



Spectrum of Pulmonary Histopathological Lesions: A Study of 100 Autopsy Cases

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Abstract

Background: Present days air pollution, environmental inhalants and chemical cum toxic substances become uncontrollable worldwide. Autopsy is an important and most useful way to find out the condition of internal organs in which a thorough examination is performed on a body after death to evaluate disease or injury that may be present and to determine the cause and manner of a person's death.

Material & Methods: The study is done on 100 lung specimens from autopsy cases received in the Govt Medical College, Department of pathology, Patiala. Gross findings and microscopic features were recorded. The tissue specimens were fixed and processed and Paraffin sectioning was done followed by Haematoxylin and Eosin staining. The sections were then examined.

Results: Out of 100 specimens of lungs from autopsy subjects, 84 (84%) were males and 16 (16%) were females. Terminal events were seen in 58 cases. Emphysematous lesions were seen in 23 cases out of which 18 were males and 5 females. Granulomatous (Tuberculosis) lesions were seen in 9 cases. Pneumonia was seen in 7 out of 100 cases. There was only one case of malignancy.

Conclusion: In our study, the most common findings were terminal events and emphysema and these were more common in males. So we should plan to prevent the causes and reduce the prevalence of these conditions by various preventable measures.

Keywords: granulomatous, autopsy, pneumonia, emphysema and tuberculosis.

Introduction

The importance of lung diseases in the pathology and clinical medicine cannot be overemphasized. Present days air pollution, environmental inhalants and chemical cum toxic substances become uncontrollable worldwide.^[1] Millions of people around the world suffer from preventable chronic

respiratory diseases.^[2] A large number of conditions that involve the parenchyma of lung are associated with inflammation, fibrosis or granulomatous reactions.^[3] Autopsy is a medical procedure that consists of a thorough examination performed on a body after death, to evaluate disease or injury that may be present and to

determine the cause and manner of a person's death^[4,5] An autopsy may be required in deaths that may have medical and legal issues^[6-9] Pathologic examination of autopsy lungs gives valuable information such as various stages of fibrosis, including early patchy fibrosis and honeycombing lesions, and their distribution and progression in the lungs^[10-16] Tuberculosis (TB) today remains one of the world's most lethal infectious diseases^[17] Despite the availability of effective treatment for most cases, tuberculosis is still a cause of death in our environment. Some cases of active tuberculosis are not identified until after the patient had died and an autopsy has been performed.^[18] Postmortem examination of lung specimen can increase the overall proportion of pneumonia cases with a definitive diagnosis and importantly provide information that increases our understanding of the various causes of pneumonia.^[19,20]

Aims and Objective

The aim of this study was to analyse the findings by the histopathological examination in lung tissue received in autopsy specimens and to determine the underlying diseases and associated co-morbidities.

Material and Methods

The present study was conducted on lung specimens of 100 routine autopsies received in the

department of pathology, Government Medical College, Patiala, Punjab to find out the frequency of various pulmonary lesions in autopsy. This is a prospective study conducted on 100 cases in Pathology Department, Govt. Medical College, Patiala.

The medical history and clinical history was traced. The lungs were fixed in 10% formalin, weighed and dimensions measured. Grossly lungs were examined for colour, volume, consistency, presence of scarring, fibrosis, bullae, consolidation, nodules, infarction, secretions, oedema, congestion, granuloma /abscess formation, status of bronchi & pleura & findings were recorded. Floating test done to know the status of lung. A minimum of two sections per lung were studied. All the histological sections were stained in H & E stain & mounted. All the histological sections were examined microscopically & findings were recorded and tabulated

Results

A total of 100 specimens of lungs from autopsy subjects were received at the autopsy section of the Pathology department of Government Medical College, Patiala, out of the which 84 (84%) were males and 16 (16%) were females.

Table 1

Sr No.	Lung Pathology	Cases	Male	Female
1.	Terminal Events	58(58%)	52(52%)	6(6%)
2.	Emphysema	23(23%)	18(18%)	5(5%)
3.	Granulomatous	9(9%)	7(7%)	2(2%)
4.	Pneumonia	7(7%)	5(5%)	2(2%)
5.	Malignant lesion	1(1%)	0(0%)	1(1%)
6.	Normal	2(2%)	2(2%)	0(0%)

Terminal events were seen in 58 cases (Table 1) Among which 52% were males and 6% were females. Emphysematous lesions were seen in 23 cases, out of which 18% were males and 5 % females. Granulomatous (Tuberculous) lesions were seen in 9 cases, out of which 7 were males

and 2 were females. Pneumonia is seen in 7 cases, out of which 5 were males. There was only one case of malignancy which was a case of adenocarcinoma in a female. Only 2% cases were show normal lung.

