TO STUDY CLINICO-RADIOLOGICAL SUSPECTED CASE OF LUNG MALIGNANCY AND RESULT OF CT-GUIDED FNAC

Umesh Kumar Jatav¹, B.L. Meena², H.L. Parihar³

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ABSTRACT: Lung cancer is most common cancer worldwide representing approximately 12% of all new cancers¹. It is also the most common type of cancer in males and remains the most common cause of cancer related mortality in both Saxes. Most patients present with advanced disease^{1, 2}. In the recent past, a relative increase in the incidence of adenocarcinoma has been witnessed. In most of the developed countries, it has become the dominant histological type of lung cancer³. It has also overtaken squamous cell carcinoma as the most common form of lung cancer among males in some countries while it has continued to be the commonest type among females⁴. This histological shift has been linked to changes in the smoking habits of the population in these regions as well as in the design and composition of cigarette being marketed therein⁵.

KEYWORDS: CT-Guided FNAC, space occupying leasion

AIM: To study clinic radiological suspected case of lung malignancy and result of CT-guided FNAC.

STUDY DESIGN AND METHOD:

Patients enrolled: 50 patients above 30 years age with clinical symptoms of cough since 20 days, hemoptysis, fever, weight loss, dyspnea and hoarseness of voice and/or with any radiological features like space occupying lesion, hilar prominence, mediastinal widening and collapse with consolidation. These cases with above criteria will be subjected to CT scan (CECT) and CT-guided FNAC. The study was conducted in outdoor department of chest and TB in Govt. medical college Kota (Rajasthan)

RESULT: The demographic profile revealed that in our study 50 patients who were suspected for lung malignancy due their clinical signs and symptoms with positive radiological findings in favour of lung cancer 40 patients were diagnosed histopathologically as lung cancer and 10 patients were non malignant with one patient who cannot be diagnosed by CT-guided FNAC. All malignant patients were above age of 40 years and patients with malignancy were presented with average age 60.9 years, most of the patients were within range of 51 to 70 years.

In malignant cases (40), 35 patients were male and remaining (5) were females. Most of the patients with lung cancer (20) were farmer and rests of the patients were drivers, house wives, shopkeepers, labors and service class.

Most of the patients who were suspected for lung cancer in study were smokers (41); only small number of patients was not smokers.

The patients which were suspected of having lung cancer presented with cough which was the major symptom (46 out of 50) and all patients diagnosed as having lung cancer were presented with cough, Other major symptoms beside cough were dispnea and weight loss (72.5%), 52% were

having Haemoptysis and 40% were having chest pain. 37.5% patients were having fever and 27.5% patients complain of Hoarseness of voice.

Among signs clubbing was major findings and was associated with 60% of patients. Others signs were engorged Neck veins (25%) and palpable Neck nodes (15%).

We take only specific signs, symptoms and radiological criteria for patients who were suspected for Lung cancer and all patients were diagnosed by CECT- guided FNAC. Among all suspected cases 40 cases were diagnosed histopathologically as malignancy and 9 cases as non malignant. In diagnosed malignant cases non small cell lung carcinoma (75%) was most common type and small cell Lung cancer was third most common type Lung malignancy. In NSCLC type Lung cancer squamous was most common (37.5%) and Adinocarcinoma not much less and was second most common type of non small cell Lungs cancer. FNAC taken in all suspected patients with CECT-guided It was conclusive in 49 patients and inconclusive in one patients. FNAC was conclusive in 98% of patients, so CT-guided FNAC is valuable procedure regarding diagnosis of Lungs cancer though lung biopsy remain gold standard procedure for definitive diagnosis.

DISCUSSION: Lung cancer is the most frequently malignant disease and the most common cause of cancer death In the world. However, the clinical profile of lung cancer in India different from the west, in that indian patients present almost 15-20 years earlier in the 5th or 6th decades of life⁶.

