Autopsy study of spectrum of lung lesions in Tertiary care hospital

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ABSTRACT

Background: Inflammation, Infections, occupational diseases and neoplastic lesions are common in lungs. In Autopsy internal organs including lungs are studied to decide cause of death and figure out prevalence of various lung lesions. So, prophylactic prevention plan can be prepared for prevention of various lung lesions induced mortality and reducing need for invasive biopsy as well. Aim & objective: To find out frequency of various lung lesions in relation to age and sex and analyze histopathological spectrum of lung lesions. Material & Methods: Non interventional, record based cross sectional, retrospective autopsy study was done on 139 cases of lung autopsy samples at department of pathology of tertiary care hospital, Bhavnagar, Gujarat for 2 years on samples received from January 2016 to January 2018. Lungs were fixed in 10% formalin & processed. Paraffin wax embedding was done & sections stained with H&E stain. Gross and microscopic examination of samples done and diagnosis was done. All findings were recorded and tabulated. Conclusion: Pneumonia is most common observed pathological lung lesion in our study which suggest that infections of lungs are common cause for mortality. Therefore, we suggest effective implementation of measures to prevent hospital acquired pneumonia may reduce mortality. Smoking was associated in nearly 70% patients. Autopsy study of such lung lesions can provide vision to plan preventive strategy to reduce mortality due to lung pathology.

Keywords: Autopsy, Histopathology, Pneumonia, Smoking, Tuberculosis

Introduction

Autopsy is a medical practice in which thorough body examination done after death and internal organs studied grossly and histopathologically to determine cause or manner of death. Forensic expert gives final cause of death after correlating histopathological examination report.4,5

Inflammation, Infections, occupational diseases and neoplastic lesions are common pathology observed in lungs.6,8 Clinical history, laboratory tests and radiological study support diagnosis of lung lesions but invasive biopsy for histopathological examination is necessary sometime for confirmation and deciding prognosis of lung lesions.9

Modern diagnostic tests are costly and sometime clinicians have less time for diagnostic work up due to rapid progression of disease. Therefore, it is very important to determine common cause of death and prevalence of various lung lesions to prepare prophylactic plan for prevention of such lung lesions induced mortality.10,11 In that manner, need of invasive procedure like lung biopsy can be minimized.12

Aims and Objectives

(1) To evaluate frequency of various lung lesions in relation to age and sex and analyze histopathological spectrum of lung lesions.
to age and sex and to understand epidemiology of lung pathology.

(2) To find out common cause of death due to lung pathology to analyze histopathological spectrum of lung lesions.

Materials (Subjects) and Methods

Non interventional, record based cross sectional, retrospective autopsy study was done on 139 cases of lung autopsy samples at department of pathology of tertiary care hospital, Bhavnagar, Gujarat. Study was done for 2 years on samples received from January 2016 to January 2018. Ethical committee approval taken from ethical committee of government medical college, Bhavnagar and my EC approval No. is 1009/2020.

Table 1: Age wise distribution of lung autopsy cases

| Lung Lesions (diagnosis) | Age group in years (%) | Total cases |
|--------------------------|------------------------|-------------|
|                          | 0-9  | 10-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60 or above |
| Pneumonia                | 01   | 02    | 04    | 06    | 10    | 22    | 02    | 47 (33.8%)  |
| Emphysema                | 03   | 01    | 01    | 05    | 07    | 02    | 03    | 22 (15.8%)  |
| Granulomatous Inflammation-Tuberculosis | 00   | 00    | 01    | 01    | 04    | 12    | 00    | 18 (12.9%)  |
| Pulmonary edema, pigment deposition and terminal event induced lung changes | 00   | 03    | 07    | 11    | 10    | 10    | 01    | 42 (30.2%)  |
| Interstitial fibrosis    | 00   | 00    | 00    | 01    | 00    | 00    | 02    | 03 (2.1%)   |
| Lung Malignancies (primary or metastatic) | 00   | 00    | 00    | 01    | 02    | 04    | 00    | 07 (5.0%)   |

Table 2: Sex wise distribution of autopsy lung cases

| Lung lesions (diagnosis) | Male | Female | No of cases |
|--------------------------|------|--------|-------------|
| Pneumonia                | 44   | 03     | 47          |
| Emphysema                | 18   | 04     | 22          |
| Granulomatous Inflammation-Tuberculosis | 16   | 02     | 18          |
| Pulmonary edema, pigment deposition and terminal event induced lung changes | 37   | 05     | 42          |
| Interstitial fibrosis    | 02   | 01     | 03          |
| Lung Malignancies (primary or metastatic) | 07   | 00     | 07          |

Discussion

In present study, we observed that lung pathology was more common in male. Similar findings were also observed in study done by Puneet et al.[8] Rupali et al.[10] and Selvambigai et al.[10]

Present study shows 33.8% cases of pneumonia which was comparable to Udayshankar et al.[1] and Selvambigai et al.[10] but in Nirali et al.[11] and Rupali et al.[9] study pneumonia cases were nearly 20%. Prolonged hospitalization increase chances of pneumonia is the reason for higher prevalence in our study.

In present study tuberculosis cases were 12.9%. Similar findings were observed in study done by Nirali et al.[11] and Udayshankar et al.[1] In our study, emphysema cases were 15.8% which was almost exactly comparable to Selvambigai et al.[10] In other studies, done by Nirali et al.[11] Pratima et al.[12] and Chandani et al.[13] cases of emphysema were 6.5%, 8.9% and 4.3%. The reason we found is due to geographical variation of study.
population. In our study area tobacco consumption in various forms was higher.

In present study malignancies were only 5% which is comparable to Pratima et al.[12] study.

Interstitial fibrosis was observed in 2.1% cases. Pulmonary edema, pigment deposition and other terminal events induced lung changes were 30.2% which are not morbid lung pathology.

**Summary and Conclusion**

Pneumonia is most common observed pathological lung lesion in our study which suggest that infections of lungs are common cause for mortality. Therefore, we suggest effective implementation of measures to prevent hospital acquired pneumonia may reduce mortality.

Smoking has strong association with many lung lesions which is evident in our study as well, so people should be educated to stop smoking habit. Primary care physician should enforced to screen periodically for such high-risk persons for early detection and treatment of underlying lung pathology.

Autopsy study of such lung lesions can provide vision to plan preventive strategy to reduce mortality due to lung pathology.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

There are no conflicts of interest.

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