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Atypical Presentations of lung cancers

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ABSTRACT

Aim: The aim of this study was to examine the frequency of lung cancers presenting with misleading chest X-rays in primary care. **Background**: Lung cancer is a common cause of cancer death. Misleading chest x rays are resulting in delay in the diagnosis and thereby increasing the mortality. Early diagnosis can help in curative treatment and thereby decreasing the mortality rate. **Design of study and setting**: this study is a prospective study. It is carried out in 52 lung cancer patients, who were diagnosed in the department of pulmonary medicine between june2012 to august 2014. **Method**: All diagnosed cases of lung cancer patients in MIMS medical college were included in the study. Chest X-rays and radiologist reports of the patient's were analyzed. Chest X-rays were categorized into two groups depending on the primary care physician's notes and radiologist's report: abnormal but no malignancy suspected (unsuspected malignancy cases); or abnormal with possible malignancy. **Results**: Of the 52 patients, in 30 patients chest x ray presentation was atypical, not suggestive of malignancy. 22 cases presented with typical radiological features of malignancy. Pneumonia (n=9, 17.3%) was the most common misdiagnosis of lung cancer followed by Collapse (n=7), Pleural effusion (n=6), Lymphadenopathy (n=3), Lung abscess/Cavitation (n=5). **Conclusion**: Chest X-rays of more than half of malignancy cases are negative. Further investigation is warranted with continuing or changing symptoms, even if the X-ray is not suggestive of malignancy.

Key Words: *lung cancer; chest X-rays; primary health care; diagnosis; referral and consultation.*

INTRODUCTION:-

Among cancers, lung cancer has one of the highest incidences worldwide and non-small cell lung cancer (NSCLC) comprises a majority of it.[1] Smoking has been established as a strong risk factor for lung cancer since 1950's.[2] Thus, lung cancer is often considered a smoker's disease. The vast majority (80–90%) of cases of lung cancer are due to long-term exposure to tobacco smoke. About 10–15% of cases occur in nonsmokers. These cases are often caused by a combination of genetic factors and exposure to other forms of air pollution, including second-hand smoke.

Lung cancer is the most lethal cancer in the world[3], late diagnosis of lung cancer is a fundamental obstacle to progress in lung cancer outcomes[4]. Mortality is related to the stage at diagnosis, with the best prognosis in early stage cancers. Earlier diagnosis of lung cancer may be beneficial in allowing some patients to have curative surgery and others with inoperable disease to have less extensive treatment. One possible route to earlier diagnosis is screening, although trials of screening using chest radiography have yielded disappointing results[5]. A large prospective trial comparing low dose spiral computed tomographic (CT) scanning with chest radiography in current or former smokers is due to report interim results shortly[6]. In the absence of screening, the main prospect for earlier diagnosis is prompt recognition of symptomatic cancer[7]. This will usually be in primary care but may occur in any healthcare setting.[8]

Patients generally present to their general practitioner, but the diagnosis is often missed because a fraction of pulmonary malignancy cases mimic various other diseases of lungs. Thus few patients are diagnosed at a stage when they could be offered curative surgery[9]. Furthermore, no screening test has been found to be effective for identifying lung cancers in early stages. The initial investigation for possible lung cancer in primary care is a chest X-ray, but false-negatives can occur in up to a quarter of primary care patients[10]. Typical presentation of lung cancer is an obvious mass in the chest x ray, with at least three forth's of its border visible[11]. The atypical presentations of the lung cancer includes consolidation

(pneumonia), pleural effusion, atelectasis (collapse), cavitation, or widening of the mediastinum (suggestive of spread to lymph nodes).[12]
The initial primary care investigation for a patient with possible lung cancer is chest radiography. However, this may occasionally fail to show the tumour. If suspicion of cancer remains, referral for other tests such as CT scanning or bronchoscopy may be required[13]

OBJECTIVES:-
This study was conducted to evaluate the percentage of the lung cancer patients presenting atypically and mimicking other respiratory diseases.

MATERIALS AND METHODS :-
We analyzed the clinical data of patients with lung cancer who were diagnosed between june 2012 and august 2014 at department of pulmonary medicine, MIMS. We gathered clinical data on pathologically confirmed patients who underwent clinical staging work with chest computed tomography (CT) and additional bronchoscopy when appropriate. Based on initial diagnosis at primary care and X-ray report patients were categorized into two groups; they are 1) abnormal but no malignancy suspected and 2) abnormal with possible malignancy (table1).

