

Bronchial Carcinoma Revealed By Spontaneous Pneumothorax: A Case Report.

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Abstract :

Spontaneous pneumothorax (SP) is usually attributed to the rupture of subplural bubbles and is rarely associated with lung cancer. Pneumothorax may be the first sign of lung cancer. The most common possibility that SP complicates lung cancer is the mechanism of tumour necrosis or, in separate cases, the rupture of emphysematous bubbles. Lung cancer should always be considered as a possible cause of MS in elderly patients or heavy smokers. We report a case of an 75-year-old man who had a bronchial carcinoma revealed by spontaneous pneumothorax,

Keywords: lung cancer ; bronchial tumor ; Pneumothorax;

Abbreviations

SP : spontaneus pneumothorax

CT : computed tomography

Introduction :

Spontaneous pneumothorax (SP) can be divided into two types, primary and secondary, according to the presence of underlying pulmonary pathology (1-3). Different from the primary SP with subpleural bullous dystrophy only, secondary SP develops with various pulmonary conditions, including obstruction, infection, infarction, neoplasm and diffuse lung disease (4-10)

Case Presentation

An 75-year-old man presented to the emergency department with a sudden onset of pain in the right anterior portion of the chest without triggers associated with stage IV sadoul dyspnea without associated cough, hemoptysis or other thoracic or extrathoracic signs.

He was painter, chronic smoker, already hospitalized in our training one month ago (October 2019) for moderate acute COPD exacerbation secondary to a pulmonary embolism and a bronchial surinfection with unidentified germ, already treated for pulmonary tuberculosis 12 years ago (6 month regimen) declared cured, known chronic bronchitis 6 years ago, chronic dyspnea for 1 year,

On physical examination, the patient had breathing rate at 26, pulse rate at 77 bpm, peripheral oxygen saturation in ambient air at 88% increased to 95% under 4 litres of oxygen, discrete intercostal printing, digital hippocratism, bilateral sibilant rales.

The chest x-ray confirmed the diagnosis. An anterior thoracic drainage was performed at the 3rd right intercostal space with an 18G drain (figure 1)

And the left lung re-expanded completely over the next few days. (figure 2)

The chest computed tomography showed a regression of the right pneumothorax with persistence of an aerial effusion blade, a right basal lesion process 87 mm dense heterogeneous in contact with the wall with loss of the fatty separation border, bilateral nodules and micronodules largest 12 mm from the right lower lobe, bilateral frosted glass appearance, Emphysematous lung more marked in the upper lobes, and Absence of adenopathies, bone lesions or pericardial effusion.

the CT guided transparietal biopsy revealed a moderately differentiated and infiltrating adenocarcinoma. the abdominal-pelvic and cerebral CT scan did not reveal any secondary lesions.



Figure 1: Chest X-ray after thoracic drainage

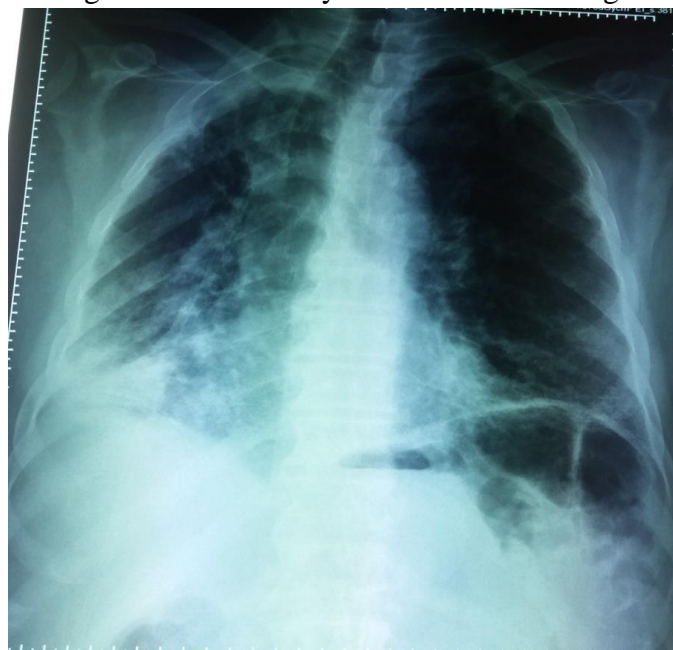


Figure 2: Chest X-ray after complete re-expansion.

