Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr ICV 2018= 82.06

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805

Original Research

Histopathological assessment of lung diseases in medicolegal autopsies

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ABSTRACT:

Background: The present study was conducted to assess pattern of lung diseases in medicolegal autopsies. **Materials & Methods:** 74 lung autopsy samples were preserved in 10% formalin. All the histological sections were stained with Haematoxylin & Eosin stain and mounted. **Results:** In 12 cases, lung found to be normal, in 40 there was diseased lung and in 22 there were lysed lung tissues. The histological findings were changes in interstitium in 13, congestion and oedema in 17, inflammation in 20, meconium aspiration syndrome in 7, acute respiratory distress syndrome in 3, emphysematous changes in 1 and hyaline membrane disease in 1cases. The difference was significant (P< 0.05). **Conclusion:** Lung histopathology found to be changes in interstitium, congestion and oedema and inflammation.

Key words: Autopsy, Histopathology, Lung.

Received: 12 July, 2019 Accepted: 14 August, 2019

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This article may be cited as: Bindal S. Histopathological assessment of lung diseases in medicolegal autopsies. J Adv Med Dent Scie Res 2019;7(9):218-221.

INTRODUCTION

Lung disorders till date have continued to capture the interest of the medical fraternity because of its varied and complex presentations. Despite availability of modern advanced diagnostic methods, diagnosis is often challenging task for clinicians. Sometimes rapid progression of the disease leaves lesser time for thorough diagnostic workup and invasive procedures.[1] Lungs being organs not easily subjected to biopsy early histopathological features of many of the well documented disorders still remains a mystery As a result, histopathological examination of lung autopsy is of great value not only to diagnose the respiratory cause of death if any but also because it enriches our knowledge about lung histology in health and disease.[2] Autopsy as a word means self-study of dead body. It is an important way to find out the condition of internal organs, to evaluate disease or injury that could explain the cause and manner of person's death.[3] Examination of all the three cavities of body including cranium, thorax and abdomen are an essential part of autopsies. In thorax, lungs examination is the most important part of both the medicolegal as well as clinical autopsies. 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.[4] The present study was conducted to assess pattern of lung diseases in medicolegal autopsies.

MATERIALS & METHODS

The present study was conducted in the department of general pathology. It comprised of 74 lung autopsy samples. The study got approval from the institutional ethical committee.

Tissue bits from lungs were preserved in 10% formalin. 4 mm to 5 mm pieces from lung tissues were taken and after routine processing, paraffin embedding, blocks were prepared. All the histological sections were stained with Haematoxylin & Eosin stain and mounted. Ziehl-Neelson stain and Periodic Acid- Schiff (PAS) stain were also done, wherever required. They were then examined microscopically. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of samples

Total- 74		
Gender	**Male**	**Female**
Number	42	32

Table I shows that out of 74 samples, 42 were of males and 32 were of females.

Table II Lung tissue on histopathology

Parameters	Number	P value
Normal lung	12	0.02
Diseased lung	40	
Lysed lung tissue	22	

Table II shows that in 12 cases, lung found to be normal, in 40 there was diseased lung and in 22 there were lysed lung tissues. The difference was significant (P< 0.05).

