

Case Report

**Non-small Cell Carcinoma of Lung in a 19-year-old Male Presented as Malignant Pleural Effusion**

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**Abstract**

*Bronchial carcinoma is rare in younger age group. Smoking, environmental and occupational exposure are the major risk factors. Radiological imaging, bronchoscopy, FNAC and biopsy are the main mode of investigations. Surgery, radiotherapy and chemotherapy are the treatment of choice. Here, we report a case of 19-year-old male and diagnosed as a case of non-small cell carcinoma of lung (NSCC). Cytological examination of pleural fluid showed non-small cell carcinoma. This may be indicating the changing trend of developing NSCC in young adults.*

**Keywords:** *Non-small cell carcinoma, young male, malignant pleural effusion.*

**INTRODUCTION**

Lung cancer is one of the major health problems worldwide. It is the most common cause of cancer mortality for both male and female worldwide. In each year about 1.2 million people dies from lung cancer causing a major health concern.<sup>1</sup> In Bangladesh the prevalence of lung cancer is approximately 16.7% among all cancer related events. It is the common cancer in male (25%) and has male female ratio of 6.1:1.<sup>2</sup>

According to the latest data published by WHO in May 2017, lung cancer death in Bangladesh was 1.53% of total death. The age adjusted death rate was 11.13 per 100,000 of population.<sup>3</sup>

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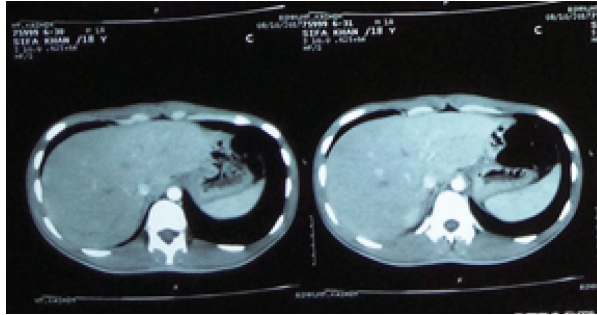
Smoking, industrial exposure, genetic influences are the most common risk factors for lung cancer. NSCLC and SCLC comprise about 95 % of all lung cancer. In younger age patients are very likely to be symptomatic, having adenocarcinoma and usually presents in advance stages. Surgery is the treatment of choice if the primary tumor is resectable and there is no metastasis. Despite the advancement in imaging system and treatment, most of the cancers are diagnosed at late stage where curative treatment is not possible. So, prognosis is very poor.<sup>5</sup> year survival is only 14% in the early stage and 5% in the late stage.<sup>4</sup>

**CASE REPORT**

A 19-years-old male patient presented with dry cough, right sided pain and heaviness in the chest for 2 weeks. Pain was dull aching in character and increased with coughing and deep inspiration. There was history of significant weight loss. He was a smoker and there was no significant family history of lung cancer. There is no significant history of occupational exposure. General examination revealed nothing contributory but examination of respiratory system revealed features of right sided pleural effusion. Investigation revealed Hb% was 13 gm/dL, ESR- 21 mm in first hour and there was neutrophilic leukocytosis. Chest radiograph revealed right sided hydropneumothorax (Figure-1). CT scan of the chest revealed right sided pneumothorax with pulmonary inflammatory lesion (Figure-2).

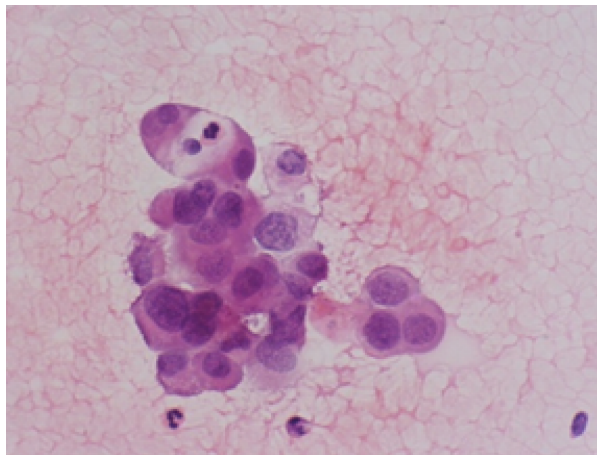


**Figure-1:** Chest radiograph showing right sided hemopneumothorax



**Figure-2:** CT-scan of chest showing right sided pneumothorax

Pleural fluid was haemorrhagic and exudative in nature. Smear revealed few scattered and clusters of cells having irregular and hyper chromatic nuclei with a moderate amount of cytoplasm which is consistent with Non-small cell carcinoma (Figure-3). Numerous neutrophils, a few macrophages and mesothelial cells were also seen. Bronchoscopy was done and it was normal(Figure-4).

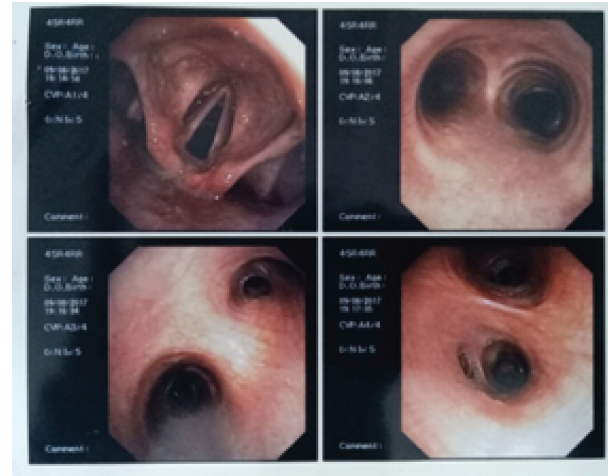


**Figure-3:** The atypical cells are large having hyperchromatic nuclei with irregular nuclear margin and scanty cytoplasm.

