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CASE REPORT

Huge Carcinosarcoma of Lung Presenting as an Intra-Abdominal Mass

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We report a case of huge carcinosarcoma of lung initially presenting as an intra-abdominal mass: treatment with enucleation of the firm sarcomatous component followed by pulmonary resection. A 65-year-old man with mild mental retardation who smoked one pack of cigarettes per day until 1-month before he was admitted to our hospital complaining of a progressively poorer appetite, vomiting and an abdominal mass at the left upper quadrant region. Physical examination revealed a palpable mass over the left upper abdomen with percussion dullness of the lower hemithorax. Chest radiograph revealed a homogeneous mass lesion in the left lower lung field with obliteration of the costophrenic angle. Computed tomography scans of the chest disclosed a huge mass over the left lower thorax and upper abdomen with compression of the heart and shift of the esophagus and descending aorta to the midline. Sono-guided aspiration biopsy cytology revealed squamous cell carcinoma. Surgical intervention with enucleation of the very firm sarcomatous component with fragmentation followed by radical lobectomy. Chemotherapy was planned as adjuvant therapy in the postoperative period, but the patient's family declined it. The patient is currently survived without tumor recurrence 14 months after surgery. Our case revealed a huge tumor not only mediastinal compression but also initial presenting abdominal symptoms. Initially, from the symptoms and nonbiopsy study, we were unable to determine exactly if it was an intrathoracic tumor or an intra-abdominal tumor. This case highlights the importance of remaining clinically vigilant to differentiate an unusual tumor mass, and preoperative tissue proof is warranted.

Key words: Carcinosarcoma, lung, enucleation, lobectomy

INTRODUCTION

Carcinosarcoma of the lung has been defined as a rare biphasic tumor composed of an admixture of malignant epithelium (usually squamous cell) overlying a sarcomatous stroma[1] (usually a spindle cell type). In 1961, Moore[2] categorized it into two types: (1) central endobronchial type with limited infiltration having a relatively good prognosis and (2) peripheral invasive type which is more aggressive and has a poor prognosis. Carcinosarcoma accounts for about 0.2% incidence of all lung cancers and occurs most frequently in males who are heavy smokers in their fifth or sixth decades of life.[3] The histogenesis and biologic manifestation of pulmonary carcinosarcoma have engendered much controversy over the years. Since pulmonary carcinosarcoma was initially described, it has been the subject of case reports or small series reflecting the relative rarity of these tumors.[4] Here, we report a huge carcinosarcoma of lung initially presenting as an intra-abdominal mass treated initially with volume reduction by enucleation of the firm sarcomatous component followed by pulmonary resection.

CASE REPORT

A 65-year-old man with mild mental retardation who smoked one pack of cigarettes per day until 1-month before he was admitted to our hospital complaining of a progressively poorer appetite, vomiting, body weight loss, and an abdominal mass at the left upper quadrant region.

Physical examination revealed that the patient looked chronically ill, had cachexia, was 170 cm tall, and weighed

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39 kg. A palpable mass over the left upper abdomen with percussion dullness of the lower hemithorax was found. Inspiratory crepitation with an increase in the transmission of vocal vibrations in the same area was also noted.

Chest radiograph [Figure 1a] revealed a homogeneous mass lesion in the left lower lung field with obliteration of the costophrenic angle. Computed tomography scans of the chest [Figure 1b and c] disclosed a huge mass over the left lower thorax and upper abdomen with compression of the heart and shift of the esophagus and descending aorta to midline and diffuse emphysematous change in the rest of the lungs. There was no evidence of cavitation, calcification or adenopathy of the mediastinal or hilar lymph nodes.

Bronchoscopy did not show evidence of an endobronchial growth or bronchial compression by extrabronchial tumor. Sono-guided thin needle percutaneous biopsy showed a huge mass with heterogeneous echogenicity and aspiration with a cytology report of squamous cell carcinoma. Carcinoma of the lung was first impressed, and additional studies, including liver sonogram and whole body bone scan, did not reveal significant abnormalities, pulmonary function test was forced expiratory volume 1 (FEV1): 1.25 L and FEV1/forced vital capacity: 65% and mildly obstructive ventilatory impairment was noted. Perfusion scan revealed the left lung only had a 29.5% perfusion ratio.

