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Case report

Pulmonary spindle cell carcinoma with hemothorax: A rare case report

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ABSTRACT

Background: Pulmonary spindle cell carcinoma is a type of variant sarcomatoid carcinoma, which is a very rare case.

Case presentation: A 53-year-old male presented with weakness, 95% oxygen saturation with nasal cannula 3 L/min, asymmetric chest movement, and problem in the right lung (dull to percussion, and low vesicular auscultation). X-ray and CT-Scan supported hemothorax and lung malignancies in the right lung. The patient had a chest drain inserted which confirmed the hemothorax and was transferred to the operating room for emergency thoracotomy to stop the bleeding. Bleeding was still massive so re-thoracotomy and lobectomy were performed. The lung tissue was examined for anatomical pathology, and the results showed spindle cell carcinoma. The patient was given pemetrexed and carboplatin chemotherapy. The patient refused to continue therapy and died 3 months after the first chemotherapy.

Discussion: Immunohistochemistry markers are the parameter for diagnosis of pulmonary spindle cell carcinoma that is highly positive for pan-cytokeratin, vimentin, and Ki67. The treatment is similar to other NSCLC, depending on the staging, and may include surgical resection, chemotherapy, and radiotherapy.

Conclusion: Pulmonary spindle cell carcinoma is very rare and has a poor prognosis, especially in the presence of hemothorax.

1. Introduction

Pulmonary spindle cell carcinoma is an NSCLC and a type of variant sarcomatoid carcinoma, which is a very rare case [1]. Spindle cell carcinoma has a prevalence of about 4.5–30.2% of all sarcomatoid carcinomas and represents only 0.4% of all primary lung malignancies. Demographically, the incidence is most commonly found in men compared to women (4:1). The mean age at diagnosis of spindle cell carcinoma is ±62.5 years, with an age group of 30 years to 80 years. The risk factors are smoking and the effects of exposure to pollutants [2]. Hemothorax in spindle cell carcinoma can occur due to the process of angiogenesis tumor compression in the intercostal arteries and coagulopathy disorder [3]. In this case report, we presented the case of a 53-year-old-male with a diagnosed right hemothorax and lung malignancies. We reported based on the surgical case report (SCARE) 2020 guideline [4].

2. Case presentation

A 53-year-old male complained of weakness and shortness of breath for two weeks, worsened one day before being hospitalized, chronic cough, decreased appetite, and loss of weight. The history of smoking was one pack per day for twenty-five years. There was no history of using anti-tuberculosis drugs, hypertension, diabetes mellitus, heart disease, and asthma. Physical examination was Glasgow coma scale (GCS) of 15, blood pressure of 110/70 mmHg, pulse rate of 110 ×/min, the respiration rate of 26 ×/min, the body temperature of 37.5 °C and SpO_2 of 95% with nasal cannula 3 L/min. The inspection revealed intercostal retractions, widening of the intercostal space on the right hemithorax, no collateral veins, and left asymmetrical right lung expansion. On palpation, there was decreased tactile fremitus in the right hemithorax. Dullness percussion on the right hemithorax. From auscultation, vesicular breath sounds decreased in the right hemithorax.

The patient had a decrease of Hb (8.0 g/dL). The chest X-ray showed homogeneous opacity in the lower 1/3 of the right hemithorax (Fig. 1). Right hemithorax pleural puncture revealed hemorrhagic and the

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pleural fluid analysis was Hb of 5 g/dL. CT scan of the thorax with contrast represented the consolidation in the center of the right lung which showed enhancement on contrast administration, size 16 × 9 × 6.5 cm suspicious of the right lung mass, subcentimeter lymph nodes in the left supraclavicular, lower paratracheal, and right peribronchial (Fig. 2). The patient put on a chest tube (water seal drainage/WSD) and the fluid looked like blood. The patient then underwent an open thoracotomy in the right hemithorax to stop the bleeding [5]. Bleeding was still massive so re-thoracotomy and lobectomy were performed. The lung tissue was examined for anatomical pathology (Fig. 3). The pathological anatomy examination of dextra superior et medius lung preparations with the conclusion of spindle cell carcinoma (Fig. 4). Immunohistochemical examination about vimentin (+) indicated spindle cell antibodies.