Tumour marker revealed CA-15.3 was 8.1 U/ml, Serum CA-19.9 was 2.0 U/ml and CEA was 0.45 ng/ml.

Pleurodesis was done. PET-CT reveals focal areas of left pleural thickening are seen along the left oblique fissure and along left costophrenic angle, showing very low grade metabolic activity within. A linear atelectatic band is seen in the middle lobe of right lung without significant metabolic activity within, most likely benign. Subtle focal cutaneous thickening is seen in the right anterolateral chest wall along the right 5<sup>th</sup> rib showing very low grade metabolic activity within, probably of inflammatory aetiology. Few sub centimeter sized level II cervical lymph node are seen, showing low grade FDG uptake of SUV

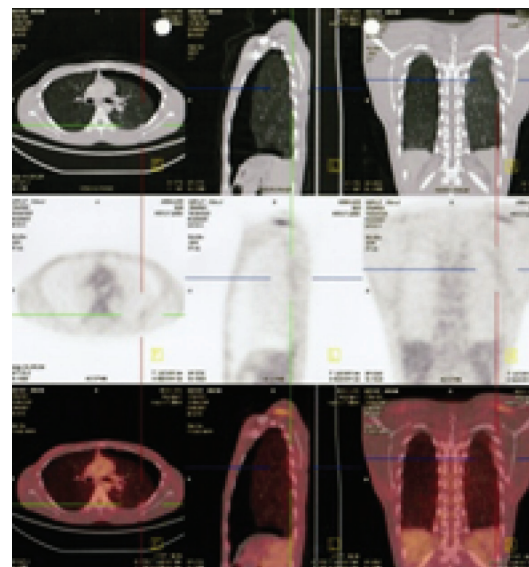
Max 2.69, most likely of infective or inflammatory aetiology. (Figure-5)



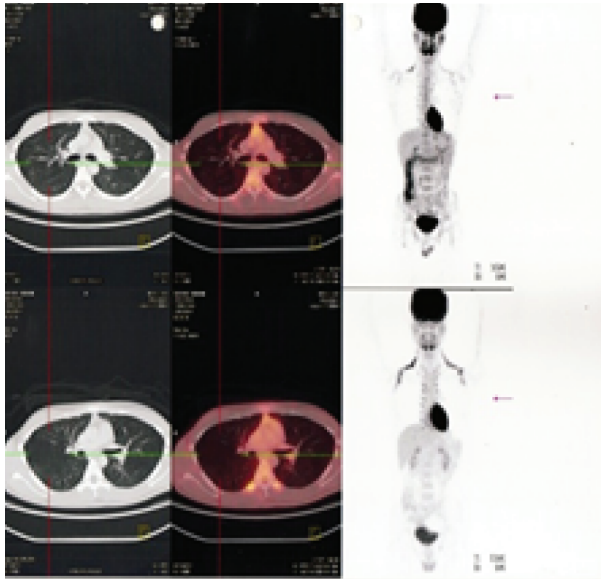
**Figure-4:** Normal bronchoscopic findings

The patient received 20 cycles of chemotherapy pemetrexate and carboplatin. Now clinically asymptomatic.

The PET-CT was repeated after 4 months. Comparison was made with previous PET-CT. There was no evidence of pleural effusion. No abnormal metabolically active lesion or pleural thickening is noted in both lungs. The linear atelectatic band in the middle lobe of right lung without significant metabolic activity is unchanged. No new interval lesion is detected. No other definite PET/CT evidence of metabolically active disease focus is seen elsewhere in the body (Figure-6).



**Figure-5:** PET-CT showing left sided pneumothorax



**Figure-6:** Follow up PET-CT after 4 months.

## DISCUSSION

Lung cancer is leading cause of mortality in both male and female and accounts for 28% all cancer death.<sup>7</sup> Increasingly it is found in young age .NSCLC accounts for 85% of all lung cancers.<sup>8</sup>A significant percentage of young patient with lung cancer has positive family history indicating genetic influence as a significant risk factor<sup>8</sup>

Smoking is the prime risk factor for lung cancer. The question of whether particular smoking patterns lead to an early onset of lung cancer is still open. Wynder and Graham found that younger patients who developed lung cancer smoked more than older patients.<sup>5</sup> But here in this case report the patient smoked very infrequently and had just 0.5 pack year.

Adenocarcinoma is the predominant histologic type (57.5-77.9%) in young patients; of both genders. The reason for the extremely high percentage of adenocarcinoma in young patients has been seldom studied and requires more attention. As compared with older patients, a higher female percentage in young patients was presented in several studies (36.1-48.7%)<sup>6,7,9</sup> however most studies have shown that males were the predominant gender.<sup>10,11</sup> In this case report the type of NSSC was not categorized.

To the best of our knowledge a case NSCC at the age of 18 or below in a male patient has not been reported

previously. Rather there is no significant association with smoking, family history, environmental or occupational exposure.

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