Surgical intervention was performed beginning with a posterolateral thoracotomy with the removal of the 6th rib. Lung cancer of the lower lobe was immobilized due to a huge, firm mass, so the pleural space was entered with an additional incision in the 9th intercostal space (ICS) [Figure 2a]. The large tumor occupied nearly total left hemidiaphragm. In the operative finding, it revealed no direct invasion to diaphragm but only adhesion onto the surface. Hence, we removed the tumor by careful adhesion lysis. Initial enucleation of the very firm sarcomatous component with fragmentation followed by radical lobectomy was performed without complication.

The specimen weighed 1530 g and was about 21cm × 9cm × 7cm. A large light yellow to gray-tan tumor with multiple sections, up to 18cm × 7cm × 5.7cm [Figure 2b], was noted 5 cm distal to the bronchial cut end. The tumor had invaded the visceral pleura and infiltrated some descending aorta adventitia and the posterior chest wall. No tissue necrosis, pus, or hemorrhage was noted. Light microscopy confirmed a diagnosis of carcinosarcoma (squamous cell and spindle cell). Tumor cells in the lung are mostly spindle cell tumors and are negative for actin M851, desmin, calretinin and S-100 protein and focal positive for epithelial membrane antigen and AE1/AE3. Small amounts of chondroid elements and epithelial components were noted in the main tumor [Figure 3a and b]. The metastatic tumor in the hilar lymph was composed of the almost purely carcinomatous element and presented a typical microscopic view of poorly-differentiated squamous cell carcinoma [Figure 3c].

The postoperative course was uneventful. Chemotherapy was planned as adjuvant therapy in the postoperative period, but the patient's family declined it. The patient is currently survived without tumor recurrence 14 months after surgery.

DISCUSSION

Carcinosarcoma, first described by Virchow,[5] has been increasingly observed in the breast, lung, gastrointestinal, and genitourinary tract and most commonly in the female genital tract.[6] The lung is the fourth-most common site for carcinosarcoma.[7] In spite of the many ultrastructural and microscopic studies that have been done, controversial histogenesis[8] has persisted as follows: (1) Virchow (1864) considered connective tissue to be metaplasia of epithelial cells; (2) Herxheimer's (1912) opinion was that a carcinoma induces a malignant change in the stroma; (3) Meyer (1951) defined the theory of a "collision tumor" with simultaneous epithelial and stromal malignancy; (4) Prive (1961) described the theory of malignant change in hamartoma; and (5) Edwards (1979) questioned carcinomatous change in a sarcoma. Epithelial elements of pulmonary carcinosarcoma are composed of squamous cell carcinoma, adenocarcinoma, and undifferentiated large cell carcinoma. Small cell carcinoma has not been reported. Sarcomatous elements are

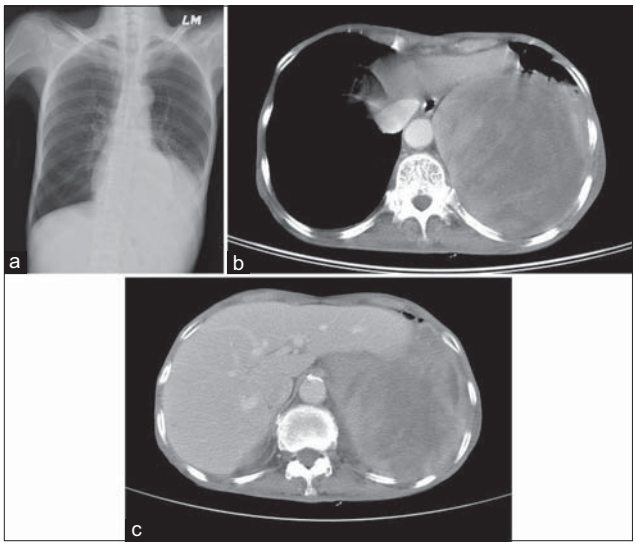

Figure 1: (a) A homogeneous mass in the left lower lung field with obliteration of the costophrenic angle. (b) A huge mass over left lower thorax with compression of the heart and shift of the esophagus and descending aorta to midline. (c) A huge mass extending into left upper abdomen