Table 1 : initial diagnosis of the malignancy cases

1. **Unsuspected Malignancy cases (30)**
   - Pneumonia(9)
   - Collapse(7)
   - TB Pleural effusion(6)
   - Cavitation/Lung abscess (5)
   - Lymphadenopathy(3)
2. **Suspected Malignancy cases (22)**

RESULTS:

We studied 52 cases, 42 (82.76%) in men and 10 (19.23%) in women (fig1), with mean ages of 72 and 68 years, respectively.

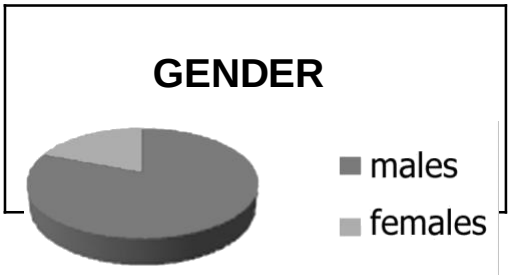

Figure 1 gender distribution

Histology results available for these cases are as follows: 36 (69.23%) had squamous cell carcinoma; 14 (26.92%) adenocarcinoma ; 2(3.84%) small cell carcinoma.

Table 2 histopathological features of unsuspected malignancy cases

Type of presentation	Number	SQ.C.C	ADENOCA.	SMALL.C.CA
collapse	7	7	0	0
pneumonia	9	3	6	0

Pleural effusion	6	4	2	0
Cavitation/ Lung abscess	5	4	0	1
lymphadenopathy	3	2	1	0
	30	20	9	1

Table 3 histopathological features of suspected malignancy cases

Type of presentation	Number	SQ.C.C	ADENOCA.	SMALL.C.CA
Mass	22	16	5	1

Of these 52 malignancy cases, in 30(57.69%) cases abnormality was detected but malignancy was not suspected and the diagnosis was missed. In these cases, Pneumonia (n=9, 17.3%) was the most common misdiagnosis of lung cancer followed by Collapse (n=7), Pleural effusion (n=6), Lung abscess/Cavitation (n=5) and Lymphadenopathy (n=3). In 22(42.31%) cases malignancy was suspected and the histopathological report was confirmatory.

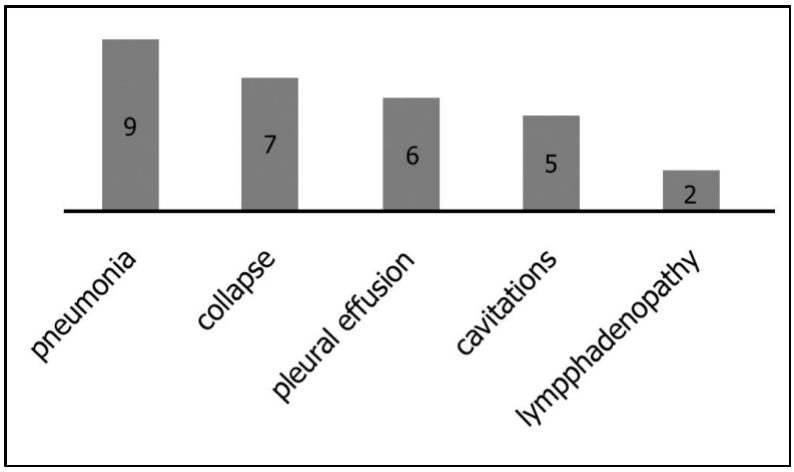

Figure 2 Initial diagnosis in unsuspected malignant cases

Most common presenting complaint in these cases was cough, chest pain, hemoptysis, hoarseness of voice and dyspnea (table 4).

Table 4 presenting complaints in unsuspected lung cancer cases

Presenting complaints	Pneumonia (9)	Collapse (7)	Pleural effusion(6)	Cavity(5)	Lympha-denopathy(3)
Cough (28)	9	7	4	5	3
Hemoptysis (16)	7	5	1	3	0
Chest pain(19)	4	6	6	1	2
Hoarseness of voice(8)	2	3	0	1	2
Dyspnea (12)	4	1	6	1	0

Most common investigation with which the final diagnosis of lung cancer was confirmed in these cases was CT (computerized tomography) guided FNAC (fine needle aspiration cytology) (n=15, 50%). Bronchoscopy guided biopsy/ TBNA (Trans bronchial needle aspiration) (n=11, 36.66%) and Thoracoscopy guided biopsy (n=4, 13.33%) are the other investigations which were helpful in arriving at the final diagnosis (table 5).

