Vol. 16, No. 3
ORIGINAL PAPER

MEDICINE

MEDICAL CHANNEL
JULY - SEPTEMBER 2010

CLINICAL PRESENTATIONS OF LUNG CANCER IN RELATION TOHISTOLOGICAL TYPES (Hospital Based Study)

1. **MUHAMMAD ASLAM SOOMRO**
DTCD, FCPS
2. **GHULAM AKBAR SOLANGI**
FCPS
3. **HAKIM ALI ABRO**
MCPS, FCPS
4. **KOUROMAL GURBAKHSHANI**
FCPS
5 **BASHIR AHMED SHAIKH**
FCPS

1. ***Assistant Professor***
CHANDKA MEDICAL COLLEGE & HOSPITAL LARKANA
2. ***Professor***
CHANDKA MEDICAL COLLEGE & HOSPITAL LARKANA
3. ***Associate Professor***
CHANDKA MEDICAL COLLEGE & HOSPITAL LARKANA
4. ***Assistant Professor***
CHANDKA MEDICAL COLLEGE & HOSPITAL LARKANA
5. ***Assistant Professor***
CHANDKA MEDICAL COLLEGE & HOSPITAL LARKANA

Correspondence:
DR. MUHAMMAD ASLAM SOOMRO
Assistant Professor
CHANDKA MEDICAL COLLEGE & HOSPITAL LARKANA
E-: dr_soomro_aslam@hotmail.com
Cell # 0333-754372S

ABSTRACT:

OBJECT: *To know the common presentations of lung cancer, so that the disease can be diagnosed at earlier stage, when its cure is possible.*
METHOD: *Thiscross-sectional study,was conducted at medical unit one of Chandka Medical College Teaching Hospital Larkana. In this study 52 cases of proven lung cancer were collected in two years of period from February 2007 to February 2009and wereanalyzed clinically.*
RESULTS: *in our study four histological types of lung cancer were found i.e. squamous cell carcinoma (59.6%), small cell carcinoma (21.2%), adenocarcinoma (9.6%) and large cell carcinoma (9.6%). mostly affected age group was 60 to 69 years. Males were predominantly affected (87%)with male to female ratio 16.2:1, and 86.56% of the patients were smoker.The common symptoms to lung cancer were the cough, chest pain, and hemoptysis accounting 100% each type, while metastatic and paraneoplastic symptoms were more common in squamous cell, and small cell carcinoma.*
CONCLUSION: *clinical suspicion of lung carcinoma should be maintained if symptoms are, an old age, male gender, smoking history for long duration, and, the presenting symptoms are intractable cough, or change in quality of cough, chest pain, hemoptysis, breathlessness and weight loss.*

KEY WORDS: Lung carcinoma, Smoking, Squamous cell carcinoma.

INTRODUCTION:

The lung can be affected by variety of cancers. Common primary lung cancers are squamous cell carcinoma, small cell carcinoma, adenocarcinoma, large cell carcinoma, carcinoid tumor, and fibro sarcoma. Lung carcinoma accounts for more than 90% of all lung tumors[1.] Worldwide, lung cancer is the most common cancer in terms of both incidence and mortality (1.35 million new cases per year and 1.18 million deaths), with the highest rates in Europe and North America[2].

The American Cancer Society estimated that there were 215,020 new cases and 161,840 deaths from lung cancer in the United States in 2008; accounting for approximately 15% of new cancer diagnoses and 29% of all cancer deaths.3Lung cancer incidence is currently less common in developing countries. With increased smoking in developing countries, the incidence is expected to increase in the next few years, notably in China4and India.[5]

Lung cancer is a disease of middle and old age,6 most frequently seen between 45 to 75 years.1 The median age of incidence of lung cancer is 70 years, and the median age of death by lung cancer is 71 years.7 It is rarely seen before the age of 40 years, which accounts for only 2% of all cases8.The youngest patient with such a tumor was five month of old.9in young patients there is high incidence of chest pain, fever, neurological symptoms, and adenocarcinoma type.[10, 11, 12]

he lung cancer is more common in men than women with male to female ratio is 2:1, 13except for bronchoalveolar carcinoma, carcinoids, and adenoid cystic carcinoma where there is no sex difference.

