ISSN: 2573-9565

Care Report

Journal of Clinical Review & Case Reports

Sarcomatoid Carcinoma of the Lung: A Rare and Unfortunate Disease

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Submitted: 09 Apr 2019; **Accepted**: 15 Apr 2019; **Published**: 30 Apr 2019

Introduction

Pulmonary sarcomatoid carcinoma (PSC) is an extremely rare malignancy with a poor overall survival rate. Sarcomatoid tumors (SC) can arise out of many organs in the body and are generally rare but primary PSC's are among the rarest. Of all lung tumors, PSC's represent less than 1%. Our case presents a male with a past medical history of chronic obstructive pulmonary disease (COPD) who presents with a pleural effusion secondary to PSC.

Case

The patient is a 75-year-old male with a past medical history of COPD and benign prostatic hyperplasia with a long smoking history who presented to the emergency department with a worsening dry cough and shortness of breath for 5 days. The patient also complained of mild chest discomfort for the same time period but denied any subjective fevers or recent weight loss. He reports that he had a pleural effusion in 1994 which was treated with a thoracentesis and never returned. On physical exam the patient appeared well nourished and was hemodynamically stable with an oxygen saturation of 100% on room air with non labored breathing with decreased air entry in bilateral lung bases. Achest x-ray (CXR) obtained showed a large left sided pleural effusion which was followed by computed tomography (CT) of the chest. The CT of the chest showed a pleural effusion and a large mass found in the left upper thorax arising from the mediastinum. It was 8x15x14 cm in size. Interventional radiology was called for thoracentesis of the effusion and for CT guided biopsy of the lung mass. Patient tolerated both procedures well and reported alleviation of his dyspnea. Preliminary results from the pleural fluid analysis pointed toward an exudative effusion. On day 3 of the admission the patient reported that he was beginning to feel short of breath again. He desaturated to 80% on room air and had to be given supplemental oxygen via nasal cannula. CXR then showed re-accumulation of the left sided pleural effusion. Repeat thoracentesis was performed with relief of symptoms. A pigtail catheter was left in place after the procedure. Pathology results revealed a malignant sarcomatoid and myxoid neoplasm, not further classified. This was then confirmed by an outside thoracic pathologist. Hematology and oncology was consulted who deemed the malignancy to be stage IV due to the presence of the pleural effusion and adrenal thickening seen on subsequent CT of the abdomen. The patient was then referred to outpatient chemotherapy and was instructed to follow closely.

Discussion

PSC's are classified as non-small cell lung carcinomas (NSCLCs) with their defining characteristic of having components of connective tissue, thus making them sarcomas [1]. There are five subgroups of PSC that are identified as pleomorphic carcinoma, spindle cell carcinoma, giant cell carcinoma, carcinosarcoma, and pulmonary blastoma. Many diagnosed PSCs are unable to be further classified into one of these subgroups due to many tumors having features of more than one subgroup [2].

A majority of PSCs are found in males at a ratio of 4.4: 1 and smokers, as was the case with our patient [3]. They usually present in the same was as other NSCLCs with cough and dyspnea but the most specific symptom is hemoptysis which our patient did not have. With the addition of increased suspicion due to risk factors such as cigarette smoking further work is warranted. Initial CXR can many times show a mass but, as with our patient, any mass was obstructed by a pleural effusion. The next step in diagnosis is a CT scan of the chest which can show and localize the lesion [4]. PSCs have a tendency to originate wither centrally or peripherally in the right upper lobe (RUL). They can then invade the surrounding lung parenchyma and adjacent anatomical structures such as the pleura and mediastinum. The location of the tumor in our patient was atypical as it appeared to originate from the mediastinum. The final and definitive step in diagnosis is to obtain a tissue sample via a bronchoscopy, open or video-assisted thoracopic surgery (VATS), or percutanesous needle biopsy [1]. The mode of obtaining the sample depends on the location of the mass. In our case IR was able to successfully procure a sample by performing a CT- guided needle biopsy which provided a good enough yield to make a histologic diagnosis. Histopathologic diagnosis is based on light microscopy with multiple staining techniques. PSCs are normally positive for vimentin as are most other sarcomas [2]. This happened to be the case in outpatient.

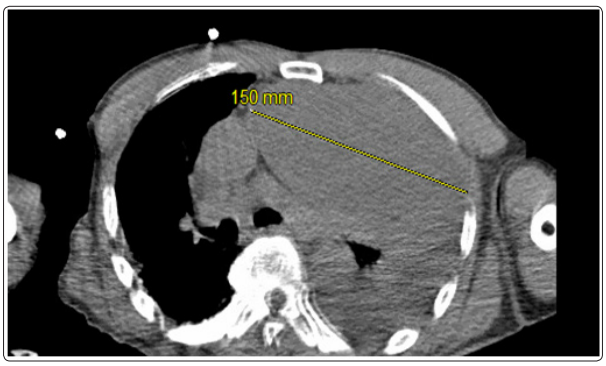

Figure 1: CT scan of chest showing sarcomatoid tumor

Conclusion

PSC is a rare subtype of non-small cell lung cancer. Options are limited, mainly due to the lack of evidence based medicine because the cancer is so rare [5]. The prognosis is affected by tumor size and M staging. Surgical resection and postoperative adjuvant chemotherapy has been shown in some case reports to result in a better prognosis [3].

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