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Case Report

Radiology Section

Atypical Presentation of Spindle Cell Carcinoma

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ABSTRACT

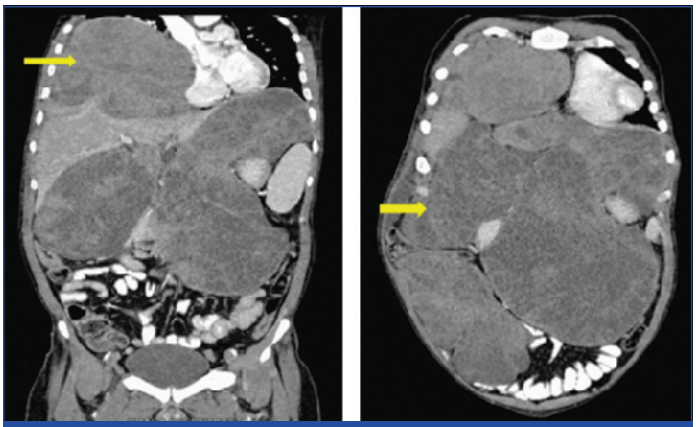
Spindle Cell Carcinoma (SCC) of the lung is a rare entity. Computed Tomography (CT) and histopathology forms the basis of diagnosis. Here, authors presented a case of a 30-year-old male patient who reported with complaints of painless abdominal swelling associated with shortness of breath and fever. The patient underwent Contrast Enhanced CT (CECT) of chest, abdomen and pelvis with percutaneous CT guided biopsy. The final diagnosis was SCC of lung with transdiaphragmatic spread to abdomen. This case is clinically significant as it depicts unusual spread of SCC presenting as thoracoabdominal mass.

Keywords: Biopsy, Sarcomatoid carcinoma, Transdiaphragmatic spread

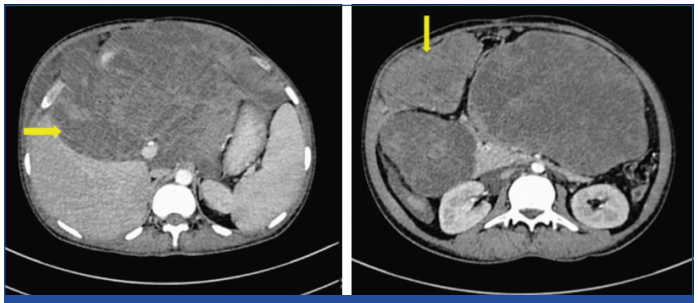
CASE REPORT

A 30-year-old male patient visited to the Department of Surgery, with a painless abdominal swelling gradually increasing in size, since three months. It was associated with shortness of breath and low-grade fever since one month. There was no history of similar episodes in the past and he was a non smoker and non alcoholic. No history of diabetes mellitus, hypertension and bronchial asthma were there. Physical examination revealed decreased breath sounds at the right pulmonary bases. Icterus, cyanosis and clubbing were not appreciated. Abdominal examination revealed a soft, non tender swelling in the right hypochondrium region.

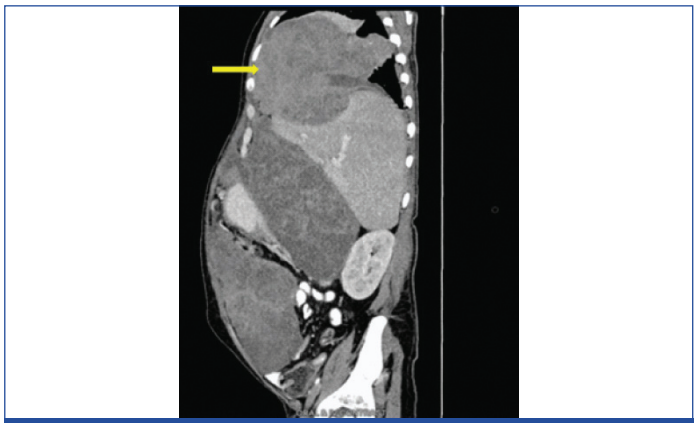
Patient underwent Contrast Enhanced Computed Tomography (CECT) of lower chest, abdomen and pelvis. The CECT [Table/Fig-1,2] showed a large heterogeneously-enhancing lobulated mass measuring 15×14×13.6 cm in the right hemithorax possibly, arising from the right lung and causing compressive atelectasis of the right middle and lower lobes as well as part of the right upper lobe. There was a cardiomediastinal shift to the left side and an intra-abdominal transdiaphragmatic extension across the right hemidiaphragm anteriorly. There was anatomic contiguity with a large lobulated abdominal mass spanning the peritoneal cavity as well as retroperitoneum. The latter measured approximately 25×27 cm demonstrated on coronal images [Table/Fig-3,4] with subcapsular extension and scalloping the superior and anterior margins of the liver and indenting the pancreas and stomach with a large component in the lesser sac. On sagittal image [Table/Fig-5], the mass was seen extending across the intercostal spaces. The suspected diagnosis of pulmonary lymphoma was made, although to differentiate it from other retroperitoneal sarcoma, biopsy was advised.



