ORIGINAL RESEARCH PAPER

Volume-7 | Issue-5 | May-2018 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

ASSESSMENT OF SYMPTOM WISE DISTRIBUTION AND X RAY FINDINGS IN DIAGNOSIS OF INTERSTITIAL LUNG DISEASE

Radiology

Dr.Mridul Ayush* Assistant Professor, Dr D.Y. Patil Medical College, Pimpri, Pune*Corresponding Author

Dr. Ashish Prasad General Surgeon ,Prasad Nursing Home ,Bihar

Dr.Ishita Jakhanwal Consultant ,Ayucare Diagnostic Centre ,Pune .

ABSTRACT

Background : Interstitial lung disease (ILD) are group of pulmonary disorders characterized by inflammation and fibrosis of gas exchanging portion of the lung and diffuse abnormalities on lung radiograph. Interstitial lung disease (ILD) is a final common pathway of a broad heterogeneous group of parenchymal lung disorders. Purpose of the study is to assess symptom wise distribution and X ray findings in diagnosis of Interstitial Lung Disease. **Material & Methods:** All the patients with clinical suspicion of Interstitial Lung Disease who were referred to Department of Radio-diagnosis and Imaging for diagnosis and evaluation of subjected to both conventional Radiography and HRCT. Standard Postero-Anterior view was taken in all cases. Diagnosis was based on clinical and Radiological findings .**Results :**X-ray finding wise distribution among 50 cases in study group. Majority of the cases i.e. 18(36%) had pneumonitis, 5(10%) cases had infective etiology, 6 (12%) cases had miliary tuberculosis, 3(6%) cases had fibrosis, 2(4%) cases had lymph node enlargement and one case had fibrosis, Pneumonitis and Koch's and 12 normal.**Conclusion:**Most of patients (60%) of ILD showed reticular-nodular opacitiesin X-ray chest. The findings in our study correlates well with other studies

KEYWORDS

Introduction :

Interstitial lung disease (ILD) are group of pulmonary disorders characterized by inflammation and fibrosis of gas exchanging portion of the lung and diffuse abnormalities on lung radiograph. Interstitial lung disease (ILD) is a final common pathway of a broad heterogeneous group of parenchymal lung disorders.1It is characterized by progressive fibrosis of the lung leading to restriction and diminished oxygen transfer. Clinically, the presenting symptoms of ILD are non-specific (cough and progressive dyspnea on exertion) and are often attributed to other diseases, thus delaying diagnosis and timely therapy.2 Clues from the medical history along with the clinical context and radiologic findings provide the initial basis for prioritizing diagnostic possibilities for a patient with ILD. An accurate prognosis and optimal treatment strategy for patients with ILDs can only be after an accurate diagnosis.

The diseases currently grouped as “interstitial” also involves the alveolar epithelium, alveolar space, pulmonary vasculature and less commonly the respiratory bronchioles, large airways and even pleura.3,4 The predominant findings in these condition is thickening of interstitium by fluid, cells or fibrosis.

The interstitium of the lung can be divided into two anatomically continuous but conceptually different component i.e the Axial Interstitium consisting of the connective tissue around the airway , pulmonary arteries , and veins within the pleura and interlobular septa and Parenchymal Interstitium which is a potential space interposed between the basement membrane of the alveolar lining epithelium and capillary endothelium. 5,6Symptom wise distribution and X ray findings in the diagnosis of Interstitial Lung Disease so the purpose of the study is to assesssymptom wise distribution and X ray findings in diagnosis of Interstitial Lung Disease

Material & Methods

All the patients with clinical suspicion of Interstitial Lung Disease who were referred to Department of Radio-diagnosis and Imaging for diagnosis and evaluation were subjected to both conventional Radiography and HRCT. Standard Postero-Anterior view was taken in all cases. Diagnosis was based on clinical and Radiological findings .