Further, squan mous cell carcinoma continues to be commonest histopathological type in India, whereas adenocarcinoma is gradually becoming the prominent subtype in the western world⁷. Majority of lung cancer cases have been convincingly proove to be associated with smoking habits. Of all lung cancer deaths 85% are attributed to tobacco smoking, which contain harmful carcinogens. This study shows the clinicoradiological profile of suspected cases and views the most common clinical, radiological and pathological profile of lung cancer in Kota zone (HADOTI) area of Rajasthan.

The lung cancer predominantly seen in male, who were accounted for 87.5%. The male female ratio was 7 in this study. This finding has been consistent with the other studies in India, that the lung cancer is predominantly seen in male. Jindal & Behera³ 1990 reported the sex ratio as 4.5 whereas Kashyap et al 2001 reported sex ratio in lung cancer was 6.17. It has been reported as low as 2.9 by jha et al⁸.

As in this study we found high male female ratio showing less awareness about the health in females .This study also shows that there are less awareness in farmers about health and major reason of malignancy in the farmers was higher smoking habit of bidi and hukka than the urban one.

A significant proportion of the cases in the study were within range of 51-60 years (42.5%) the mean age was 60.9 years, and one patient with minimum age (41 yrs.) Who was diagnosed as squamous cell carcinoma, but he was associated with HIV infection. Jindal and Behera³ reported mean age 54.3 years whereas Gupta et al⁹ 2001 and Kashyap et al⁷ reported mean age at presentation as 60 and 54.6 years respectively. This observation reconfirm the established fact of increasing incidence of lung cancer as the age advances and need of detailed evaluation of elderly patients who present features suggestive of lung cancer.

In this study we include all suspected cases with clinical and radiological specified criteria's with including smoking. We found that patients who have history of smoking (41), 34 patients (82.9%) were malignant and 6 cases were malignant from without history of smoking (66.6%). This

is showing increasing malignancy in non smoker patients also. It indicates increase in air pollutions, either by motor vehicle or by factories.

In the patients whose were diagnosed as malignancy (34), the maximum patients were smokers with smoker to nonsmoker ratio 5.6. In this study average pack years in lung cancers patients was 35.8 years, this observation has been reported with a wide variability in previous studies in India. Jindal and Behera reported ratio as 2.7. While Arora et al reported the ratio was 1.2, nonetheless lung cancer has been prominently seen in smokers in each of the previous and in this also.

There are important differences in the clinical spectrum of lung cancer patients in India compare to those in the west³. Most of the patients have advanced disease at the time of diagnosis.

Most common symptom experienced by our patients was cough and associate with all patients who were suspected for lung cancer. The next most common symptom reported was dyspnea and weight loss (72.54%), 52% were having blood in sputum and 40% were having chest pain, 37.5% were having fever and 27.5%. patients were complaining of hoarseness of voice.

Among sings clubbing was major finding and was associated with 60% of patients. Others signs were engorged neck veins (25%) and palpable lymph node (15%). This study shows high diagnostic value in diagnosis of lung cancer. As out of 50 patients only one patient was not diagnosed. Only minor complications were cough and chest pain after CECT Guided FNAC that manages properly with assurance of patients.

Most common radiological finding in lung cancer patients of this analytical study was space occupying lesion (mass) which was found in 70% of all malignant patients (28). It was right side in 75% and left side in remaining patients. The space occupying lesion was more commonly seen in right lung and in upper zone.

Others radiological findings were hilar prominence (55%), mediastinal widening (25%), collapse and consolidation (37.5%), pleural effusion in 9 patients (22.5%).

In the same study of 336 patients with bronchogenic carcinoma carried out in Chandigarh by S.K. Jindal et al³, commonest finding was opacity with or without collapse (64%) and pleural effusion (23%). In a study by Jagdish Rawat et al¹⁰ mass lesion was reported in 46.31% cases, collapse-consolidation 40.89 and pleural effusion in 4.43% cases. There is wide variability in these observations in different studies; however the finding of a mass lesion at the time of diagnosis of lung cancer is high.

