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PATHOLOGICAL FINDINGS IN LUNG AUTOPSY- A 100 CASE STUDY

Pathology

Dr. Nidhi Thaker	Third Year Resident, Pathology Department, BJ Medical College And Civil Hospital Ahmedabad, Gujarat, India.
Dr. Urvi Parikh	Assistant Professor, Pathology Department, BJ Medical College and Civil Hospital Ahmedabad, Gujarat, India.
Dr. Shivani Dixit	Tutor, Pathology Department, BJ Medical College and Civil Hospital Ahmedabad, Gujarat, India.
Dr. Smita Shah	Ex Professor, Pathology Department, BJ Medical College and Civil Hospital Ahmedabad, Gujarat, India.
Dr. Hansa Goswami	Head of the department, Pathology Department, BJ Medical College and Civil Hospital Ahmedabad, Gujarat, India.

ABSTRACT

Introduction: Autopsy as a word means self-study of dead body. Medicolegal autopsies are a mandatory legal requirement in unnatural deaths to assist the law. Hundreds of millions of people around the world suffer from preventable pulmonary diseases. Autopsy is an important complementary tool for identifying and understanding respiratory diseases and to find out the condition of internal organs. The objective of this study was to find out occurrence & frequencies of various lung pathologies by histomorphological examination of lung tissue received in autopsy specimens. **Methods:** The study comprised of a 100 cases of lung autopsy samples that were received in the department during the study period October 2023 to February 2024. **Result:** In our study maximum cases were in 31-40 years age group with male predominance. Wide varieties of microscopic findings were seen in lungs which included edema and congestion, inflammation (acute, granulomatous or nonspecific), interstitial changes, pneumonia and intra-alveolar hemorrhage. The commonest pathology seen was Congestion and edema followed by pneumonia. Granulomatous inflammation was also seen in 10% cases. Caseous necrosis was present in all these cases and these were diagnosed to be suffering from pulmonary tuberculosis. In this study 2 cases of malignancies are seen which include one case of poorly differentiated adenocarcinoma and another case of non-keratinizing squamous cell carcinoma of lung. **Conclusion:** The histopathological examination helps in establishing the final cause of death.

KEYWORDS

Autopsy, Congestion, Pneumonia, Tuberculosis

INTRODUCTION:

Autopsy as a word means self-study of dead body. The medicolegal autopsy is carried out by forensic expert to help the law by establishing identity, cause of death, time of death, and ante-mortem or post-mortem nature of crime. The clinical autopsy or pathological autopsy is usually performed by pathologist to establish the cause of death and to study the disease process which led to death. [1]

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.[2]

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. [3][4]

AIM:

The objective of this study was to find out occurrence & frequencies of various lung pathologies by histopathological examination of lung tissue received in autopsy specimens.

MATERIAL AND METHODS:

This study was carried out in Autopsy section, Department of Pathology, B. J. Medical college, Ahmedabad from August 2023 to December 2023.

A total of 100 cases of lung autopsy samples were received in the department. The medical history and clinical history were traced. The lungs were fixed in 10% formalin, weighed and dimensions measured. Grossly lungs were examined for colour, consistency, presence of scarring, bullae, consolidation, nodule, status of bronchi & pleura & findings were recorded. Then 4 mm to 5 mm pieces from lung tissues were taken in cassettes and after routine processing, paraffin embedding, blocks were prepared.

All the histological sections were stained with Haematoxylin and Eosin stain. Ziehl-Neelson stain and Periodic Acid- Schiff stain was also done, wherever required. Then examined microscopically and findings were recorded.

Inclusion Criteria:

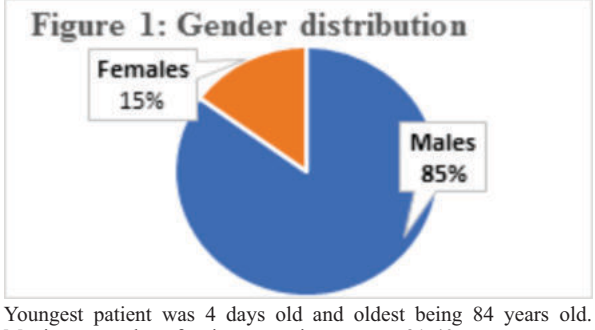
All consecutive cases that underwent medicolegal autopsy during that period, irrespective of age and sex, were included in this study.

Exclusion Criteria:

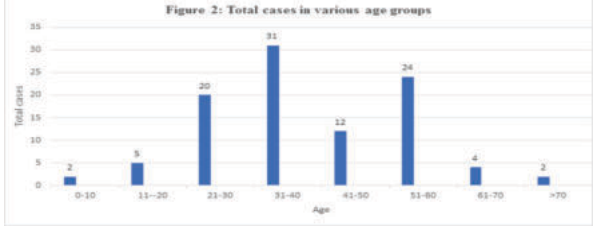
All poorly preserved and partially or fully autolyzed specimens were excluded.

RESULT:

The study comprised of 100 cases. Among the pathologies detected in 100 lung autopsies, there were 85 (85%) males and 15 (15%) females.



Youngest patient was 4 days old and oldest being 84 years old. Maximum number of patients were in age group 31-40 years.