The results obtained were spindle cell carcinoma. The patient was given pemetrexed and carboplatin chemotherapy. The patient refused to continue therapy and died 3 months after the first chemotherapy.

3. Discussion

Pulmonary spindle cell carcinoma has nonspecific clinical symptoms and radiologic imaging similar to other lung cancers. Most cancer patients present after stages 3 and 4 or already have symptoms that interfere with the patient's activities. Shortness of breath, possibly persistent cough and sometimes accompanied by coughing up blood (hemoptysis), chest pain, voice changes, hoarseness, or loss of voice, changes in appetite leading to weight loss, individual fatigue, and headaches [6,7].

Radiologically, spindle cell carcinoma of the lung appears as a single large lesion, measuring 2 cm to 18 cm, often located peripherally in the middle lobe. Vascular invasion of spindle cell carcinoma is common in 40–70% of cases. The preoperative diagnosis of spindle cell carcinoma is unknown in almost 60% of these cases due to the varying morphological numbers, therefore diagnosis is very difficult if only by sampling via FNAB. Surgery is an option to get a larger number of samples. Macroscopically, central necrosis and hemorrhage in spindle cell carcinoma of the lung are larger than 5 cm [2].

Histologic characteristics of spindle cell carcinoma are homologous biphasic sarcomatoid carcinoma. Sarcomatoid areas in some biphasic spindle cell carcinoma contain numerous, cytologically bland, osteoclast-like giant cells. In another variant histologic pattern, bluntly spindled tumor cells surround discrete zones of necrosis, imparting a necrotizing granuloma-like aspect to a portion of the proliferation. Immunohistochemistry markers are the parameter for a definitive diagnosis, that highly positive for pan-cytokeratin, vimentin, Ki67 with a mixture of monoclonal antikeratin antibodies (AE1/AE3, EMA EMA, CK) [7,8].

The treatment is similar to other NSCLC, depending on the staging, and may include surgical resection, chemotherapy, and radiotherapy. Pulmonary spindle cell carcinoma response to pemetrexed and carboplatin [1,7,9]. Hemothorax can aggravate the condition of pulmonary carcinoma patients. Spindle cell carcinoma is an aggressive tumor. Hemothorax in spindle cell carcinoma can occur due to the process of malignant angiogenesis, pulmonary infarction, necrotizing lung infection, hemopneumothorax, and coagulopathy disorders. The survival rate of spindle cell carcinoma patients is about five years, slightly shorter than other types of NSCLC [10,11].

4. Conclusion

A 53-year-old male presented with right hemothorax and lung malignancies. Pulmonary spindle cell carcinoma is very rare and has a poor prognosis. Hemothorax is a complication that worsens the condition so that it requires simultaneous therapy.