Graph I Lung tissue on histopathology

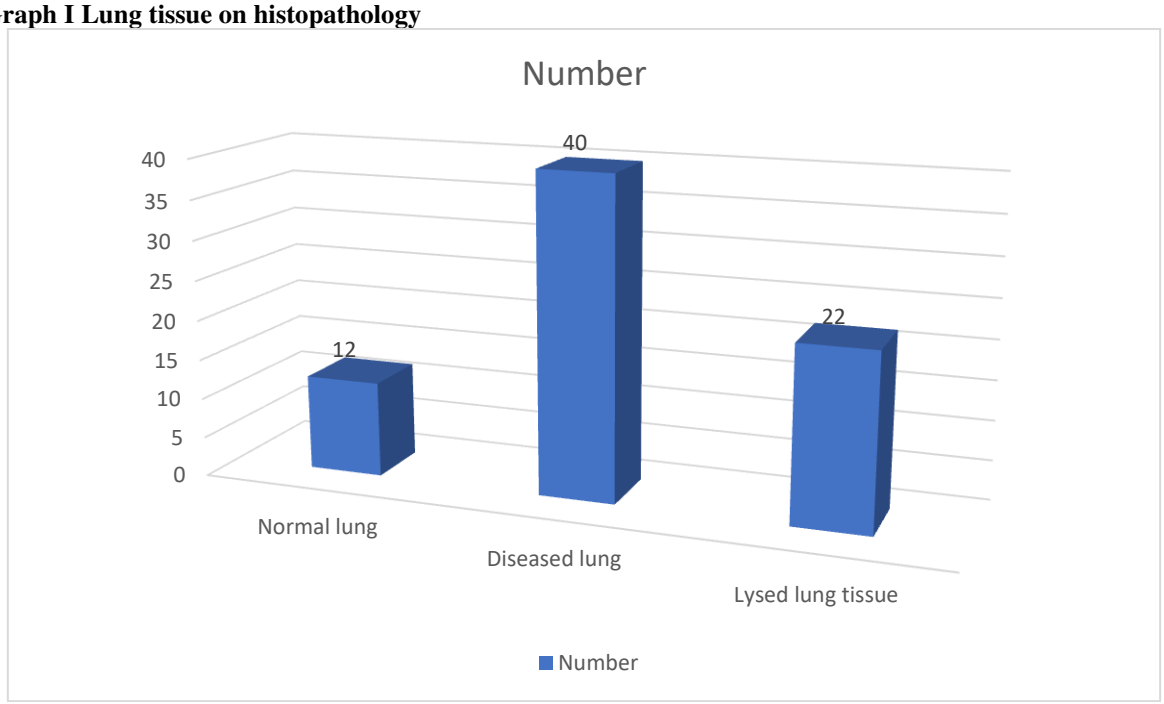
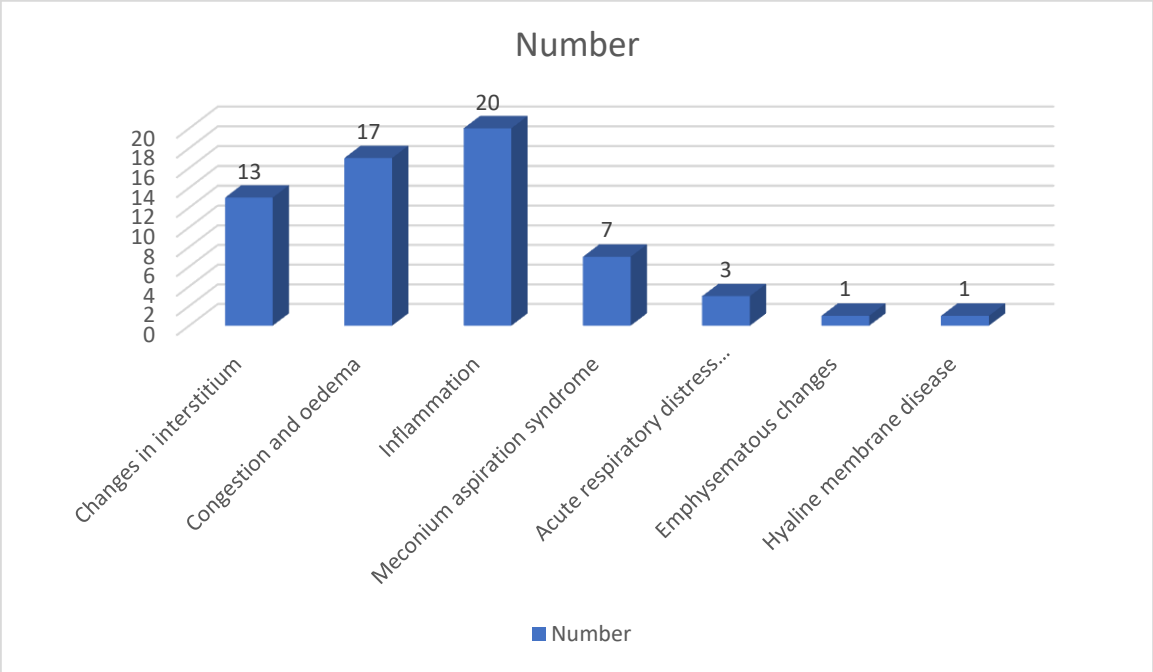