This shows how a lung cancer lesion grow to such extent and cause symptoms when it is of significant size and probably has metastasized already by the time of diagnosis.

Finally 75% patients were diagnosed as Non small lung cancer and 25% were diagnosed small cell lung cancer (SCLCs). Out of all NSCLC cases 37.5% patients had squamous cell carcinoma (15), 32.5% had adenocarcinoma, and only one case each of Large cell and carcinoid tumour (2.5%). Six cases of adenocarcinoma were not possible of differentiate and in remaining Mucinous type was most common variant.

Thus Squamous cell carcinoma was more frequent diagnosis than any other form of lung cancer. But seconds most common was Adenocarcinoma which was near about to most common. This is showing the increasing of adenocarcinoma of lung in India also as in West countries.

In other Indian studies Jagdish Rawat et al¹⁰ studied 203 cases of lung cancer. They reported Squamous cell carcinoma in 91(44.83%), Adenocarcinoma in 40(9.70%), Large cell carcinoma in

17(8.37%), Undifferentiated carcinoma in 21(10.34%) and small cell carcinoma in 34 (16.75%) cases. Jindal SK and Behera³ in their study reported incidence of squamous cell carcinoma 34.3%, Adenocarcinoma 25.9%, small cell carcinoma 20.3% and large cell carcinoma in 7.3%. In another study by Navneet Singh et al¹¹ reported incidence of Squamous cell carcinoma 34.8%, Adenocarcinoma 26%, small cell carcinoma 18.4% and other in 20.8%. In study in Kashmir by NA Khan et al¹² found incidence of Squamous cell carcinoma to 48 (77.3%), Small cell carcinoma 55 (17.1%), Adenocarcinoma 17(5.3%) and Large cell carcinoma 1(0.31%)s).

There is a variation in histological diagnosis in these previous studies, however squamous cell cancer has been the most common histological type of lung cancer in India as shown by these studies.

In present study the most histological diagnosis came out to be squamous cell carcinoma but Adenocarcinoma is near about to squamous cell carcinoma.

The same variation in present and previous is may be due to including to all suspected cases then others in which studies was done In already diagnosed cases.

The most histological type in smoker and non smoker was squamous cell carcinoma, which is 38.2% and 33.33% respectively. In male patients squamous cell carcinoma was the most common diagnoses in which majority were smokers.

In female most common type was adenocarcinoma (40%). Navneet Singh et al¹¹ reported the incidence of squamous cell carcinoma in smokers as 38.5% and adenocarcinoma as a most common histological type in non smokers was 46.3% cases.

CONCLUSION: In this hospital based analytical study an attempt was made to correlate clinical and radiological profile of suspected case of lung cancer with CT-Guided FNAC. Though the clinical symptoms were not specific, CT-scan was valuable in confirmation of diagnosis of lung cancer and histopathology proved to be a diagnostic tool for almost all suspected. The Radiological guided FNAC made the histology an easier procedure. The result in this study is close to earlier studies in terms of clinical presentation and features.

Majority of patients were having squamous cell carcinoma, were male and smokers. Adenocarcinoma was also diagnosed in higher percentage of patients which is near about to squamous Cell Carcinoma.

The main limitation of this study was small size of study population, In view of this the result may not be a true presentation of the trends in general population so more studies are required to confirm the result.

REFERENCES:

1. Youlten DR, Cramb SM, Baade PD. The international Epidemiology of Lung Cancer: geographic distribution and secular trends. *J. Thorec Oncol* 2008; 3:819-31.
2. Parkin DM Bray F, Ferlay J, Pisani P. Global cancer statistics, 2002 *CA Cancer J Clin* 2005;55:74-108.
3. Jindal SK, Behra D. Clinical Spectrum of primary lung cancer: Review of Chandigarh experience of 10 years. *Lung India* 1990; 8:94-98.
4. Little AG, Gay EG, Gaspar LE, Stewart AK. National survey of non-small cell lung cancer in the United States: epidemiology, pathology and patterns of care. *Lung cancer* 2007; 57:253-60.