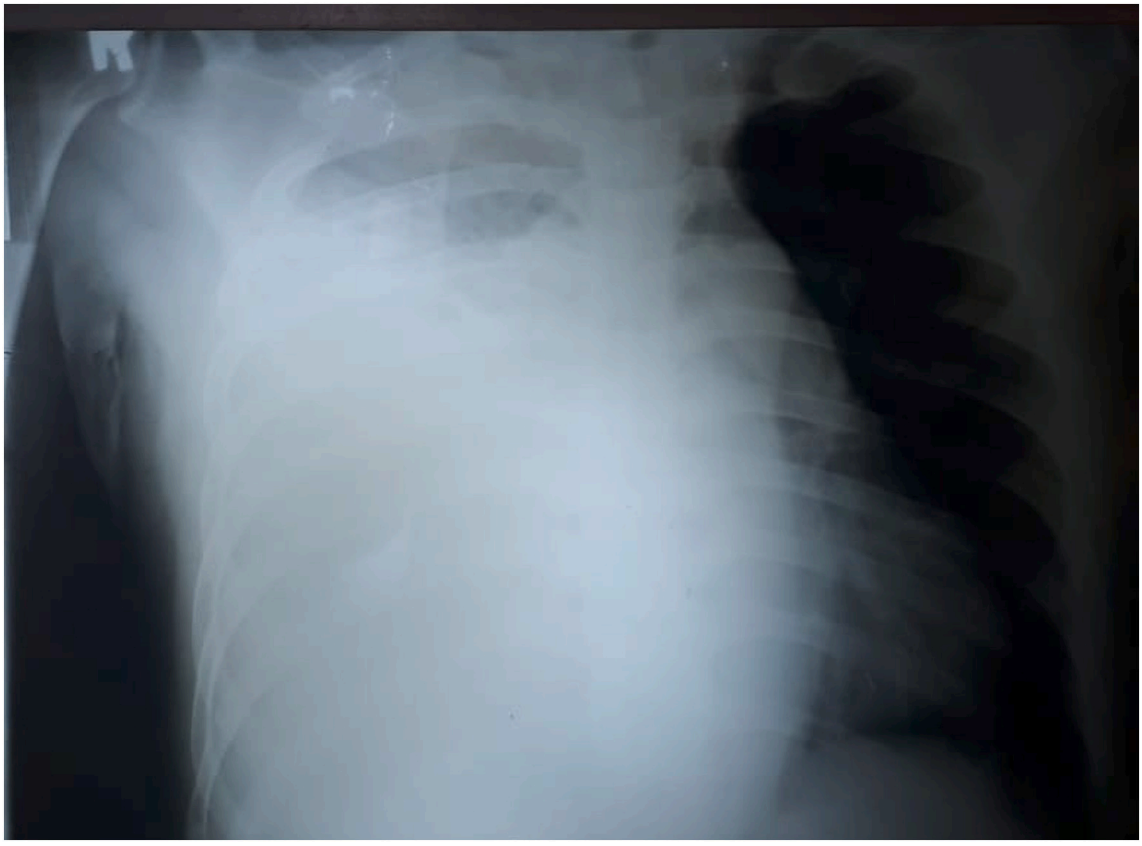

Fig. 1. Chest X-ray with homogenous opacity in the right hemithorax.