Table 5 investigation done to arrive at the diagnosis of lung cancer

Cases	CT guided FNAC	Bronchoscopy	Thoracoscopy
Pneumonia (9)	8	1	0
Collapse (7)	1	5	1
Pleural effusion (6)	2	1	3
Cavitation / Lung abscess (5)	1	4	0
Lymphadenopathy (3)	3	0	0
	15	11	4

DISCUSSION:-

Radiographic analyses in the patients with lung cancer studied in this report revealed most common individual presentation of lung cancer is that of a mass (n=22, 42.30%). Most common atypical presentations of lung cancers is collapse consolidation (n=16, 30.76%), others include pleural effusion, cavity and lymphadenopathy. A chest X-ray was taken in primary care itself in all the patients presenting with symptoms of lung cancer. The report was not suggestive of cancer in almost 57.69% cases. These patients had been treated at primary care for other etiologies. When there was no response, these patients were referred to our hospital. We suspected malignancy in these cases and did appropriate tests like CT guided FNAC, bronchoscopy and thoracoscopy guided biopsies. Histopathological evidences were suggestive of malignancies. This suggests that the rate of mis-diagnosis of pulmonary malignancies at the primary care is high.

The most common clinical feature with which patient presented was cough. Cough can also be found—and are much more common—in benign conditions, and cannot distinguish a benign from malignant condition. Hemoptysis and hoarseness of voice are more commonly associated with malignancy[13]. All the patients who are presenting with the hemoptysis and the hoarseness of voice should be further evaluated to rule out malignancy.

The pattern of lung cancer has been changing in the West. Lung cancer is being increasingly

diagnosed in women, and adenocarcinoma has overtaken squamous cell carcinoma as the commonest histological type. The pattern seen at our institute, however, was different. Squamous cell carcinoma(69.23%) was still the commonest histological subtype seen, followed by Adenocarcinoma(26.92%). Lung cancer is more common in males than females.

The likely explanation is that lung cancer patients may be more systemically unwell, with respiratory symptoms either minor, or even absent. This may also explain those patients who were referred to other departments. These were also less likely to have been X-rayed. These patients all had a symptom associated with lung cancer, but other features may have predominated, making the GP omit an X-ray. Whatever the explanation, this finding is important, as most diagnostic initiatives have been concentrated upon the standard pathway.

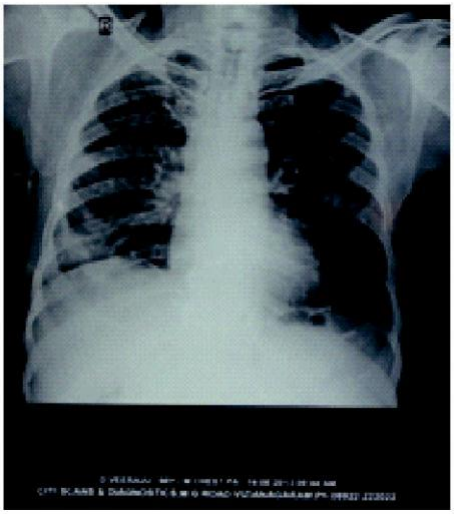

Figure 3 A case of right side adenocarcinoma

of lung misdiagnosed and treated as right lower lobe pneumonia

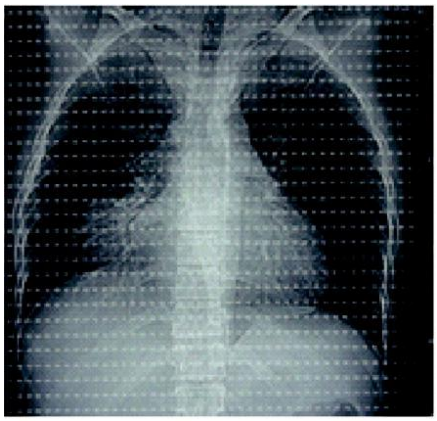

Figure 4A case of right side squamous cell carcinoma was treated as middle lobe pneumonia