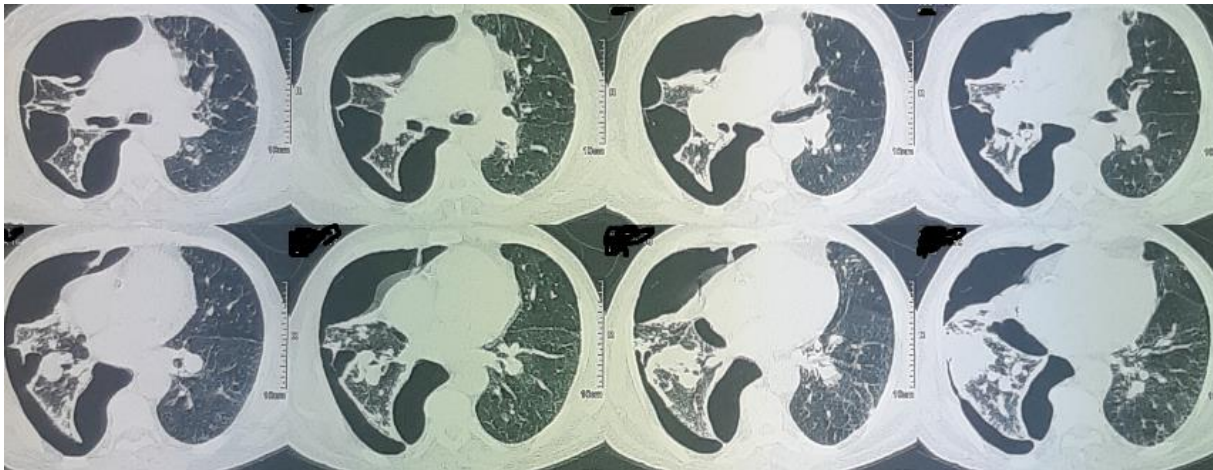


Figure 3: the pneumothorax on the CT

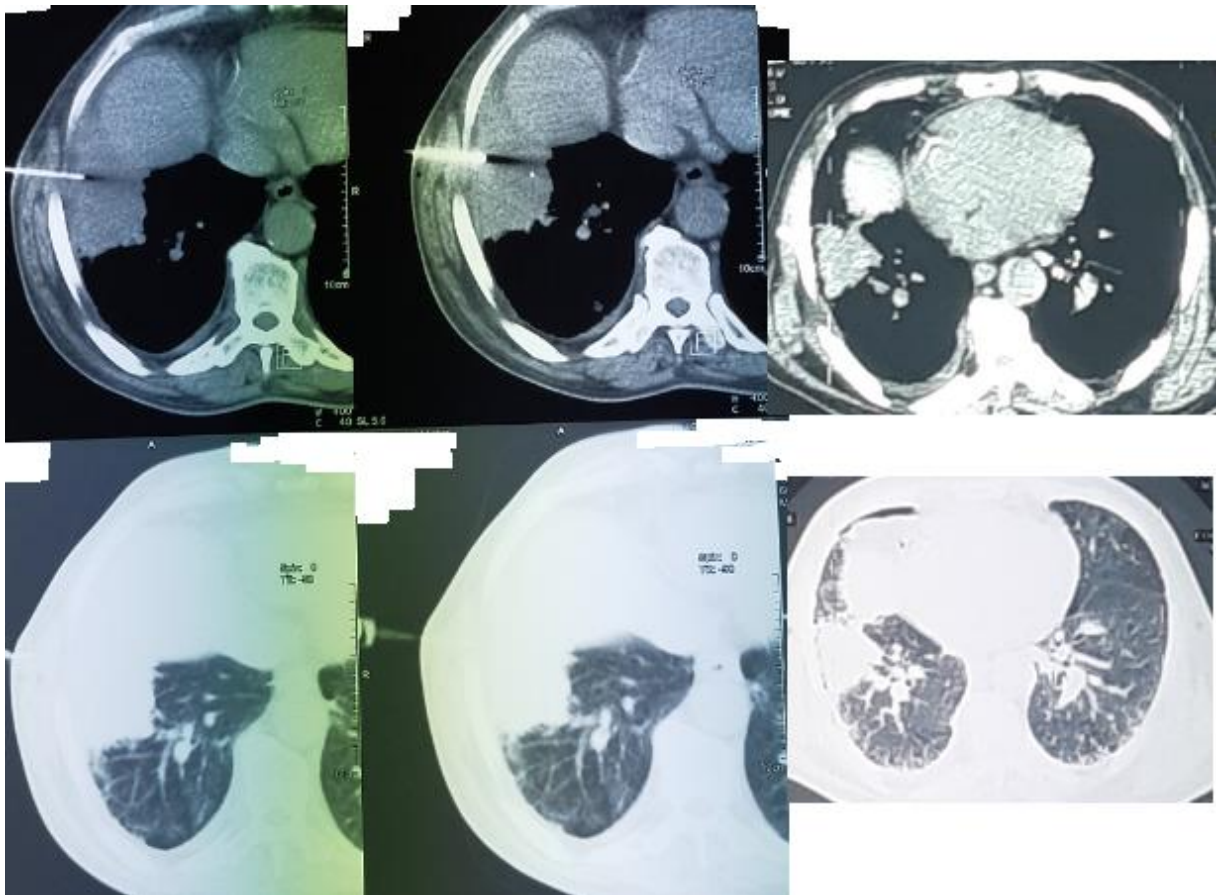


Figure 4: a peripheral process accessible to transparietal biopsy

Discussion

Spontaneous pneumothorax may be primary or secondary. The primary spontaneous pneumothorax mostly results from the rupture of the sub-pleural emphysematous blebs and the secondary spontaneous pneumothoraxes occur in patients with the acquired immunodeficiency syndrome (AIDS), cystic fibrosis, tuberculosis, lymphangioleiomyomatosis (LAM), and Langerhans cell histiocytosis. But spontaneous pneumothorax as a complication of lung cancer is very rare [1,2,3].

SP combined with lung cancer, with estimated occurrence rate of between 0.03% and 0.05%, is a rare condition and is known to be detected in 2% of all SP [2,4,5].

The malignancy occurring with SP, either primary or secondary, is summarized as metastatic germ cell tumor, osteogenic and soft tissue sarcoma and primary lung cancer [4].

there is some various theories to explain the mechanism of SP in pulmonary neoplasm. the pulmonary neoplasm can be itself as the prime cause of SP in lung cancer patients.

This tumor, can precipitate the dilatation and rupture of alveoli, distal to the obstructed site [2,6].

The tumour lesion protruding into the bronchial lumen acts as a check valve. The air breathed in the right upper lobe is not exhaled, resulting in hyperinflation of the pulmonary parenchyma downstream of the tumour, with distal alveoli distending until they rupture in the pleural cavity [7].

Pleural based peripheral tumor, with different mechanism, can also precipitate SP via the formation of broncho-pulmonary fistula by direct invasion. Tumor shrinkage, either by combined therapy or by self regression, is also known to precede SP by subpleural shrinkage [8]

This mechanism of pneumothorax is to be distinguished from pneumothorax by destruction of the peripheral parenchyma on a primary cancerous lung lesion [9], a metastatic lesion [4] or the rupture of an emphysema bubble [10,11].

Some others suggested that SP , regardless of the combined lung cancer, merely representing the condition of the lung, which has been exposed to the oncogenic substances, such as tobacco [2]. most of the patients with lung cancer have chronic bronchitis or emphysema bullae and that these bullae may rupture following the disturbance of the lung architecture due to bronchial cancer [10].

Conclusion

Spontaneous pneumothorax in association with lung cancer is rarely seen. But Pneumothorax can be the first sign of lung cancer. Lung cancer should always be considered as a possible cause of SP in elderly patients or in heavy smokers.

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