ORIGINAL RESEARCH ARTICLE

CLINICORADIOLOGICAL PROFILE AND EVALUATION OF THE PATIENTS OF LUNG MALIGNANCY

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ABSTRACT

Background: Lung cancer is the major cause of cancer related mortality all over the world. Clinicoradiological profile of the patients are different and warrants further evaluation accordingly. This study was planned to study the clinicoradiological profile of the patients of lung malignancy and to evaluate them further.

Methods: This is an observational study, done in a medical college of Ujjain [M.P] over a period one year. All the patients with clinical signs and symptoms or radiological suspicious of lung malignancy were included in the study and further evaluation including bronchoscopy/ biopsy were done in patients as required after explaining the risks.

Results: Clinical examination most common clinical findings are suggestive of mass in [65.5%] of cases, although radiologically all patients have mass followed by COPD [Emphysema] in 46.3% of cases as most of them were smokers Among Paraneoplastic syndromes clubbing is the most common present in 46.6% of patients followed by leukocytosis. CT/USG guided biopsy were done in 58 patients of suspected lung cancer. Out of which malignancy was confirmed in 55 patients with the help of transthoracic biopsy. Squamous cell carcinoma was most common type of malignancy encountered. Out of 22 patients in which bronchoscopy were performed, 10 were diagnosed as squamous cell carcinoma, 7 were diagnosed adenocarcinoma, 1 was diagnosed small cell carcinoma, in 2 patients study was suggestive of malignancy and in 2 patients we found normal study on bronchoscopy.

Conclusion: This study suggests thorough clinical and radiological evaluation especially CT Thorax in most of the cases is needed for proper evaluation of suspected Lung Malignancy following which bronchoscopy or biopsy is needed for histopathological diagnosis and further treatment. Transthoracic biopsy yields good results for peripheral lung lesion while bronchoscopy is good for central lung lesions.

INTRODUCTION

Lung cancer is the most commonly diagnosed malignancy across the globe, especially in males.[1]It is the leading cause of cancer related deaths with an low 5year survival rate of 16.8%.[2] It was observed that lung cancer patients experience substantial delays from development of symptoms to first initiation of treatment and hence there is need to promote awareness of lung cancer symptoms and develop and evaluate rapid assessment clinics for

patients with suspected lung cancers.[3]Early clinical and radiological evaluation and histopathological diagnosis is needed for proper management of the patients of lung malignancy.

MATERIALS AND METHODS

This is an observational study, done in Department of Respiratory Medicine, R.D Gardi Medical College and Hospital, Ujjain, [M.P] over a period of 12 months from January 2019 to January 2020. Study was approved by Institutional ethical committee. All the patients with suspected malignancy on chest X-ray and clinical symptoms suggestive of lung cancer were included in the study. Written consent was taken from each patient. Clinical history was taken in detail and complete clinicoradiological evaluation was done and complete histopathological diagnosis was made by further investigation. Patients with bleeding disorder, uncontrolled cough and those who refuse to participate in the study were excluded.

RESULT

Patients included in our study were in age between 21-90 years, minimum age was 21 years, maximum age was 90 years. Most of the patients were in age group 41-60 years [51.7%]. Mean age was 59.4 years. In our study, out of total 58 patients 49 [84.5%] were male and 9 [15.5%] were female. In our study, 45 [77.6%] of total patients were addicted to either tobacco or smoking or both. Most of patients among smokers, 37 out of 43 which is 86.04% among smokers have significant history of smoking more than 20 pack years and 19 out of 43 which is 44.2% have history of smoking 30-40 pack years. Cough is the most common symptom present in all the patients, followed by chest pain [93.3%], expectoration [89.7%], breathlessness [87.9%], fever and hemoptysis [32.8%] each, weight loss [24.1%], hoarseness of voice [6.8%], followed by other nonspecific symptoms. Interestingly, 18 out of 19 patients who were having hemoptysis turned out to be malignant and most of them were found to have squamous cell carcinoma. 13 out of 14 patients who were having history of weight loss turned out to be malignant.

History of Anti tubercular treatment was present in 8 [13.8%] of patients and 7 [12.1%] were on ATT but most of them were misdiagnosed as tuberculosis and were given anti tubercular treatment, only 2 out of those on ATT were sputum smear positive.

Most common comorbid conditions associated with lung malignancy in our study was found to be COPD [46.3%], followed by hypertension in 36.2%, type 2 diabetes mellitus present in 19% of patients, Pulmonary tuberculosis present in 3.4% of patients.

