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Original Research Article

Histopathological Spectrum of Lesions in Lung Autopsy- A One Year Retrospective Study

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ABSTRACT

Background: A large proportion of people around the world suffer from preventable pulmonary diseases. The clinical and radiological findings in most of the pulmonary diseases are nonspecific and the exact diagnosis cannot be made from them. An autopsy plays a very important role in identifying and understanding the pathology of respiratory diseases and to find out the condition of internal organs.
Aims and Objectives: The aim of the study was to determine the prevalence of various pathological changes and patterns in lung tissues received as autopsy specimen.
Materials and Methods: The retrospective study of 250 lung specimens from autopsy cases was carried out in the Department of Pathology, GMC, Jammu over a period of one year. Gross and microscopic features were recorded. The tissue specimens were fixed in 10% formalin and processed. Paraffin sectioning was done followed by hematoxylin and eosin staining. The sections were then examined.
Result: During a period of one year, a total of 250 lungs from autopsy specimens were studied. Lung diseases are more common in males as compared to females. Most common lung pathological findings are of congestion/odema/changes in interstitium (55.2%), pneumonia (8.0%), tuberculosis (2.8%) followed by acute respiratory distress syndrome (0.8%), other inflammatory lesion (fungal/other granuloma) (0.4%) and emphysema (0.4%).
Conclusion: This study highlights various lesions in lungs confirmed by histopathology, which were either incidental or direct cause of death. Autopsy study remains an important means for identifying and understanding pulmonary diseases despite recent advances in diagnostic technology. Therefore, it is very helpful in refining the vision and diagnostic setup for better clinical evaluation.

Keywords: Autopsy, pneumonia, tuberculosis, ARDS

INTRODUCTION

The lungs are most commonly involved in various kinds of inflammatory, neoplastic and other lesions. They are also secondarily involved in almost all form of terminal events due to cardio vascular causes. [1] A large number of conditions which involve the parenchyma of lung may be associated with inflammation, fibrosis or granulomatous reactions. [2] Clinical history, laboratory investigations and radiological findings give supportive information but prompt pathological diagnosis is required for confirmation along with prognosis of the disease. This avoids the patient from undergoing more invasive procedures. [3] Therefore, it is important to determine the leading causes of death that helps to take preventive actions which are less expensive for prevention of progressive lung disease

and avoid the need of invasive procedure i.e. lung biopsy. [4]

Early histopathological features of well documented disorders of lung still remain a mystery as these are not easily subjected to biopsy. Hence histopathological examination of lung autopsy is very useful to diagnose respiratory cause of death. It also adds to our knowledge about lung pathology. Determining the cause of death is an obvious objective of medico legal autopsy. [1] Therefore, autopsy is an important way to find out the condition of internal organs, in which a thorough examination performed on a body after death, to evaluate disease or injury present and to determine the cause and manner of a person's death. [5]

In our study, the lungs were studied grossly &histopathologically. Gross pathologic examination of autopsy lungs gave information regarding status of lung, i.e. collapsed or hyper inflated, congestion, presence of firm to hard areas with tubercles and necrosis, fibrosis, bullae, consolidation, nodules, infarction, secretions, abscess formation and also provides information regarding status of bronchi and pleura (thickening and nodule formation) which provides hint to the diagnosis. Different histopathological patterns in lung specimen were studied along with gross findings in consideration.

The aim of the study was to determine the prevalence of various pathological changes and patterns in lung tissues received as autopsy specimen.

MATERIALS AND METHODS

This retrospective study was carried out in the Department of Pathology, GMC Jammu over a period of one year from January 2018 to December 2018. All consecutive cases that underwent medicolegal autopsy during that period, irrespective of age and sex, were included in this study. A total of 250 cases of lung autopsy samples were received in the department. All these autopsies were performed by a forensic expert. Tissue bits from lungs were preserved in 10% formalin. These were then sent to our department. Irrespective of the presence or absence of morphologically demonstrable lesions, a minimum of 2 sections per lung were studied. After routine processing, paraffin embedding, blocks were prepared and 4-micrometer sections were taken. All the histological sections were stained with Haematoxylin& Eosin stain and mounted. Ziehl-Neelsen stain and Periodic Acid-Schiff (PAS) stain were also done, wherever required. They were then examined microscopically and findings were recorded.

RESULTS

A total of 250 specimen of lung from autopsy subjects received during the period from January 2018 to December 2018 were studied at the Department of Pathology, GMC Jammu. Among these 250 cases, in 23 cases (9.2%) the tissue was autolyzed and in another 58 cases (23.2%) histopathology was unremarkable. Significant microscopic findings were found in 169 cases (67.6).

Sex wise distribution of lung lesions are shown in table 1:

Table 1

LESIONS	MALE (%)	FEMALE (%)	TOTAL(%)
Congestion/Odema/Changes in interstitium	110(44.0)	28(11.2)	138(55.2)
Pneumonia	15(6.0)	5(2.0)	20(8.0)
Tuberculosis	5(2.0)	2(0.8)	7(2.8)
Acute Respiratory Distress Syndrome	2(0.8)		2(0.8)
Other Inflammatory lesion (Fungal/Other granuloma)	1(0.4)		1(0.4)
Emphysema	1(0.4)		1(0.4)
Autolyzed	16(6.4)	7(2.8)	23(9.2)
Normal	50(20.0)	8(3.2)	58(23.2)
Total	200(80.0)	50(20.0)	250(100)

Among all the cases, 80% were males and 20% were females. Both the sexes showed a high incidence of congestion/odema/ interstitial inflammation/pulmonary haemorrhage i.e. 55.2% followed by 8.0% cases of pneumonia which is the second most common in this study. 7 cases show presence of Tuberculosis in lung, out of which 5 were males and 2 were females. 2 cases of Acute respiratory distress syndrome (ARDS) and only 1 case of emphysema was found and all of them were in males. No malignant lesions were found in the study. 23 cases showed autolytic changes and 58 cases were that of normal lung.