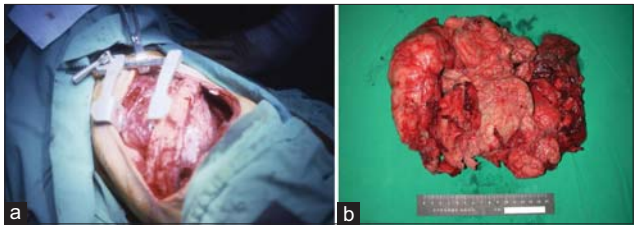

Figure 2: (a) A posteriolateral thoracotomy with removal of 6th rib and additional incision in the 9th intercostal space. (b) A large light yellow to gray-tan tumor with multiple sections, up to 18 cm × 7 cm × 5.7 cm

mostly composed of fibrosarcoma, and the other components include malignant fibrous histiocytoma, rhabdomyosarcoma, chondrosarcoma, and leiomyosarcoma.[9]

In most tumors, equal proportions of carcinomatous and sarcomatous elements have been observed. Occasionally, this balance has been strikingly altered.[3] Our case disclosed almost entirely sarcomatous tissue with poorly differentiated and predominant spindle cells. The gross tumor was a single, well-circumscribed, very firm sarcoma without necrosis or hemorrhage. Most large tumors have not been treated specifically and have usually been found by autopsy or necroscopic analysis. Resected cases in the literature have the largest tumor size up to 12 cm in diameter. In this case, we tried to reduce the huge, immobilized lung tumor volume by enucleation of the firm sarcomatous part with fragmentation followed by radical lobectomy, and then, we successfully removed the 18 cm lung tumor.

Carcinosarcoma cannot be differentiated preoperatively from other malignant tumors of the lung by radiography, bronchoscopy, or even intraoperative examination. Preoperative diagnosis was not always accurate but was acceptable for the thoracic surgeon. Clinical symptoms depend on the size and localization of the tumor. Peripheral localization can be asymptomatic for a long time, but tends to be more aggressive and progresses more rapidly than the endobronchial type.[2] Our case revealed not only mediastinal compression but also initial presenting abdominal symptoms which were not reported in any previous series. Initially, from the symptoms and nonbiopsy study, we were unable to determine exactly if it was an intrathoracic tumor or an intra-abdominal tumor (such as leiomyosarcoma of the small intestine). Because preoperative confirmation of the malignant nature of the tumor is sometimes difficult, preoperative tissue proof is warranted.[10]

Surgical resection remains the treatment of choice as with non-small cell lung cancer. Although some authors have considered the prognosis for carcinosarcoma to be more optimistic than for carcinoma,[11] most reports state its outcome has been quite poor. Most patients have recurrent lesions

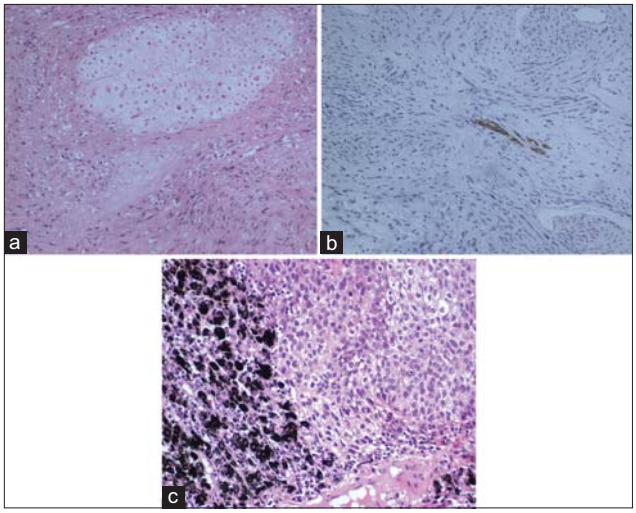

Figure 3: (a) Little amount of chondroid elements in the main tumor of lung. (H and E stain, ×100). (b) Scarce epithelial component in the main tumor of lung. (H and E stain, ×100) (c) Poorly-differentiated Squamous cell carcinoma is purely distributed over the metastatic tumor in hilar lymph node. (H and E stain, ×200)

usually found in the adrenal gland, kidney, bone, brain, and small bowel.[12] The average postoperative survival is 9 months and fewer than 10% survived more than 2 years.[3] For metastatic carcinosarcoma, doxorubicin has shown activity both in lung carcinoma and in sarcoma, so a multi-agent program with doxorubicin-based chemotherapy containing cisplatin seems to be a reasonable consideration.[3]

CONCLUSION

In summary, a huge lung tumor can present not only mediastinal compression but also initial presenting abdominal symptoms. Because preoperative confirmation of the malignant nature of the tumor is sometimes difficult, careful examination is warranted. Preoperative tissue proof could possibly help determine the origin of the tumor and thus the appropriate operative approach.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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