Period of study was from July 2012 to September 2014 with a sample size of 50 cases which were collected over a period of 2 years All the scans were performed on the High Speed Dual Scan CT by GE and included non enhanced axial scans with 1 mm collimation at the scan interval of 10 mm in suspended inspiration with patient in supine position.

Scan Collimation :- With 1 cm collimation , volume averaging within the plane of the scan significantly reduces the ability of CT to resolve small structures . Scanning with the thinnest possible collimation is essential if spatial resolution is to be optimized therefore 1 mm collimation wasused.7,8

kVp , mA and Scan Time:- High resolution techniques in addition to increasing image sharpness also increases the noise in CT images .Thus increasing the kVp , mA , or the scan time can reduce noise and improve image quality.

Results :

Table 1: Age wise distribution of cases in study group

Age (Yrs)	No of cases	Percentage
≤40	8	16
41 – 50	10	20
51 – 60	14	28
61 – 70	7	14
>70	11	22
Total	50	100

The above table shows age wise distribution of 50 cases in study group. Majority of the cases i.e. 14(28%) are in age group of 51 to 60 years followed by 11 (22%) in age group of >70 years. 7(14%) cases are in 61 to 70 yearsof age, 8 (16%) cases are less than 40 years of age and 10 cases are in age group of 41 to 50 years.

Table 2: Sex wise distribution of cases in study group

Sex	No of cases	Percentage
Male	27	54
Female	23	46
Total	50	100

The above table shows sex wise distribution among 50 study subjects, 27 (54%) are residing male and 23 (46%) are female.

Table 3: Signs and Symptoms wise distribution of cases in study group

Signs and Symptoms	No of cases	Percentage (n=50)
Smoker	10	20
Kochs	9	18
Dyspnoea	9	18
Occupational	4	8
Cough/ fever	14	28

The above table shows signs and symptoms wise distribution among cases in study group. Majority of the cases i.e. 14(28%) have cough and fever, 10(20%) were smoker, 9 (18%) cases had Koch's &Dyspnoea and remaining 4(8%) cases had occupational related cause in study group.

Table 4: X-ray finding wise distribution of cases in study group

X-ray finding	No of cases	Percentage
Pneumonitis	18	36
Infective etiology	5	10
Miliary TB	6	12
Fibrosis	3	6
Kochs	1	2
Lymph node enlargement	2	4
Fibrosis & Pneumonitis	1	2
Normal	12	24
Total	50	100

The above table shows X-ray finding wise distribution among 50 cases in study group. Majority of the cases i.e. 18(36%) had pneumonitis, 5(10%) cases had infective etiology, 6 (12%) cases had miliary tuberculosis, 3(6%) cases had fibrosis, 2(4%) cases had lymph node enlargement and one case had fibrosis & Pneumonitis and Koch's and 12 normal.

Discussion : Interstitial lung disease (ILD) are group of pulmonary disorders characterized by inflammation and fibrosis of gas exchanging portion of the lung and diffuse abnormalities on lung radiograph.The diseases currently grouped as "interstitial" also involves the alveolar epithelium, alveolar space, pulmonary vasculature and less commonly the respiratory bronchioles, large airways and even pleura 2. The most common type of Interstitial Lung disease in our study was Usual Interstitial Lung Disease.[9,10,11]

Bauer PR et al aimed to determine the influence of ILD in a population-based historical cohort study. Among 64 cases in study group 19 cases had interstitial lung disease. The median age for the said disease was 49.1 yrs. Median Age in present study was 51.7 years .12 There was no significant association of ILD with Age and sex of the patient. (Table no 8)