5. Alberg AJ, Ford JG, Samet JM. Epidemiology of lung cancer: ACCP evidence based clinical practice guidelines (2nd edition). Chest 2007; 132:29S-55S.
6. Parkin DM. Trends in lung cancer incidence worldwide. Chest 1989; 96 (Suppl.):5S-9S.
7. Kashyap S, Mohapatra PR, Negi RS. Pattern of Primary lung cancer among bidi smokers in North – Western Himalayan region of India. Lung Cancer 2003; 41(Suppl.2):S111.
8. Jha VK, Roy DC, Ravindran P. Bronchogenic carcinoma: A clinicopathological study. Indian J Chest Dis 1972; 14:78-85.
9. Gupta D, Boffetta P, Gaborieau V, Jindal SK. Risk factors of lung cancer in Chandigarh, India. Indian J Med Res 2001; 113 : 142-50
10. Jagdish Rawat, Girish Sindhwani, Dushyant Gaur, Ruchi Dua, Suni Saini. Clinico-pathological profile of lung cancer in Uttarakhand. Lung India Vol 26 Issue 3 Jul- Sep 2009.
11. Navneet Singh, Ashutosh N Agrawal, Dheeraj Gupta, Digamber Behera, Surinder K Jindal. Unchanging Clinical-epidemiological profile of lung cancer in north India over three decades. Cancer epidemiology, 34(2010) : 101-04.
12. N.A Khan, F. Afroz, M.M. Lone, M.A. Teli, M. Muaffar and N Jan. Profile of Lung Cancer in Kashmir India: A Five Year Study. Indian J Chest Dis Allied Sci 2006; 48 : 187-190.
13. Arora VK, Seetharaman ML, Ramkumar S, et al. Bronchogenic carcinoma; Clinicopathological pattern in south Indian population. Lung India 1990 ; 7:133-138
14. D.Behera and T.Balmugesh. Lung Cancer in India: Review article (Indian J Chest Dis Allied Sci 2004; 46: 269-281).
15. R Prasad, SK Verma, Sanja. Comparison between young and old patients with bronchogenic carcinoma. J cancer Res Ther-January 2009-Volume 5-Issue 1.
16. Rajasekaran et al. Pattern of primary lung cancer : A madras study. Lung India (1993), XI No 1 & 2 (P7-11).
17. Ajit Vigg. Role of Bronchoalveolar lavage in diagnosis peripheral lung cancer. Lung India (1991) XI, No 2 (P.61-62).
18. Rajwanshi A, Jayaram N, Behera D, Gupta SK, Malik SK. Fine needle aspiration of intrathoracic lesions. Indian J Pathol Microbiol 1989; 4: 306- 09.
19. Gupta D, Gulati M, Rajwanshi A. Fluoroscopic transbronchial fine needle aspiration for diagnosis of peripheral pulmonary nodules. Indian J Chest Dis Allied Sci 1996; 38 : 1 63-67.
20. Janssen – Heijnen ML, Coebergh JW. The changing epidemiology of lung cancer in Europe. Lung Cancer 2003; 41:245-58.

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AUTHORS:

1. Umesh Kumar Jatav
2. B.L. Meena
3. H.L. Parihar

PARTICULARS OF CONTRIBUTORS:

1. Junior Resident, Final Year, Department of Chest & T.B, Government Medical College, Kota, Rajasthan.
2. Resident, First Year, Department of Chest & T.B, Government Medical College, Kota, Rajasthan.
3. H.O.D, Department of Chest & T.B, Government Medical College, Kota, Rajasthan.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Umesh Kumar Jatav,
159, Maharana Pratap Colony,
Sawai, Madhopur (Swn), Rajasthan.
Email – jahari21@gmail.com

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