Wide varieties of microscopic findings were seen in lungs which included congestion and edema, inflammation (acute, granulomatous or nonspecific), interstitial changes, pneumonia and intra-alveolar hemorrhage.

Congestion was the commonest pathology seen in 34 males and 5 females. These cases showed congested blood vessels.

The second commonest pathology was changes of edema, seen in 19 males and 4 females. These cases showed alveoli distended with protein rich fluid.

Pneumonia was seen in 12 males and 4 females. These cases showed vascular engorgement, intra-alveolar fluid and neutrophilic and lymphocytic infiltrate.

Tuberculosis was seen in 8 males and 2 females. These cases showed granulomatous inflammation consisting of Langhans type of giant cells and epitheloid cells with caseous necrosis. AFB stain was done for confirmation.

Intra-alveolar hemorrhage was seen in 10% cases. All these cases were seen in males.

Total 2 cases of malignancy were seen, both in males. These included one case of poorly differentiated adenocarcinoma and another case of non-keratinizing squamous cell carcinoma of lung.

Table 1: Comparison Of Various Pathologies And Gender Distribution

SR No	Cases	Male	Female	Total (out of 100)
1	Congestion	34	5	39
2	Edema	19	4	23
3	Pneumonia	12	4	16
4	Tuberculosis	8	2	10
5	Intra-alveolar hemorrhage	10	0	10
6	Malignancy	2	0	2
	Total	85	15	100

DISCUSSION

Maximum number of patients were in age group 21-30 years in Kaur et al.[5] while in our study maximum patients were in age group 31-40 years.

Table 2: Comparison Of Age Group With Kaur et al. Study [5]

AGE (in years)	Kaur et al. study (%) (n=100)	This study (%) (n=100 cases)
0-10	0	2
11-20	0	5
21-30	30	20
31-40	27	31
41-50	21	12
51-60	9	24
61-70	11	4
>70	2	2
TOTAL	100	100

Table 3: Comparison Of Various Pathologies With Kaur et al. Study [5]

Sr. no.	Lesions	Kaur et al. study (%) (n=100 cases)	This study (%) (n=100 cases)
1	Congestion	63	39
2	Pulmonary edema	19	23
3	Pneumonia	10	16
4	Tuberculosis	6	10
5	Malignancy	1	2
6	IAH	1	10

Tahir et al.[6] study had 80.37% of male cases while 19.63% of female cases which was similar to our study with males and females accounting for 85% and 15% respectively.

Selvambigai et al. [7] (2016) study showed out of 40% cases of Pneumonia, 24% were males and 16% were females while in our study it was seen in 16% cases out of which 12% were males and 4% were females. [7]

Granulomatous inflammation was seen in 8.6% in study done by Manjit et al. [8], 6.26% in Chauhan et al. [9] and 2.5% Rupali et al. [10] while in our study it was seen in 10% of cases and caseous necrosis was present in all these 10 cases and these were diagnosed to be suffering from pulmonary tuberculosis.

In study done by Puneet et al [11], Rupali et al [12]and Selvambigai et al [7]it was observed that lung pathology was more common in males and similar findings were seen in our study as well.

Fig-3: Gross image of Adenocarcinoma of lung whitish, solid firm to hard mass.

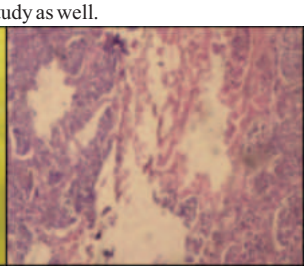


Fig-4: Microscopic image showing Adenocarcinoma of lung.

Fig-5: Gross image of Tuberculosis showing multiple white foci and cavitory lesions.

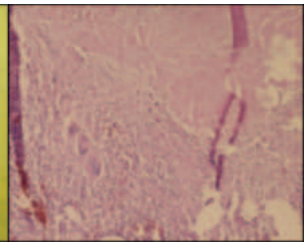


Fig-6: Histology shows Langhans type giant cells and caseous necrosis suggestive of granulomatous inflammation.

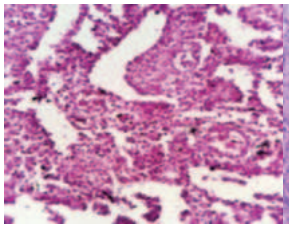


Fig-7: Pneumonia

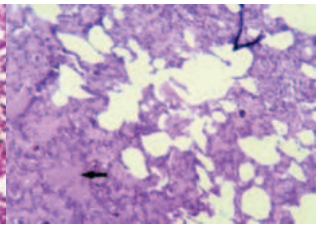


Fig-8: Edema fluid present in alveolar spaces.

CONCLUSION:

Medicolegal autopsies are a mandatory legal requirement in unnatural deaths. To perform a medicolegal autopsy, consent from relatives of the deceased is not required.

Hundreds of millions of people around the world suffer from preventable pulmonary diseases. Autopsy is an important complementary tool for identifying and understanding respiratory diseases and to find out the condition of internal organs.

The facilities for medicolegal autopsies are available across all districts of our country.

The autopsy, if combined with relevant details and histopathological examination, is of great value in establishing reasons which led to death.

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