pneumonia is seen in 80 (32%) out of 250 cases. Among which 60 (75%) are males & 20 (25%) are females. Majority cases (56.2% cases) were in 2nd to 4th decade of life.

Granulomatous (Tuberculosis) lesions are seen in 18 (7.2%) out of 250 cases. Among these cases, 10 males affected (55.5%) as compared to 8 females (44.5%). Granulomatous lesions found more commonly in 2nd to 4th decade of life.

Emphysematous lesions are seen in 20 (8%) cases. It was found more commonly in age group of 40-60 years. 15 (75%) males affected out of 250 cases & 5 (25%) females affected out of 250 cases.

Acute respiratory distress syndrome is seen in 12 (4.8%) cases. It was found more commonly in age group of 20-40 years. 5 (41%) males & 7 (58.4%) females affected out of 250 cases.

Out of 250 cases, 2 cases were lymphoma which was seen in male patients above 30 years of age.

Discussion

Incidence of preventable pulmonary diseases have been increasing and they also play an important role in mortality and morbidity. In spite of advances in technology, autopsy still remains as vital component for the study and understanding the respiratory disease process [5,8].

In the present study, age wise distribution of pulmonary cases shows that the incidences were higher in 20-59 years of age group. It is comparable to study done by Chauhan et al. [5] and Kalpana M [10] where they found maximum incidences of pulmonary diseases in 3rd to 5th decades.

In our study, sex wise distribution of pulmonary cases showed that the incidences were higher in males 177 cases (70.8%) when compared to females 73 cases (29.2%) which was comparable to study done by Chauhan et al. [5] and Kalpana M [10].

In our study, most common pulmonary lesions were Congestion and edema, pneumonia, emphysema, tuberculosis and acute respiratory distress syndrome. Congestion and edema were seen in 90 cases (36%) while Chauhan et al. [5] found 182 (54.32%) and V. Selvam [9] observed 32 (29.6%) cases.

Pneumonia was seen in 80 cases (32%) while Chauhan et al. [5] found 49 (14.6%) and V. Selvam [9] observed 11 (10.2%) cases. Emphysema was seen in 20 (8%) cases, while Chauhan et al. [5] found 26 (7.76%).

In present study Granulomatous lesion (tuberculosis) were seen in 18 (7.2%) cases. While in studies done by Tahir TM accounted for 42.9%. [2] In a study done by Hanmante RD [11] and Bal MS et al. [4] accounted for 1.7% and 4% respectively. Acute respiratory distress syndrome was seen in 12 (4.8%) cases. In a study done by Sachdev S et al. [12] revealed ARDS in 3.14%. The reason of difference amongst studies may be due to difference in sample size and pattern of studies.

Conclusion

The present study is making an attempt to study

the various spectrum of lung lesions, in where infectious lesions (non-tubercular & tubercular pneumonias) are still the most common preventable causes of morbidity and mortality. Hence autopsy study can be of great value in improving the vision and diagnostic setups for better clinical assessment, timely diagnosis and therapy.

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