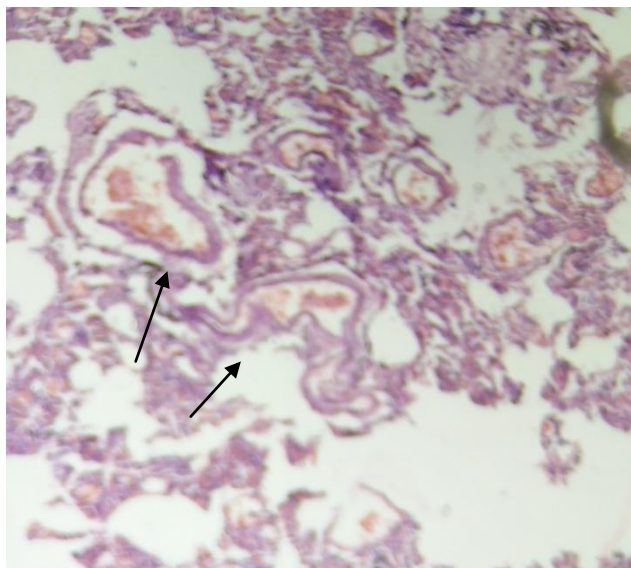


Figure 1: Micrograph of congestion and haemorrhage (arrow) in terminal event.(40x)

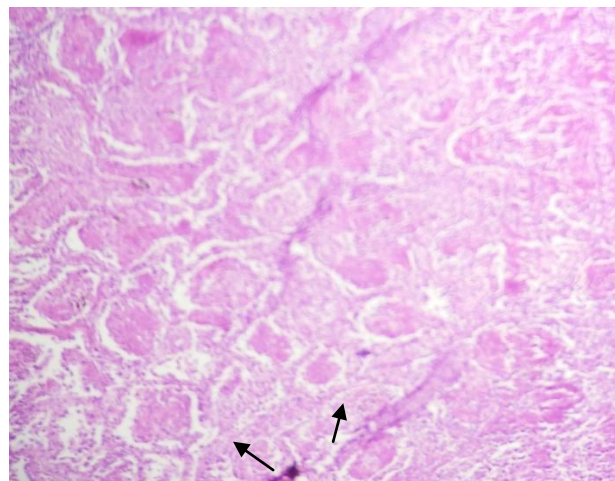


Figure 3: Micrograph showing abundant acute inflammatory infiltrate (arrows) along with focal areas of odema and congestion in case of pneumonia.(10x)

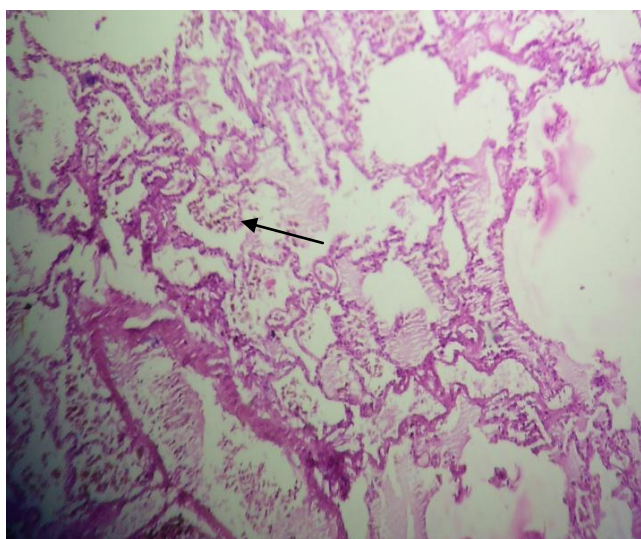


Figure 2: Micrograph showing emphysematous changes in lung (arrow).(10x)