Table III Histological findings

Histological findings	Number	P value
Changes in interstitium	13	0.001
Congestion and oedema	17	
Inflammation	20	
Meconium aspiration syndrome	7	
Acute respiratory distress syndrome	3	
Emphysematous changes	1	
Hyaline membrane disease	1	
Total	62	

Table III shows that histological findings were changes in interstitium in 13, congestion and oedema in 17, inflammation in 20, meconium aspiration syndrome in 7, acute respiratory distress syndrome in 3, emphysematous changes in 1 and hyaline membrane disease in 1cases. The difference was significant (P< 0.05).

Graph II Histological findings



DISCUSSION

Autopsy is often followed by histopathological examination of tissues from various organs. In cases where tissue is not properly preserved in fixative or the tissue is a non-representative sample, final histopathological report is often not possible.[5] However, despite pitfalls like delays in carrying out autopsies, improper sampling, improper preservation and transport, microscopic examination of tissues is still considered a very useful method to study the disease process in situ, thus enriching the medical knowledge. Studies have reported a significant major and minor discrepancies between clinical and autopsy diagnoses.[6] The present study was conducted to assess pattern of lung diseases in medicolegal autopsies.

In present study, out of 74 samples, 42 were of males and 32 were of females. In 12 cases, lung found to be normal, in 40 there was diseased lung and in 22 there were lysed lung tissues. Khare et al[7] in their study pattern of lung diseases in medicolegal autopsies were confirmed by histopathological examination. Among 86 cases, in 4 cases (4.8%) the tissue was autolysed and in another 26 cases (30.1%) histopathology was unremarkable. Significant microscopic findings were found in 56 cases (65.1%). Wide spectrum of microscopic findings were seen, the commonest being oedema and congestion (28.5%) followed by changes in interstitium (11.9%). There were 9.5% cases of granulomatous inflammation and 5.9% cases each of acute pneumonia and emphysema. There were 1.2% cases each of Hyaline Membrane Disease (HMD), Meconium Aspiration Syndrome (MAS) and Acute Respiratory Distress Syndrome (ARDS) in the series. The series also had 1.2% cases of young adult having fungal colonies surrounded by necrosis and abscess formation. Possibility of mucormycosis was suggested in that case.

We observed that histological findings were changes in interstitium in 13, congestion and oedema in 17, inflammation in 20, meconium aspiration syndrome in 7, acute respiratory distress syndrome in 3, emphysematous changes in 1 and hyaline membrane disease in 1cases. Neeha et al[8] in their study a total of 426 autopsies were conducted. Of those, 184 had abnormal pulmonary findings constituting 43.19%. Aspiration pneumonia was the most common finding with 67 cases (36.4%), followed by atelectasis 54 cases (29.3%), congenital cystic adenomatoid malformation in 13 cases (7.1%), lung hypoplasia 12 cases (6.5%), pulmonary hemorrhage 21 (11.4%), 15 cases (8.15%) of hyaline membrane disease, one case (0.5%) of heterotaxy, and one case of extralobar pulmonary sequestration (0.5%). Congenital malformations of lungs were seen in 27 (14.67%) cases and 38 cases (20.65%) had other associated anomalies.

Bal MS et al[9], in their series of 150 cases had 19 autolysed sample and 11 cases with normal lung tissue. Kandy NC et al[10], found 26.3% cases of pneumonia on histopathology of lung samples in their series of 51 cases. Studies have documented 20 – 30 % of sudden deaths being attributed to underlying pulmonary pathology. Autopsies are great tools of learning for the pathologists as it helps to study the histomorphological course of various infrequent lesions. The lungs are vulnerable for a wide range of inflammatory, infectious, neoplastic and other pathologic conditions and almost always involved secondarily by terminal events of cardiovascular disease.[11,12]

CONCLUSION

Authors found that in most of the cases, lung histopathology found to be changes in interstitium, congestion and oedema and inflammation.

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