Squamous cell carcinoma (29%) 14 arises from epithelium of bronchi, it is a lowly growing tumor, mostly centrally located (segmental and sub segmental bronchus) but in one third of cases it arises peripherally. In 60% of cases it causes obstructive symptoms (emphysemia, pneumonitis, atelactasis, bronchiactasis and lung abscess),cavitation of tumor occurs in 10 % of cases. It can metastasize to liver, bones, adrenals, brain and kidneys Small cell carcinoma (18%) 14it is also called oat cell carcinoma and is a rapidly growing tumor, arising in main stem bronchi, causing early metastasis; and is a most frequent cause

of paraneoplastic syndrome.

Adenocarcinoma (40%)[15] is relatively more common in women; recently its incidence has become more than squamous cell carcinoma, probably due to increased proportion of women having lung cancer.[14]It is commonly associated with asbestosis and about 10 % of cases are in or around scar.Three fourth of cases arises in periphery, so it does not produces obstructive symptoms and diagnosed late.

Large cell carcinoma (9%) [14] arises at periphery, cavitation occurs in 20-30% of cases.

Carcinoid tumors are potentially malignant, and are not related to smoking. Cigarette smoking causes more than 90% of cases of lung cancer.3by active (mainstream) smoking and Passive (side stream) smoking accounts for 15% of cases.[17] Other risk factorsare Chromosomalab normalities,[18] Arsenic, Asbestos,[19] Beryllium, Cadmium, Chromium, Nickel, Polycyclic aromatic hydrocarbons, Radon gas, [20] and Vinyl chloride.Emissions from automobiles, factories, and power plants also pose potential risks.[21, 22]

Clinical presentation of lung cancer is highly variable and depends upon natural history of tumor, location, extension, metastasis and their paraneoplastic manifestations. Primary pulmonary symptoms are cough, sputum production, hemoptysis and dyspnea. Local extension symptoms are chest pain, dyspnea, hoarseness of voice, superior vena cava obstruction (S.V.C.O), pancoast's syndrome, cardiac symptoms, pleural effusion, and pneumothorax, Tumor can metastasize to liver, brain, bones, adrenals, and other organs. The paraneoplastic symptoms includes Cushing syndrome, Hypercacemia, syndrome of inappropriate anti diuretic hormone secretion, dementia, neuropathy, subacute cerebellar degeneration, Eaton Lamertsyndrome, acanthosisnigricans, anemia, leukocytosis, eosinophilia, thrombocytopenia, hypertrophic pulmonary osteoarthropathy, marantic endocarditis, thrombophlebitis and trousseau's syndrome. The prognosis depends on pulmonary symptoms, tumor size, cell type (histology), degree of spread (stage),metastases to multiple lymph nodes, and vascular invasion, central nervous system or liver at the time of diagnosis.

For non-small cell lung carcinoma (NSCLC), prognosis is generally poor. Following complete surgical resection of stage IA disease, five-year survival is 67%. With stage IB disease, five-year survival is 57%. The five-year survival rate of patients with stage IV NSCLC is about 1%.

TABLE. NO. I
SEX DISTRIBUTION

Gender		Types Of Carcinoma			Total
	Squamous Cell	Small Cell	Adenocarcinoma	Large Cell	
Female	02 (66.7%)	0 (0%)	01 (33.3%)	0 (0%)	100.0%
Male	29 (59.2%)	11 (22.4%)	04 (8.2%)	05 (10.2%)	100.0%

TABLE II
AGE DISTRIBUTION

Age group in years	Types of lung carcinoma			
	Squamous Cell	Small Cell	Adenocarcinoma	Large Call
20 – 29	0 (0%)	0 (0%)	0 (0%)	0 (0%)
30 – 39	01 (3.2%)	0 (0%)	0 (0%)	01 (20%)
40 - 49	06 (19.4%)	0 (0%)	01 (20%)	0 (0%)
50 -59	07 (22.6%)	03 (72.3)	02 (40%)	02 (40%)
60 – 69	13 (41.9%)	07 (36%)	01 (20%)	01 (20%)
70 – 79	04 (12.9%)	01 (9.1%)	01 (20%)	0 (0%)
80 and above	0 (0%)	0 (0%)	0 (0%)	01 (20%)

For small cell lung carcinoma, prognosis is also generally poor.

The overall five-year survival for patients with SCLC is about 5%.Patients with extensive-stage SCLC have an average five-year survival rate of less than 1%. The median survival time for limited-stage disease is 20 months, with a five-year survival rate of 20%.Since this disease is potentially curable if diagnosed early, it is therefore, very important that it should be diagnosed at initial stages.