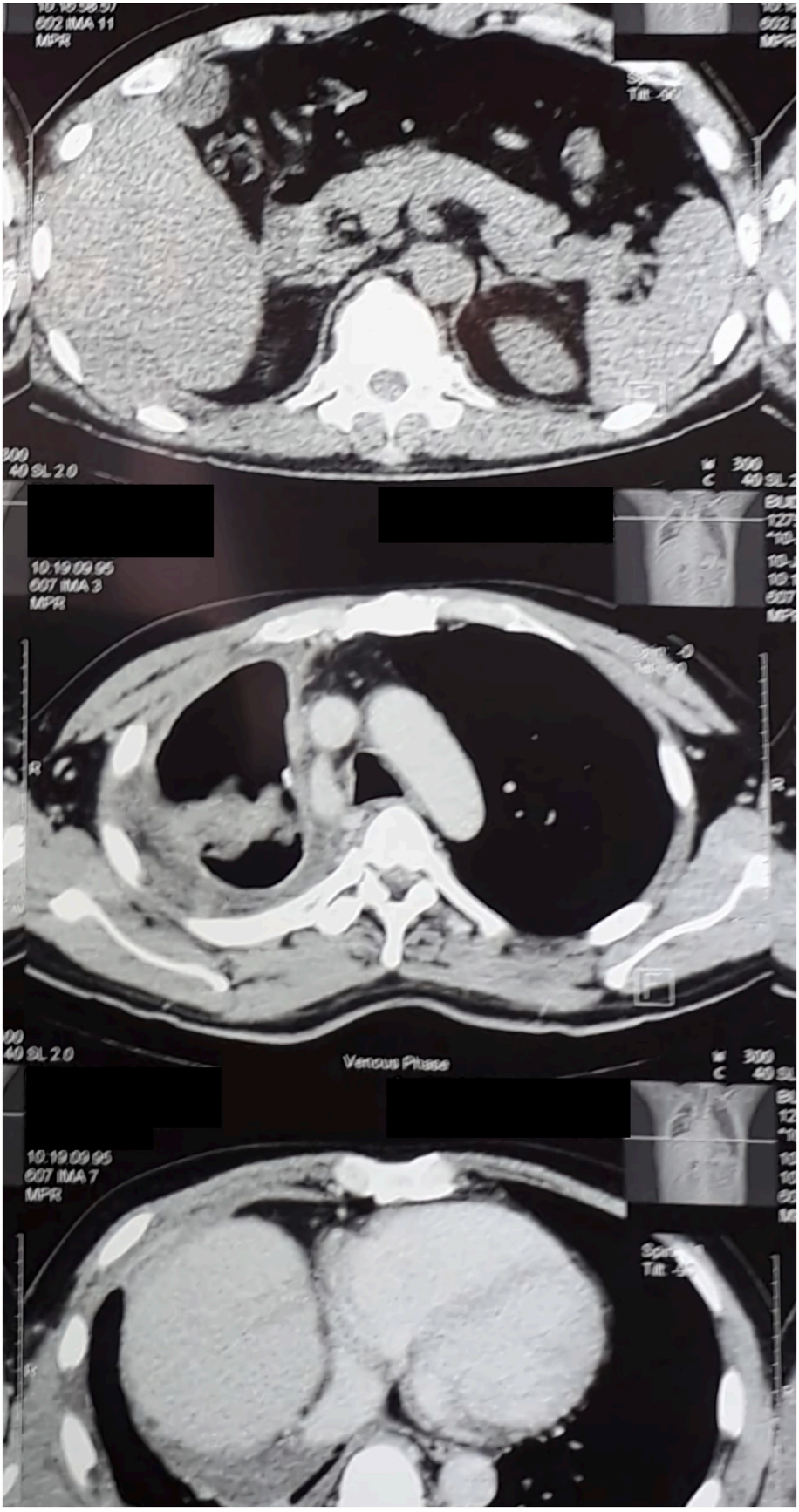

Fig. 2. Right lung mass in CT-Scan thorax with contrast.