Clinical examination most common clinical findings are suggestive of mass in [65.5%] of cases, although radiologically all patients have mass followed by COPD [Emphysema] in 46.3% of cases as most of them were smokers, followed by clubbing present in 46.6% of cases, followed by presence of supraclavicular/neck lymph nodes [24.1%], followed by findings suggestive of pneumonia [22.4%], followed by pleural effusion present in 10 [17.2%], features of SVC syndrome present in 3 [5.2%].
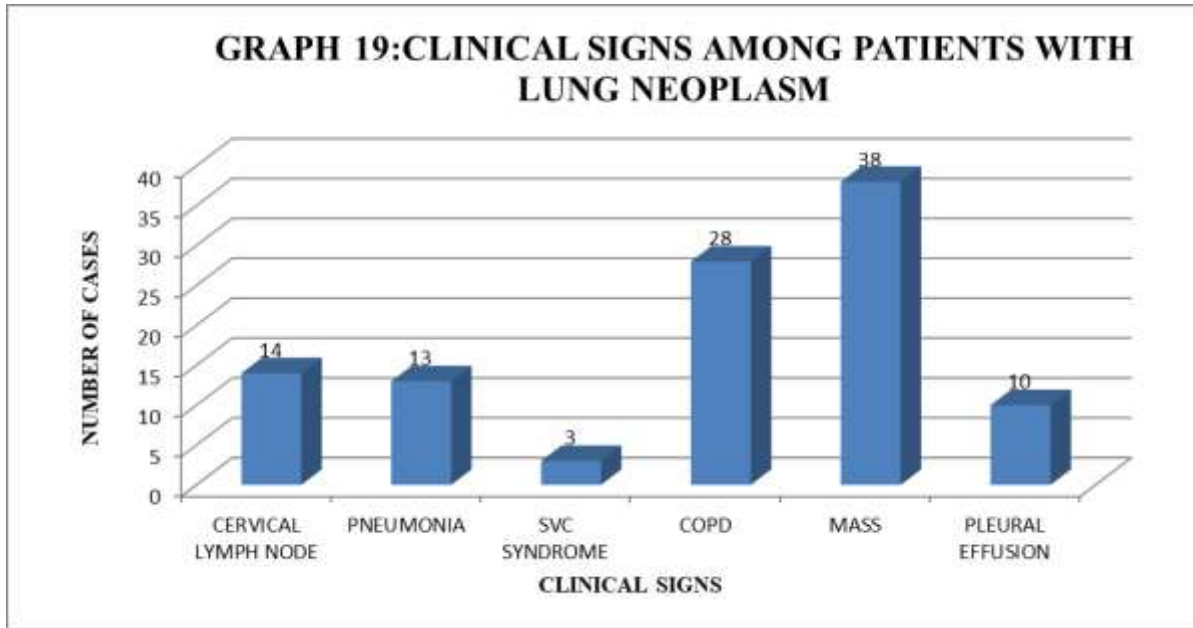
Graph 1: Clinical findings among patients with lung neoplasm

Among Paraneoplastic syndromes clubbing is the most common present in 46.6% of patients followed by leukocytosis present in 31%, anemia present in 20.6%, hypercalcemia in [8.6%], SIADH [6.9%] , eosinophilia [5.2%] , monocytosis 1[1.7%]

Most common radiological finding is presence of mass seen in chest x-ray or CT thorax of each patients followed by COPD present in 50% of patients, consolidation and collapse present in 25.9% of patients, pleural effusion found in 24.1%, chest wall invasion seen in 17.2%. Others radiological findings include, liver and kidney metastasis, cannon ball metastasis, pleural invasion, pleural metastasis, lungs and vertebral metastasis, findings of Pancoasts tumour.
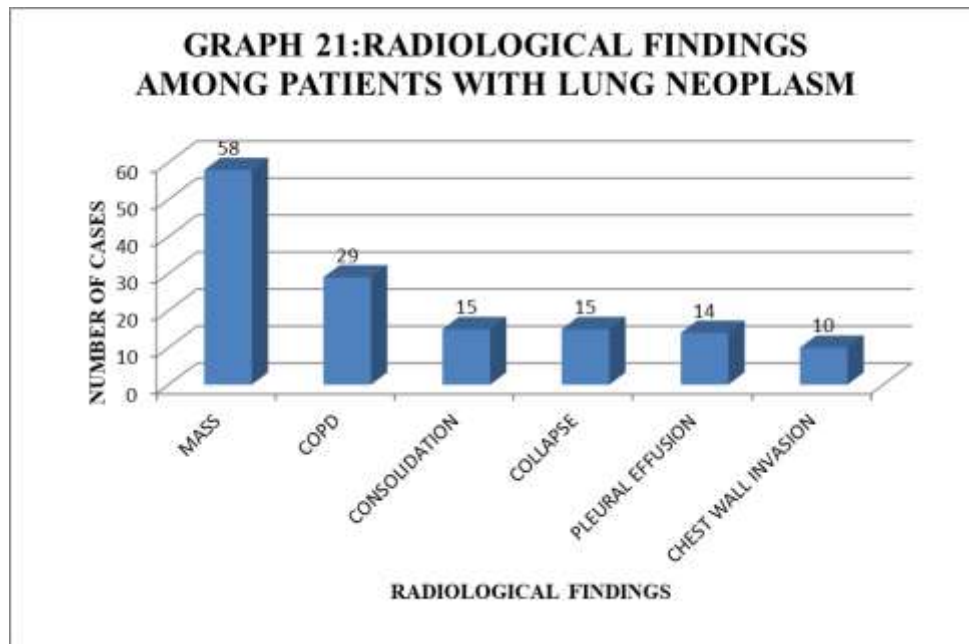