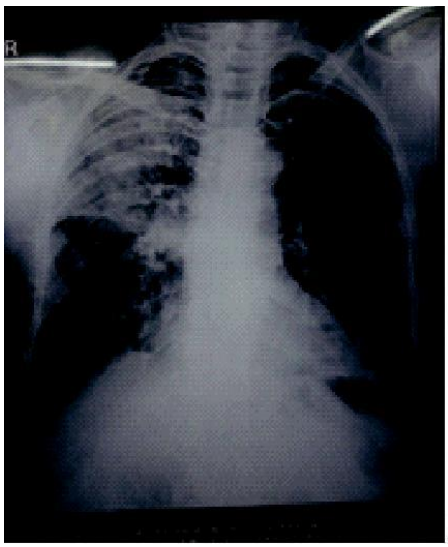

Figure 5 A case of right upperlobe adenocarcinoma treated as right upper lobe consolidation

Approximately 57% of X-rays being normal or misleading means that physicians who suspect lung cancer cannot rely on a negative X-ray to dispel the possibility. If clinical suspicion remains as a result of continuing symptoms or the development of new ones, then further investigation like a repeat X ray, or referral for CT scanning or bronchoscopy are warranted.

Cough is the most common symptom seen in primary care[14]. It is also the most common symptom in lung cancer, occurring in 65% of cases in this study. Re-attendance with cough was also very common in cases. The risk of lung cancer increased with each attendance, but still remained below 1%. Furthermore, no pair of symptoms with cough had a PPV over 2%. However, cough is the first symptom of cancer in nearly a quarter of patients, so it should not be readily dismissed as a predictor of lung cancer[15]

CONCLUSION:-

Chest X-rays of more than half of malignancy cases are negative for malignancy. Further investigation is warranted with continuing or changing symptoms, even if the X-ray is not suggestive of malignancy.In the presence of low AFI, the incidenceof MSL, abnormal FHR, low apgar, rate of LSCS, low birthweight, NICU admissions and perinatal mortality are high.

REFERENCES:-

1. Parkin DM. Global cancer statistics in the year 2000. Lancet Oncol 2001;2:533-43.
2. Wynder EL, Graham EA. Landmark article May 27, 1950: Tobacco Smoking as possible etiologic factor in bronchiogenic carcinoma. A study of six hundred and eighty-four proved cases. By Ernest L. Wynder and Evarts A. Graham. JAMA 1985;253:2986-94.
3. Jemal A, Thomas A, Murray T, et al. Cancer statistics, 2002. CA Cancer J Clin 2002;52:23–47.
4. Carney DN. Lung cancer: time to move on from chemotherapy. N Engl J Med 2002;346:126–8.
5. Okkes IM, Oskam SK, Lamberts H. The probability of specific diagnoses for patients presenting with common symptoms to Dutch family physicians. J Fam Pract 2002;51:31–6.
6. Koyi H, Hillerdal G, Branden E. A prospective study of a total material of lung cancer from a county in Sweden 1997–1999: gender, symptoms, type, stage,and smoking habits. Lung Cancer 2002;36:9– 14.
7. Mulshine JL, Smith R. Lung cancer—2: Screening and early diagnosis of lung cancer. Thorax 2002;57:1071–8.
8. Ford LG, Minasian LM, McCaskill-Stevens W, et al. Prevention and early detection clinical trials: opportunities for primary care providers and their patients. CA Cancer J Clin 2003;53:82–101.
9. Jensen AR, Mainz J, Overgaard J: Impact of Delay on Diagnosis and Treatment of Primary Lung Cancer. Acta Oncol 2002,41(2):147-152.
10. Stapley S, Sharp D, Hamilton W: Negative chest X-rays in primary care patients with lung cancer. Br J Gen Pract 2006, 56(529):570-573.
11. Shyu CL, Lee YC, Perng RP. Fast-growing squamous cell lung cancer. Lung Cancer 2002; 36: 199–202.

12. Colice GL. Detecting lung cancer as a cause of hemoptysis in patients with a normal chest radiograph: bronchoscopy vs CT. Chest 1997;111:877–84.
13. Chapman BE, Yankelevitz DF, Henschke CI, Gur D. Lung cancer screening: simulations of effects of imperfect detection on temporal dynamics. Radiology 2005; 234: 582–590.
14. Smith RA, Cokkinides V, Eyre HJ. American Cancer Society guidelines for the early detection of cancer, 2005. CA Cancer J Clin 2005;55:31–44.
15. Fergusson R, Gregor A, Dodds R, et al. Management of lung cancer in South East Scotland. Thorax 1996;51:569–74.