Age wise distributions of cases are shown in Table 2.

TABLE 2

LESIONS	0-15 yrs	16-30 yrs	31-45 yrs	46-60 yrs	>60 yrs	TOTAL
Congestion/Odema/Changes in interstitium	2(0.8)	46(18.4)	47(18.8)	25(10.0)	18(7.2)	138
Pneumonia		11(4.4)	4(1.6)	3(1.2)	2(0.8)	20
Tuberculosis		1(0.4)	3(1.2)	1(0.4)	2(0.8)	7
Acute Respiratory Distress Syndrome				2(0.8)		2
Other Inflammatory lesion (Fungal/Other granuloma)				1(0.4)		1
Emphysema			1(0.4)			1
Autolyzed		9(3.6)	7(2.8)	2(0.8)	5(2.0)	23
Normal	1(0.4)	10(4.0)	24(9.6)	17(6.8)	6(2.4)	58
Total	3(1.2)	77(30.8)	86(34.4)	50(20.0)	34(13.6)	250

Cases of congestion/odema/interstitial inflammation were more commonly found in the age group 16-45 years. Cases of pneumonia were commonly found in the age group 16-30 years. Cases of Tuberculosis were found in the age group 31-45 years, ARDS in the age group of 46-60 years and emphysema in 31-45 years.

DISCUSSION

The results of the present study were compared with other similar studies. In the present study, males were more commonly affected than females which was comparable to the study by Rupali et.al., [6] Selvambigai et. al., [7] Puneet et. al., [8] Chauhan et.al. [9] The terminal events include congestion/odema/ interstitial inflammation/pulmonary haemorrhage. Terminal events were the most common findings in our study and were comparableto studies by Rupali et.al., [6] Puneet et. al. [8] and Chauhan et. al. [9] These changes could be due to pollution, smoking, any restrictive lung disease leading to fibrosis and cardiovascular disease.

In the present study, pneumonia was the second most common lung lesion and our findings were comparable to Chauhan et. al and Rupali et.al.[9,6] In our study, the occurrence of Tuberculosis was comparable to Rupali et.al and somewhat comparable to Chauhanet.al. and it was more common in males than females. These findings are comparable to Hjortn et al study. [10]

In present study, there was a very low prevalence of ARDS i.e. 0.8% which was comparable to studies done by Sachdev et.al., [11] Pratima et.al. [12] and Manjeetet.al. There was only 1 case of emphysema in the present study and it was comparable to study by Pratima et. al. [12] which had 5 cases of emphysema.

In this study, majority of the cases were found in the age group of 16 to 60 years which was comparable to study done by Selvambigai et.al. which was 20 to 50years and Rupali e.al which was also 20 to 50 years.

CONCLUSION

The present study of autopsy specimen showed that the terminal events, pneumonia and tuberculosis were the most common findings. Lung lesions were more prevalent in males as compared to females. We should try to reduce the prevalence of preventable lung lesions as majority population of our study was 16-60 years age groups that were working people. Therefore, autopsy study is very helpful in refining the

vision and diagnostic setup for better clinical evaluation.

REFERENCES

1. Manjit S Bal, P S Sethi, Anil K Suri, Vijay KBodal, G Kaur. Histopathological pattern in lungautopsies, jpafmat 2008; 8(2):29-31.
2. Kumar Abbas, Aster, Robbins, Cotran. Pathologic basis of disease. South Asia Ed. Vol2, Elsevier:2014.
3. Kasper, Fauci, Hauser, Longo, Jameson, Loscaizo. Harrison's principles of internal medicine, 19th ed. Vol 2,Mc Graw Hill; 2015.
4. Ghosal R, Kloer P, Lewis KE. A review of novel biological tools used in screening for the early detection of lung cancer. Postgraduate Medical Journal 2009; 85: 358-63.
5. KS Narayan Reddy, OP Murty. The essentials of Forensic Medicine and Toxicology, 33rd edition.JayPee Brothers: 2014.
6. Rupali RamraoKurawar, Maya Suresh Vasaikar. Spectrum of histomorphological changes in lungs at autopsy: A 5 year study. JMSCR. 2017; Vol 5. Issue 12 : pp 31304-30308.
7. Selvambigai G., Amudhavalli S., Deepak Chakravarthi C.D,Ravi S. Histopathological study of lung in autopsy cases: a prospective study. IJRMS. 2016; Vol 4, Issue 11:pp 4816-19
8. Puneet Garg, Aradhana Sharma, Ramesh Kumar Kundal. Spectrum of Pulmonary Histopathological Lesions : Astudy of 100 autopsy cases. JMSCR.2017; Volume 5, Issue12.
9. Chauhan G, Madhuri Agrawal, Niral Thakkar, Bharti Parghi. Spectrum of histopathological lesions in lung autopsy. KRMDS. 2015; Vol 3 Issue 2 : pp 109-12.
10. Hjorth L, Jensen HS, Noer H. Acute pulmonary infections at autopsy. A study of clinical and microscopic diagnoses at autopsy compared with microscopic autopsy findings. UgeskrLaeger. 1995; 157(49): 6873–6.
11. Sachdev S, Pandit SP. Acute respiratory distress syndrome: an autopsy study. J Postgrad Med Edu Res. 2014; 48(1):8-13.
12. Pratima Khare, Renu Gupta, Mukta Ahuja, Nupur Khare,Swapnil Agarwal, Deepti Bansal. Prevalence of Lung Lesions at Autopsy: A Histopathological study. JCDR.2017; Vol 11, Issue 5, pp EC13 - EC16.

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