Figure 2: CT thorax show left upper lobe mass lesion with associated collapse

Out of total 58 patient's malignancy is confirmed in 55 patients with the help of Transthoracic lung biopsy. 26 (44.8%) were diagnosed as squamous cell carcinoma, followed by 23 (39.6%) cases of adenocarcinoma, followed by 3 (5.2%) patients of Small cell carcinoma, followed by 1 (1.7%) case each of Carcinoid tumour and spindle cell carcinoma followed by 1 (1.7%) case of metastatic carcinoma. Out of 22 patients in which bronchoscopy were performed, 10 were diagnosed squamous cell carcinoma, 7 were diagnosed adenocarcinoma, 1 was diagnosed small cell carcinoma, in 2 patients study was suggestive of malignancy and in 2 patients we found normal study on bronchoscopy.

DISCUSSION

In our study, patients were in age group between 21-90 years, minimum age was 21 years, maximum age was 90 years. Most of the patients 30 patients [51.7%] were in age group of 41-60 years and the mean age was 59.4 years. 41-60 years is the most common age groupinthe studies by Rajesekaranetal[4], Yasmin Bhugri et al[5]and RandeepGuleria, Ravendra M pandey, Anantmohan and colleagues et al.[6]

The commonest risk factor for development of lung cancer found in our study was smoking. In our study, non-smokers were those patients who had a lifetime history of smoking less than 100 cigarettes or those who had never smoked in their lifetime. Current smokers are those patients who are still smoking or less than one year had passed since they have quit smoking. Majority of patients 43i.e.74.13% were smokers. Similarly, Rawat et al[7]found smoking in 81.7% of the patients in their study. Sharma PK, Bansal R et al[8]found smoking in 82.9% of the patients and R Prasad et al found smoking in 81.4% of the patients. Koul et al[9]found smoking in 70% of cases. History of Anti tubercular treatment was present in 15[25.9%] patients, out of which7 [12.1%]patients were currently on ATT.Out of these 15 cases, 13 cases of lung malignancy were misdiagnosed as pulmonary tuberculosis, only 2[3.4%]patients were sputum smear positive for Acid Fast Bacilli and one of them was currently on ATT and another was treated in the past for Pulmonary tuberculosis. A wrong diagnosis of tuberculosis in Lung cancer patients is also reported in studies by Bhatt M,Suryakant et al[10],VK Singh , R Guleria et al[11], Partha Dasgupta 1, Amitabha Chakrabartiet al.[12] Common clinical presentation and improper evaluation mostlyby chest x-ray by clinician working in periphery results in misdiagnosis of pulmonary

tuberculosis. So, proper evaluation with use of diagnostic modalities like sputum for AFB, sputum for CBNAAT,CT scan Thorax and bronchoscopy are required for properly diagnosing Lung cancer and Pulmonary tuberculosis. Failure in diagnosis of the lung cancer by clinician delays the treatment as it results in lung cancer being diagnosed in advance stage which cannot be treated with curative intent. Another reason for delay in diagnosis is that cough and dyspnea are usual complaints in most of these lung cancer patients with underlying COPD and thus these complaints are usually neglected by the patients and the treating physician until it becomes very advanced. This observation is supported by studies done by Rawat et al[7] and Bhattacharya SK, Kumar et al.[13]

Most common symptom in our study was cough present in all the patients, followed by chest pain [93.3%],expectoration[89.7%], breathlessness [87.9%], fever and hemoptysis [32.8%], weight loss [24.1%], hoarseness of voice [6.8%] of cases. Cough is reported as the most common symptom in study by Randeep Guleria, Anantmohan and colleagues et al[6]Malik PS,Sharma MC et al[14],Prasad R, James P et al.[15]

However,Sharma PK, Bansal R et al [144] found chest pain is the most common symptom followed by cough. Jindal and Behera[16] and Gupta RC[17] and colleagues reported weakness as major symptom respectively and cough as the second most common symptom in their study. Other symptom includes body ache in 13.7%, backache in 8.6%, vomiting in 6.89%,abdominal pain in 5.17%, Constipation and difficulty in deglutition in 3.44%.