Majority of cases of Interstitial Lung Diseases presented with cough and fever (30%), of this smokers were 24%. 20% of study cases had dyspnoea and 5(10%) cases had history of occupational exposure, that included textile workers ,Aluminium welding and exposure to inorganic particulates MuhammedShafeeq K et al (2011)13 determined the clinical, radiological profile and etiology of ILD patients in a tertiary care setting. Exertionaldyspnoea was the most common presenting symptom (97.2%) followed by cough (90%). Most common clinical signs were end inspiratory fine crackles (92.9%) and clubbing (71.4%). 58X ray findings within our study group revealed that 36% of the cases had had reticulo-nodular opacities ,12% had miliary tuberculosis, 6% had fibrosis. 4% had lymph node enlargement. 2% were fibrosis as well as pneumonitis on X ray. 24% of cases were normal. (Table no 4) Gagiya AK et al .14 (2012) conducted study with a purpose to find out different x-ray chest pattern in confirmed ILDs patients. Most of patients (60%) of ILD showed reticular-nodular in X-ray chest. 59 The findings in our correlates well with their studies .

Conclusion

Interstitial lung diseases are heterogenous group of parenchymal lung diseases that vary widely in etiology, pathogenesis and imaging. Imaging plays a vital role in helping to differentiate and classify this group of diseases. X-Ray is the modality for preliminary diagnosis and screening of patients with symptoms of interstitial lung diseases.

References :

1. Zerhouni EA, Naidich DP, Stilik FE et al. Computed tomography of lung parenchyma: part 2,Interstitial disease. J Thoracic Imaging 1985; 1:54-64
2. Zerhouni EA. Computed tomography of the pulmonary parenchyma an overview. Chest 1989; 95:901-907
3. Weibel ER, Taylor CR. Design and structure of the human lung. In: Fishman AP, ed. Pulmonary diseases and disorders. 2nd edition. New York, NY: McGraw-Hill 1988;11-60
4. ArunDevakonda, SuhailRaoof, Arthur Sung, William D. Travis, David Naidich, Bronchiolar Disorders: A Clinical-Radiological Diagnostic Algorithm. Chest. 2010;137(4):938-951
5. Heitzman ER, Markarian B, Berger I, Dailey E. The secondary pulmonary lobule a practicalconcept for interpretation of chest radiographs. II. Applications of the anatomic concept to anunderstanding of roentogen pattern in disease states. Radiology 1969; 93:513-519
6. Weibel ER. Looking into the lung: what can it tell us? AJR Am J Roentgenol 1979;133:1021-1031
7. Osborne DR, Effmann EL, Hedlund LW. Postnatal growth and size of the pulmonary acinusand secondary lobule in man,. AJR Am J Roentgenol 1983;140:449-454
8. Reid L, Simon G. The peripheral pattern in the normal bronchograms and its relation to peripheral pulmonary anatomy. Thorax 1958; 13:103-109
9. Gamsu G, Thurlbeck WM, Macklem PT, Fraser RG. Peripheral bronchographicmorphology in the normal human lung. Invest Radiol 1971;6(3):161-170
10. Michael B. Gotway, Gautham P. Reddy, W. Richard Webb, Brett M. Elicker, Jessica W.T. Leung. High-Resolution CT of the Lung: Patterns of Disease and Differential Diagnoses. RadiolClin N Am 43 (2005) 513 – 542
11. Heitzman ER, Markarian B, Berger I, Dailey E. The secondary pulmonary lobule:a practical concept for interpretation of chest radiographs. I. Roentgen anatomyof the normal secondary pulmonary lobule. Radiology1969;93:507–512
12. Bauer PR, Schiavo DN, Osborn TG, Levin DL, St Sauver J, Hanson AC, Schroeder DR, Ryu JH. Influence of interstitial lung disease on outcome in systemic sclerosis: a population-based historical cohort study. Chest. 2013; 144(2):571-7
13. MuhammedShafeeq K et al. Aetiology and clinic-radiological profile of interstitial lung disease in a tertiary care centre. Pulmon, Jan-Apr, 2011; Vol. 13, Issue 1:12-15
14. Gagiya AK, Patel AS, BhagatGR,Bhadiyadra VR, Patel KS, PatelP.Spirometry and X-Ray Findings in Cases of Interstitial Lung Diseases.Natl J Community Med. 2012;3(4):700-2