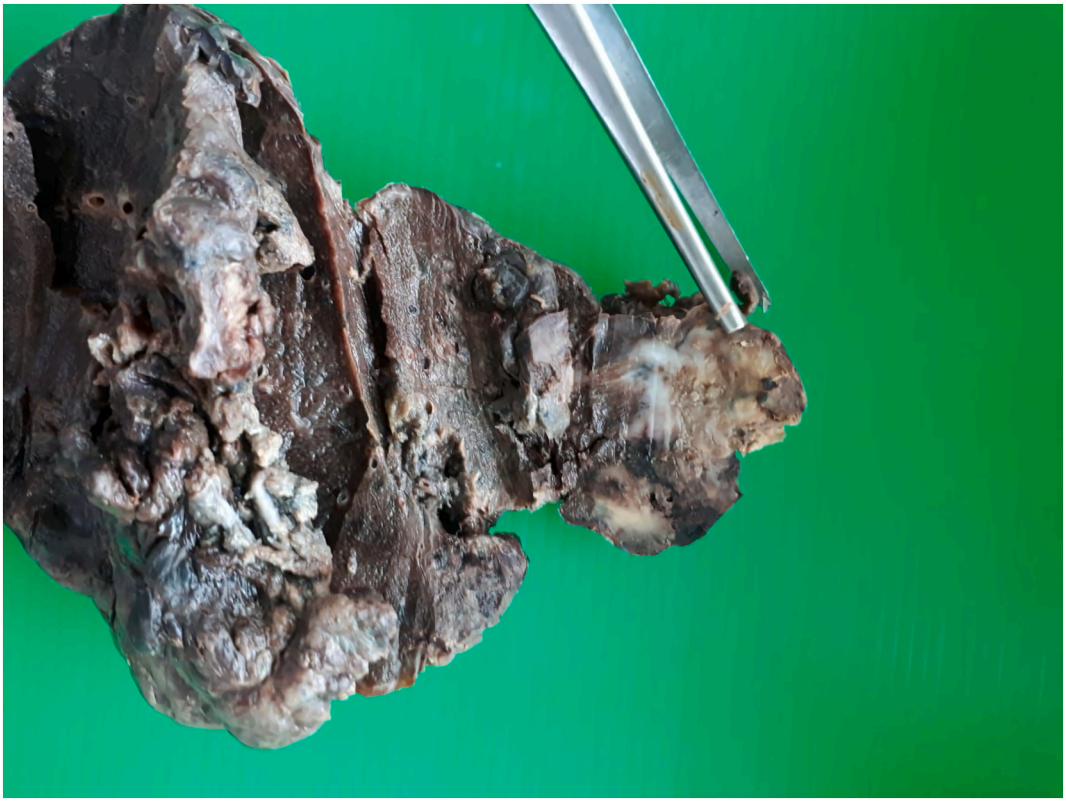

Fig. 3. Gross of tumor tissue.

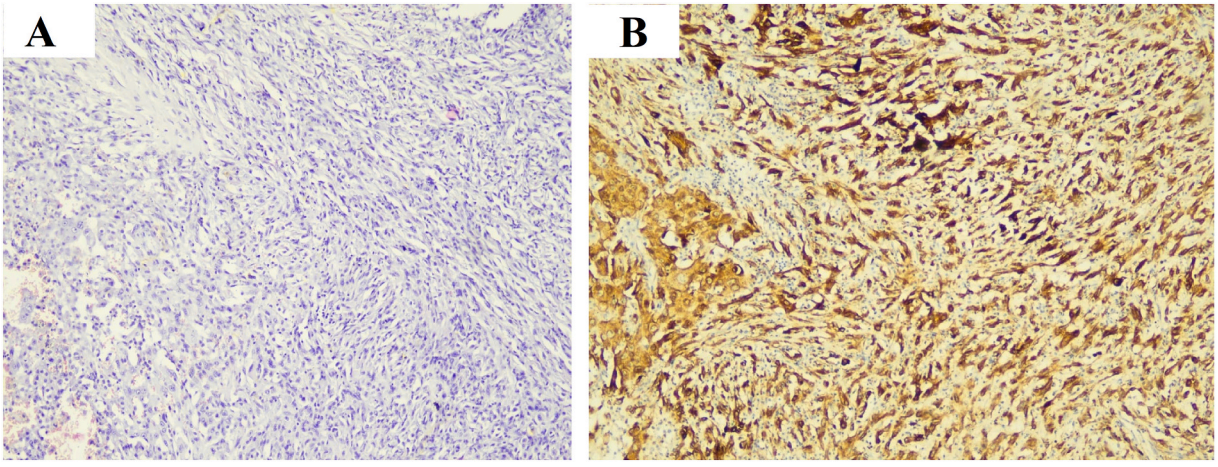

Fig. 4. Histopathologic of pulmonary spindle cell carcinoma.

Consent

Written informed consent was obtained from the guardian/patient family for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Guarantor

Arief Bakhtiar is the person in charge of the publication of our manuscript.

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All authors contributed toward data analysis, drafting and revising the paper, gave final approval of the version to be published and agree to be accountable for all aspects of the work.

Conflict of interest

Reagen Irwan Kolibu and Arief Bakhtiar declare that they have no conflict of interest.

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