Clinically patient presented as mass lesion in 38(65.5%), pleural effusion in 10 (17.3%),pneumonia in 13(22.4%) cases. Similarly, Randeep Guleria, Ravendra M Pandey, Anant Mohan and colleagues et al[6], Jindal and Behera[16] also found mass with or without collapse/consolidation as the most common clinical presentation. Associated clinical manifestation were clubbingin 27 [46.6%] of patients which is also discussed later in paraneoplastic syndromes followed by cervical lymph nodes in 14 [24.1%], features of SVC syndrome in 3 [5.2%], Pancoaststumourin 1[1.7%].

Comorbid conditions present in our patients of lung cancer were, COPD 28 [46.3%] followed by hypertension in 21[36.2%], type 2 diabetes mellitus present in 11[19%] of patients, Pulmonary tuberculosis present in 2[3.4%]of patients followed by1[1.7%] case of interstitial lung disease. COPD and hypertension are the common comorbid conditions in patients of lung cancer due to same etiological factor smoking. Jindal SK, Malik SK[14] et al reported COPD as comorbid condition in lungmalignancy. As malignancy is a immune compromised state, there is a high risk of opportunistic infections like pulmonary tuberculosis reported by studies done by Masoud Keikha, Bahram Nasr Esfahan et al[18],R Prasad el al[15] and Jindal and Behera.[16]

Among the Paraneoplastic syndromes clubbing was the most common presentation seen in 27[46.6%] of the patients followed by leukocytosis which was present in 18[31%] of the patients, anemia present in 12[20.6%] of the patients, hypercalcemia present in 5 [8.6%] of the patients, SIADH present in 4[6.9%] of the patients, eosinophilia present in 3 [5.2%] of the patients, monocytosis present in 1 [1.7%] of the patient. Arora et al[19], Jindal and colleagues [20]Spiro SG et al[21] found almost similar paraneoplastic syndromes in their studies but hematological paraneoplastic syndromes are less reported in some studies. Leucocyte count may also be raised in secondary infections in patients.

Most common radiological findings on Contrast enhanced Computed Thorax [CECT Thorax] / Chest X-ray was the mass lesion seen in all patients of Lung Cancer. Although mass was not seen / confirmed in every patient in chest x-ray but it was confirmed by CT Thorax. It was followed by COPD present in 29[50%] of the patients, consolidation and collapse present in

15[25.9%] of the patients, pleural effusion found in 14[24.1%] of the patients, chest wall invasion seen in 10[17.2%] of the patients. Predominantly mass and right sided disease are the most common radiological findings as reported by Hassan MQ et al[22], Omer S Alamoudi[23] and Fusun Sahin and colleagues[24] also noted mass lesion is the most common radiological findings but in lesser cases as compared to the study. Others radiological findings include mediastinal shift to right, liver and kidney metastasis, cannon ball metastasis, pleural invasion, pleural metastasis, findings of Pancoasttumour. CT Thorax is best modality and better than chest x-ray to see lung pathology especially whenever there is doubt regarding any opacities or any findings in chest x- ray. CT Thorax helps in correct diagnosis and further management. It provides correct information regarding extent of the lesion so that correct diagnostic modality can be chosen. Most of the biopsies are performed under CT guidance as CT tells exact path and dimensions of lesion.

The diagnosis of lung cancer depends upon examination of Fine needle aspirated sample and/or Biopsy sample taken from the lesion, as in our medical college most of the patients come in advanced stage with extensive lesions. Bronchoscopy is useful to obtain cytology/biopsy sample in centrally situated lesions while computed tomographic guided/ USG guided Transthoracic biopsy procedure is useful in peripherally located lesions.

CONCLUSION

This study suggests thorough clinical and radiological evaluation is compulsory for proper evaluation of suspected Lung Malignancy following which bronchoscopy or biopsy is needed for histopathological diagnosis and further treatment. Transthoracic biopsy yields good for peripheral lung lesion while bronchoscopy is good for central lesions, as most of the patients were of peripheral malignancy so transthoracic biopsy were performed in more cases.

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