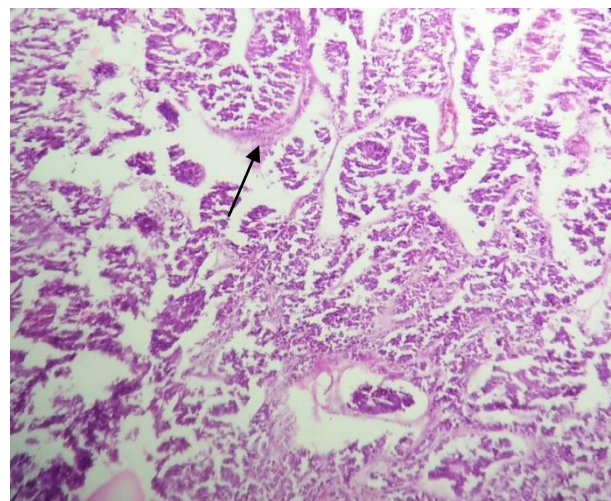


Figure 4: Micrograph shows tumour cells (arrows) arranged in acini fashion in adenocarcinoma lung.(40x)

Discussion

The present study was compared to the other similar studies.

Table 2 Comparison of percentage of Terminal Events in various studies.

Sr. No.	Study	Cases	Male	Female
1.	Manjit et al(2008)	87 out of 150(58%)	67(44.6%)	16(10.6%)
2.	Chuhan et al(2015)	182 out of 335(54.32%)	141(42.08%)	41(12.23%)
3.	Rupali et al(2017)	743 out of 1263 (58.8%)	425(33.65%)	318(25.17%)
4.	Present study (2017)	58 out of 100 (58%)	52(52%)	6(6%)

Table 3 Comparison of percentage of Emphysema in various studies.

Sr. No.	Study	Cases	Male	Female
1.	Udyashankar et al(2015)	10 out of 22(45.4%)	7(31.8%)	3(13.6%)
2.	Selvambizai et al(2016)	16 out of 100 cases(16%)	13(13%)	3(3%)
3.	Present study(2017)	23 out of 100 cases (23%)	18(18%)	5(5%)

Table 4 Comparison of percentage of granulomatous diseases in various studies

Sr. No.	Study	Cases	Male	Female
1.	Manjit et al (2008)	13 out of 150(8.6%)	11(7.3%)	2(1.33%)
2.	Chuhan et al(2015)	21 out of 335(6.26)	14(4.17%)	7(2.08%)
3.	Udyashankar et al(2015)	5 out of 22(22.7%)	5(22.7%)	Nil
4.	Rupali et al(2017)	32 out of 1263(2.5%)	22(1.74%)	10(0.79%)
5.	Present study	9 out of 100 cases(9%)	7(7%)	2(2%)

Table 5 Comparison of percentage of Pneumonia in various studies.

Sr. No.	Study	Cases	Male	Female
1.	Manjit et al(2008)	14 out of 150(9.3%)	10(6.66%)	4(2.66%)
2.	Chuhan et al (2015)	49 out of 335(4.62%)	31(9.25%)	18(5.37%)
3.	Udyashankar et al(2015)	7 out of 22 (31.81%)	5(22.7%)	2(9.09%)
4.	Selvambigai et al(2016)	40 out of 100 cases(40%)	24(24%)	16(16%)
5.	Rupali et al(2017)	242 out of 1263(19.1%)	141(11.1%)	101(7.9%)
6.	Present Study(2017)	7 out of 100 (7%)	5(5%)	2(2%)

Terminal stages (figure 1) are one of the most common findings among various studies. Our findings were similar to the studies done by Manjit singh ^[17] et al, Chuhan et al ^[2] and Rupali et al ^[5] as in table 2.

In our study, the emphysema (figure 2) cases were 23% which were comparable with study done by Selvambiazai. ^[1] In a similar study done by Udyashankar et al^[18], the percentage of emphysematous lesions were quite high (45.4%) as in table 3.

In the present study, 9 cases of granulomatous diseases were noted. This was in comparable with the study done by Manjit et al^[17], Chauhan et al ^[2] and Rupali et al^[5] as in table 4.

The present study shows 7cases of Pneumonia (figure 3). History of smoking was present in 23% of cases. This result is comparable to the findings of Manjit et al^[17] and chuhan et al^[2] but Udyashankar et al^[18], Selvambigai et al^[1] and Rupali et al ^[5] show somehow higher cases as in table 5.

In our study, only 1 case of adenocacinoma (figure 4) was seen in a female which was comparable to studies done by Manjit et al ^[17] and Chauhan et al ^[2].

Conclusion

The current study of autopsy specimens of lung show that the most common findings were terminal events, emphysema and tuberculosis in

Punjab region and these lesions are more common in males. Despite recent advances in diagnostic technology, there are large number of cases of preventable respiratory diseases for which the autopsy has remained an important complementary tool for identifying and understanding.

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