[Table/Fig-1]: Coronal Contrast Enhanced Computed Tomography (CECT) image showing a large heterogeneously enhancing lobulated mass in the right hemithorax with compressive atelectasis and mediastinal shift to the left and intra-abdominal transdiaphragmatic extension. **[Table/Fig-2]:** Coronal Contrast Enhanced Computed Tomography (CECT) image revealing the thoracic and abdominal component of the mass and compression of adjacent bowel loops. (Images from left to right)

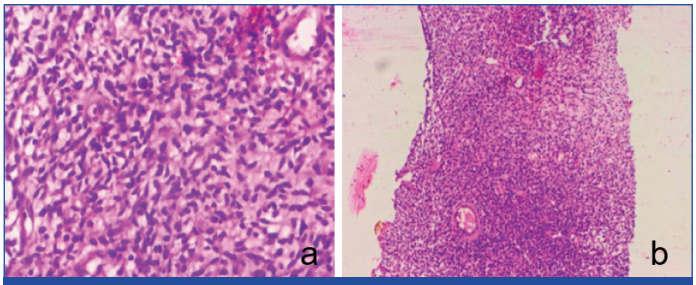


[Table/Fig-3]: Axial CECT image reveals lesion causing scalloping of liver margins, also indenting stomach and pancreas with a large component in lesser sac.
[Table/Fig-4]: Axial CECT image showing abdominal extension of mass lesion abutting the right anterolateral wall and involving the intercostal spaces. (Images from left to right)



[Table/Fig-5]: Sagittal Contrast Enhanced Computed Tomography (CECT) image demonstrating thoracic origin of lesion extending across the intercostal spaces.

To determine the histological nature of the mass, a percutaneous Ultrasound (USG) guided biopsy was performed. Histopathological examination [Table/Fig-6a,b], revealed elongated cylindrical uniform spindle cells and pale cytoplasm set in a collagenous stroma with cytological atypia and mitosis. Scattered thin walled prominent blood vessels and vascular haemorrhages were seen. Cellular areas mixed with areas showing myxoid stroma were appreciated. Based on the radiological and histological characteristics the final diagnosis of pulmonary SCC was made. Patient was referred to tertiary centre where he received neoadjuvant chemotherapy with cisplatin and vinblastine 80 mg/m^2 Intravenous (i.v.) at day 1 and day 22, after which patient died due to respiratory failure.



[Table/Fig-6]: a) Histopathological examination by haemotoxylin and eosin staining revealed elongated cylindrical uniform appearing spindle cells and pale cytoplasm set in a collagenous stroma with cytological atypia and mitosis.(H&E, 400X); b) Scattered thin walled prominent blood vessels and vascular haemorrhages were seen. Cellular areas mixed with areas showing myxoid stroma were appreciated. (H&E, 100X).

DISCUSSION

Sarcomatoid carcinoma is a heterogeneous group of tumours having no definite diagnostic criteria [1]. The World Health Organisation (WHO), classified sarcomatoid carcinoma, on the basis of histological features, into five major categories including pleomorphic carcinoma.

SCC, giant cell carcinoma, carcinosarcoma, and pulmonary blastoma [2]. SCC is a rare variety of sarcomatoid carcinoma consisting of spindle shaped tumour cells. According to the Surveillance, Epidemiology and End Results (SEER) Database (19732013), SCC was present in only 0.52% of all diagnosed cases of non spindle cell lung carcinoma [3]. These usually occur in the 35th decade of life with ages ranging from 31 to 75 years, with an average of 57.4 years. SCC occurs in the oral cavity, larynx, breast, kidney, uterus, conjunctiva, prostate, other organs, and occasionally in the lungs [4-7]. SCC has both malignant squamous cells and malignant spindle cells of epithelial origin. Three different theories have been proposed to explain histogenetic nature of spindle cells [8-10]:

1. First theory is that spindle cells and epithelial cells arise simultaneously from separate stem cells deserving the name collision tumour.
2. Second theory explains the nature of the spindle cell component as an proliferation of the stroma and hence called pseudosarcoma.
3. According to this theory, cells of both spindle and epithelial components have the same monoclonal origin and dedifferentiation or transformation to spindle cells has been occurred.

The aetiology is generally unknown, but in some studies, smoking showed a strong association with the incidence of SCC [11-13]. Multiple imaging modalities may provide an optimal assessment of these lesions, with biopsy representing the key step in diagnosis. Positron Emission Tomography (PET)/CT has a significant advantage in detecting metastatic lesions [14,15]. Positron Emission Tomography-Magnetic Resonance Imaging (PET-MRI) can also be used in detection of distant spread of the tumour.

SCC commonly presents as a peripheral lesion which in this patient was associated with trans diaphragmatic spread in the abdominal cavity. A study revealed on Immunohistochemistry (IHC) SCC showed strong positive reactions for cytokeratin and vimentin and negative reactions for desmin, S100 protein, asmooth muscle actin, and CD34 [16]. A 75% of the lung sarcomatoid cancers (pleomorphic, spindle cell, giant cell) are positive for PD-L1. The treatment of choice is surgical resection followed by neoadjuvant/adjuvant chemotherapy. The prognosis of SCC is poor. In the case series of 11 patients by Qi DJ et al., only three patients out of 11 had a survival of more than two years [16]. The 5 year survival rates of patients with SCC, at slightly more than 20%, are similar to those patients with SCC [17].

CONCLUSION(S)

The present case report of SCC exhibits atypical presentation of thoracoabdominal mass. Radiological and histopathological findings were elucidated, affirming it to be SCC of lung with transdiaphragmatic spread. This case was clinically significant as it depicts unusual spread of SCC presenting as thoracoabdominal mass.

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