MATERIAL AND METHOD

This cross sectional study was conducted at medical unit one of Chandka Medical College Teaching Hospital Larkana in two years period, from February 2007 to February 2009. The study was approved by ethical committee of hospital. In this study 52 cases of proved lung carcinoma were included after their written consent. On the first visit the patient's detailed history was taken, particularly present and past occupation, smoking habits, exposure to organic and inorganic dust. Thorough interrogation was made about cough, dyspnea, hemoptysis, chest pain, weight loss, fever, bone pain, hoarseness of voice, dysphagia, and swelling of neck and loss of appetite.

A thorough general and systemic examination was carried out with special regard to build, anemia, clubbing, jaundice, lymph node enlargement, bone tenderness, ptosis and other signs of Horner's syndrome, pigmentation, gynaecomastia, signs of superior vena cava obstruction and Cushing syndrome. Respiratory system was examined for signs of pleural effusion, collapse, consolidation, and Pancoast tumor. Central nervous system was specially looked for Eaton Lambert syndrome, polymyositis, sub-acute cerebellar degeneration, spinocerebellar syndrome, and peripheral neuropathy. Cardiovascular system was examined for signs of pericardial effusion, nonbacterial endocarditis, and migratory thrombophlebitis and disseminated intravascular coagulation. All the findings were entered in proforma. After history and examination, investigation were carried out and all the efforts were made to get tissue biopsy either by bronchoscopy, percutaneous transthoracic needle biopsy,

TABLE III
QUANTITY OF SMOKING

Number of cigarette per day	Types of Carcinoma				Total
	Squamous cell	Small Cell	Adenocarcinoma	Large cell	
01 – 10	7(25.9%)	2(22.2%)	1(25.0%)	1(20.0%)	11(24.4%)
11 – 20	11(40.7%)	5(55.6%)	0 (.0%)	2(40.0%)	18(40.0%)
21 – 30	4(14.8%)	2(22.2%)	2(50.0%)	1(20.0%)	9(20.0%)
31 – 40	2(7.4%)	0 (.0%)	0 (.0%)	1(20.0%)	3(6.7%)
41 - 50	1(3.7%)	0 (.0%)	0 (.0%)	0 (.0%)	1(2.2%)
50 & above	2(7.4%)	0 (.0%)	1(25.0%)	0 (.0%).	3(6.7%)

pleural biopsy or lymph node biopsy. Tissue specimen was preserved in formalin and was subjected for histological examination. Finally, data was analyzed on SPSS version [17].

RESULTS:

In this study of 52 cases who were diagnosed as the cases of bronchogenic carcinoma were included, out of 52, 49(94.2%) were male and 3(5.8%) were female. (Table.1)

Age of presentation in our study range from 39 to 80 years, with maximum number of cases 22(42.3%) were found in age between 60 to 69 yearsof age. (TableII)

History of smoking was present in 45(68.5%) cases, while 7(13.5%) cases were nonsmoker. Among smokers 18(40%) of cases having history of taking 11-20 cigarettes per day, while 11(24%) having 1-10 cigarettes per day, 9(20%) having 20-30 cigarettes per day, while 3(6.7%) cases were taking 31- 40 cigarettes per day. (Table III)

Our study have 4 main types of lung cancer, Squamous cell carcinoma was present in 31(59.6%), Small cell carcinoma in 11(21.2%), Adenocarcinoma and large cell carcinoma in 5(9.6%), in each cases. (Table IV)

Commonest clinical presentation was cough, chest pain, hemoptysis, dyspnea, weight loss, superior vena caval obstruction syndrome (S.V.C.O), hoarseness of voice and dysphagia. (TableV)

TABLE IV
HISTOLOGICAL TPYE OF LUNG CANCER

Histological Types	Frequency	Percent
Squamous Cell Carcinoma	31	59.6
Small Cell Carcinoma	11	21.2
Adenocarcinoma	5	9.6
Large Cell Carcinoma	5	9.6
Total	52	100.0

DISCUSSION:

Worldwide, the lung cancer is the most common cancer in terms of both incidence and mortality (1.35 million new cases per year and 1.18 million deaths), with highest ratio in Europe and North America.[2] Its peak incidence is in 6th and 7th decade, but it does occur in young age group.

Histologically 4 common types of lung cancer were seen in our study, with Squamous cell carcinoma on top (54%), Small cell carcinoma (26%), large cell carcinoma (8%) and Adenocarcinoma (2%). This frequency of four main types of lung carcinoma does not correlate with recent figures of western studies.[14, 15]

To date cigarette smoking (active & passive) is a commonest risk factor for lung cancer, followed by combination of genetic factors, radon gas, asbestosis, air pollution, Arsenic, Beryllium, Cadmium, Chromium, Nickel, Polycyclic aromatic hydrocarbons, and Vinyl chloride.In our study Smoking habits were found in all four types of lung cancer and 13.5 % were nonsmokers which correlate with figure quoted by Spiro SG, 17among nonsmokers Squamous cell carcinoma was accounting 12.90%, Small cell carcinoma 18.18% and adenocarcinoma 20%. In our study of 52 cases, 49(94.23%) were males, while 03(5.6%) were females, with male to female ratio of 16.2:1. Sex distribution in our study is in accordance with local studies,[23] but it does not correlate with western studies,where incidence in females is high. Reason for this may be due to increase number of female smokers and lung cancer in western countries,14and or because of local traditions, so quite few women manage to reach at diagnostic centers. In our study about 82.69% (43 cases) were in the age between 40 to 69 years.The common age of lung cancer in our study was 5th to 6th decadeof life 69.2% (36 cases), which correlates with figure of Scoggin,1only 2 cases (3.84%) of lung cancer was found under 40 years which correlates with study of Larrieu.[8]Among those of less than 40 years of age, patients having large and small cell carcinoma, their clinical symptoms were not different from old age group, it does not

TABLE V
FREQUENCY OF SYMPTOMS AND HISTOLOGICAL TYPE

Symptom	Type of lung carcinoma			
	Squamous cell	**Small cell**	**Adenocarcinoma**	**Large cell**
Cough Dry Productive	28 (90.3%)	08(72.7%)	04 (80%)	05 (100%)
	07 (22.6%)	03 (27.3%)	01(20.0%)	0 (.0%)
	21(67.7%)	05 (45.5%)	03(60.0%)	05(100.0%)
Chest pain	21(67.7%)	07 (63.6%)	05 (100.0%)	05 (100.0%)
Hemoptysis	17 (54.8%)	01 (9.1%)	02 (40.0%)	05 (100%)
Dyspnea	19 (61.3%)	06 (54.5%)	04 (80.0%)	02 (40.0%)
Weight loss	10 (32.3%)	05 (45.5%)	03 (60.0%)	02 (40.0%)
Fever	9 (29.0%)	03 (27.3%)	0 (.0%)	02 (40.0%)
S.V.C.obstructio syndrome	01 (3.2%)	03 (27.3%)	0 (.0%)	0 (.0%)
Hoarseness of voice	01 (3.2%)	01 (9.1%)	0 (.0%)	0 (.0%)
Dysphagia	01 (3.2%)	01 (9.1%)	0 (.0%)	0 (.0%)
Poly neuropathy	02 (6.5%)	01 (9.1%)	0 (.0%)	0 (.0%)

correlates to with study of Nugent WC.12 Symptoms suggesting lung cancer include, cough (persistent chronic or recent change in quality), dyspnea, hemoptysis, wheezing, chest pain, weight loss, and clubbing of finer nails.

Cough was observed in 100% in large cell carcinoma, 80 % in adenocarcinoma, and 90.3 % in squamous cell and 72.7% in small cell carcinoma.

In our study Chest pain was found in 100 % of adenocarcinoma and large cell carcinoma while67.74 %,and 63.63 % in squamous cell carcinoma and small cell carcinoma respectively.

Hemoptysis was found in 100 % of large cell carcinoma, while 54.83 %, 40 % and 9.09 % in squamous cell carcinoma, adenocarcinoma, and small cell carcinoma respectively.Dyspnea was more frequent in adenocarcinoma (80%), than squamous cell carcinoma, small cell carcinoma, and large cell carcinoma. Weight loss was more frequent symptom in adenocarcinoma (60 %). Poly neuropathy was found in squamous cell carcinoma (6.5%) and small cell carcinoma (9.1 %). Symptoms of superior vena cava (SVC) obstruction were only found in squamous cell carcinoma (3.2%), and small cell carcinoma (27.3%).

Symptom of involvement of recurrent laryngeal nerve and esophagus was only found in squamous cell carcinoma (3.22%), and small cell carcinoma (9.09%). In this(small sample size) study where frequencies of symptoms are correlated to histological types of lung cancer.This may help for further population based studiesto correlate the symptoms with histological types.

CONCLUSION

In my study of 52 case of lung carcinoma, I have observed that the clinical suspicion of lung carcinoma should be maintained if following criteria are full filled, old age, male gender, smoking history for long duration, and large amount, and if presenting symptoms are intractable cough, or change in quality of cough, chest pain, hemoptysis, breathlessness and weight loss. Patients with such symptoms must be investigated properly at earlier stage and every effort should be made to obtain tissue biopsy, because if lung cancer diagnosed and treated at earlier stage then disease can be cured.

REFERENCES

1. Scoggin CH. Pulmonary neoplasm. Cecil Text book of medicine 1993; 3rded: 435 –41
2. "Commonly diagnosed cancers worldwide Cancer Research UK. April 2005. Retrieved 2008-01-11.
3. Sunny Wang, MD, Mark S. Chesnutt, MD, James A. Murray, DO, Thomas J. Prendergast,MD. Bronchogenic Carcinoma Current Medical Diagnosis & Treatment, 2010; forty ninth ed; 1452-57
4. Liu, BQ; Peto R, Chen ZM et al. (1998-11-21). "Emerging tobacco hazards in China: Retrospective proportional mortality study of one million deaths". British Medical Journal317 (7170): 1411–1422.PMID 9822393.PMC 28719
5. Behera, D; Balamugesh T (2004). "Lung cancer in India" (PDF). Indian Journal of Chest Diseases and Allied Sciences46 (4): 269–281..PMID 15515828.
6. Memon MA. "Trends in lung cancer AClinico radiological study. Biomedical 1991; 10: 49- 53
7. "Cancer Statistics Review 1975-2002 - Search". Surveillance Epidemiology and End Results (SEER). Retrieved 2007-11-18.
8. Larrie AJ, Jamieson WR, Nelems JM. Carcinoma of lung in patients under 40 years of age. AM. J. Sug, 1985; 149: 602-5
9. Giancalo R, Fedric V, Piero Z, Giuseppe P. Lung cancer in young. Chest,1985; 87:456-9
10. JubelirerSJ,Wilson RA. Lung cancer in patient younger than 40 years. Cancer, 1991;10:49-53
11. Bourke W, Mistein O, Donghi M. Lung cancer in young adult. Chest, 1992; 102 (6):1723-9

12. Nugent WC, Edney MT, Hammerness PG, Dain BJ, Maurer LH, Rigas JR, Non small cell cancer at extremes of age. Impact on diagnosis and treatment. Ann. Thoracic. Sug. 1997; 639(1): 193-7
13. Ramzi AC, vinay K, Stanley, Robbins. Lung tumors "Broncogenic carcinoma" Robbis pathology of disease. 1992; 5thed: 428-32
14. John D, Minna, Joan H, Schiller Neopl -asms of the lung. Harrison's principles of internal medicine, 17thed; 551-62
15. Travis WD. Pathology of lung cancer. Clin Chest Med 2002;23:65-81
16. Wu Willium AH, Dai AD, Blot ZY. Lung cancer among women on north east china. Br. J. cancer, 1990; 62: 983-87s
17. Spiro SG. Lung cancer, Oxford text book of medicine, 1996; 3rded: 2879-92
18. Gorlova OY, Weng SF, Zhang Y et al. (july 2007)."Aggregation of cancer among relatives of never-smoking lung cancer patients" International journal of cancer 121 (1): 111-118
19. O, Reilly KM, Mclaughlin AM, Beckett WS, Sim PJ, (March 2007). "Asbestos related lung disease". American family physician 75 (5): 683-688.
20. Catelionosis O, Rogel A, Laurier D, et al. (May 2006) "Lung cancer attributable to indoor radon exposure in ferance: impact of risk risk models and uncertain analysis". Environmental health persp -ectives 114 (19): 1361-1366.
National institute of environmental health science. doi: 10. 1289/ehp. 9070.
21. Kabir Z, Bennett K, Clncy L (February 2007). "Lung cancer and urban air pollution in Dublin: a temporal associ -iation?" Irish medical journal 100 (2): 367-9
22. Parent, ME; Rousseau MC, Boffetta P et al. (January 2007). "Exposure to diesel and gasoline engine emissions and the risk of lung cancer". American Journal of Epidemiology165 (1): 53–62.
23. Rahopoto Q, Shaikh MA, Shah MI, Dero AF, Maheshwari N, LalK."The clinical pattern of bronchial carcinoma" Medical channel; july-september 2008, vol 14, no.3.18-21.