

A RARE CASE OF COMBINED SMALL-CELL LUNG CANCER WITH UNUSUAL SOFT TISSUE METASTASIS

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Combined small-cell lung carcinoma (SCLC) is a rare tumor. We report a case of combined SCLC of the lung, including adenocarcinoma and spindle-shaped cell tumor, with an unusual initial presentation. The patient suffered from a right shoulder mass, subsequently undergoing biopsy. A lung nodule was noted later after complete examination. The diagnosis turned out to be combined cell carcinoma with three different components (small-cell carcinoma, adenocarcinoma, and spindle-shaped cell tumor) after examination upon total removal of the lung nodule by lobectomy. In addition to the rarity of the three components in such a tumor, soft tissue metastasis also made it an unusual case.

Key Words: combined small-cell lung carcinoma, lung cancer,
soft tissue metastasis, spindle-shaped cell tumor
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Small-cell lung carcinoma (SCLC), accounting for 20–25% of lung cancers, remains one of the most frequently diagnosed cancers and the most common causes of cancer death worldwide [1–5]. It differs from other cell types of lung cancer in its unique propensity for early and widespread hematogenous spreading and its sensitivity to chemotherapy and radiotherapy. Combined SCLC, the combination of small-cell carcinoma and non-small-cell components in a tumor, is a rare variant with a frequency of only 1–3% in SCLC [6–8]. The rarity and heterogeneity of the tumor

make the identification of combined SCLC difficult by routine biopsy specimens, unless it involves extensive sampling and is examined by an experienced pathologist [6–9]. Here, we report a case of combined SCLC with three histologic components, presenting with right shoulder soft tissue metastasis.

CASE PRESENTATION

A 54-year-old male patient suffered from a painless right shoulder mass in February 2002. One month later, he went to the hospital for help due to progressive enlargement of the lesion (about 2 cm in diameter). Under first impression of a benign soft tissue tumor, an excisional biopsy was performed. However, a pathologic report showed an undifferentiated carcinoma with some spindle-shaped change. Further

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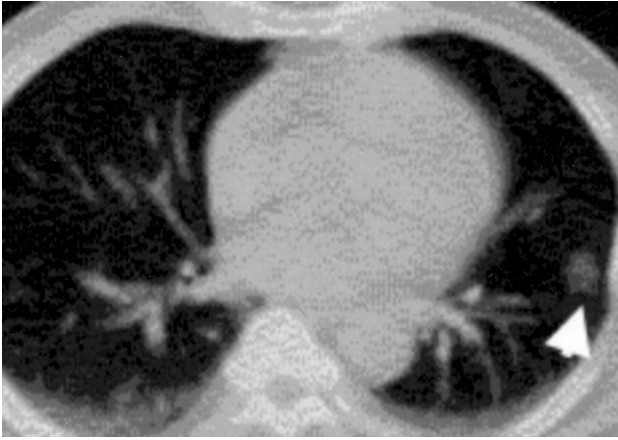


Figure 1. Chest computed tomography scan showing a single nodule over the left lower lung field (arrowhead).

studies including chest images, gastroendoscopy, and examination of head and neck areas were performed with only the discovery of a single nodule over the left lung. He was transferred to our hospital for further management.

Serial examinations were then performed including bone scans, abdomen echo, and gastrointestinal fibroscopy. No lesions were found, except for a lung nodule (3×2cm) over the left lower lung field (Figure 1). Tumor markers showed only mild elevation in serum carcinoembryonic antigen (CEA) of 7.09 ng/mL (normal, 0–5 ng/mL). Lobectomy was prescribed with total lung nodule excision by thoracoscopy. The biopsy sample showed prominent small-cell carcinoma (90%) combined with adenocarcinoma (10%) and focal spindle-shaped cell tumor (Figure 2). In immunohistochemistry, positive tests were found for cytokeratin, neurospecific enolase (NSE), S-100, synaptophysin, chromogranin, and focal positive for vimentin over the spindle-shaped area. The soft tissue sample from the shoulder was further examined by the consultation board of the Taiwan Society of Pathology, and the same diagnosis for the lung nodule was concluded with a final diagnosis of combined SCLC with soft tissue metastasis.

DISCUSSION

SCLC is maintained as a separate subtype of lung cancer because of its relatively common occurrence and its clinical distinction among lung cancers [1–5].

The classification of SCLC by histologic appearance had two subtypes according to Kreyberg's 1962 categorization: oat cell and polygonal cell [2,5]. In 1981, the WHO classification first introduced combined SCLC as one of the four subtypes of SCLC and defined it as "small-cell carcinoma combined with an additional component". In 1999, the WHO/IASLC classification subtyped SCLC into only two groups: SCLC and combined SCLC. In our case, the combination of small-cell carcinoma, adenocarcinoma and spindle-shaped cell tumor in the tumor made it combined SCLC with three rare components.

Combined SCLC is a rare tumor with an incidence of about 1–3% of SCLC cases [6–8]. Not only the low incidence rate but also the inadequate specimen taken by routine biopsy makes it difficult to properly diagnose [9]. High rates of misdiagnosis are noted in this type of tumor unless adequate samples are taken and followed by a thorough examination [6–9]. In addition, changing of histologic pictures during the treatment period and different lymph nodes metastasized by different cell types also make diagnosis more challenging [10,11]. All these factors hinder a precise diagnosis of combined SCLC. As in our case, it was difficult to make a final diagnosis until the whole lung nodule was removed and thoroughly examined. This highlights the need for extensive sampling in this type of lung tumor and the need for a thorough histologic examination.

It is also rare to have three components, including small-cell carcinoma, adenocarcinoma, and spindle-shaped cell tumor in one tumor. In combined SCLC, the most frequent components other than small-cell carcinoma are squamous-cell carcinoma, and adenocarcinoma [6–8]. The spindle-shaped cell tumor is also rare in combination [8]. Earlier studies have demonstrated that the heterogeneity of combined SCLC significantly affects prognosis, especially with a tumor containing sarcomatous/spindle-shaped cell components [12–14]. However, other reports have concluded that there are no differences in the clinical behavior and prognosis between pure SCLC and combined SCLC, making the initial stage the most predictive factor [6–8]. In addition, the patient had a unique presentation with early soft tissue metastasis, which is also uncommon in the clinical presentation of SCLC [7,8,12]. The soft tissue metastasis in this case also implies a disseminated condition, possibly contributing to the relapse.

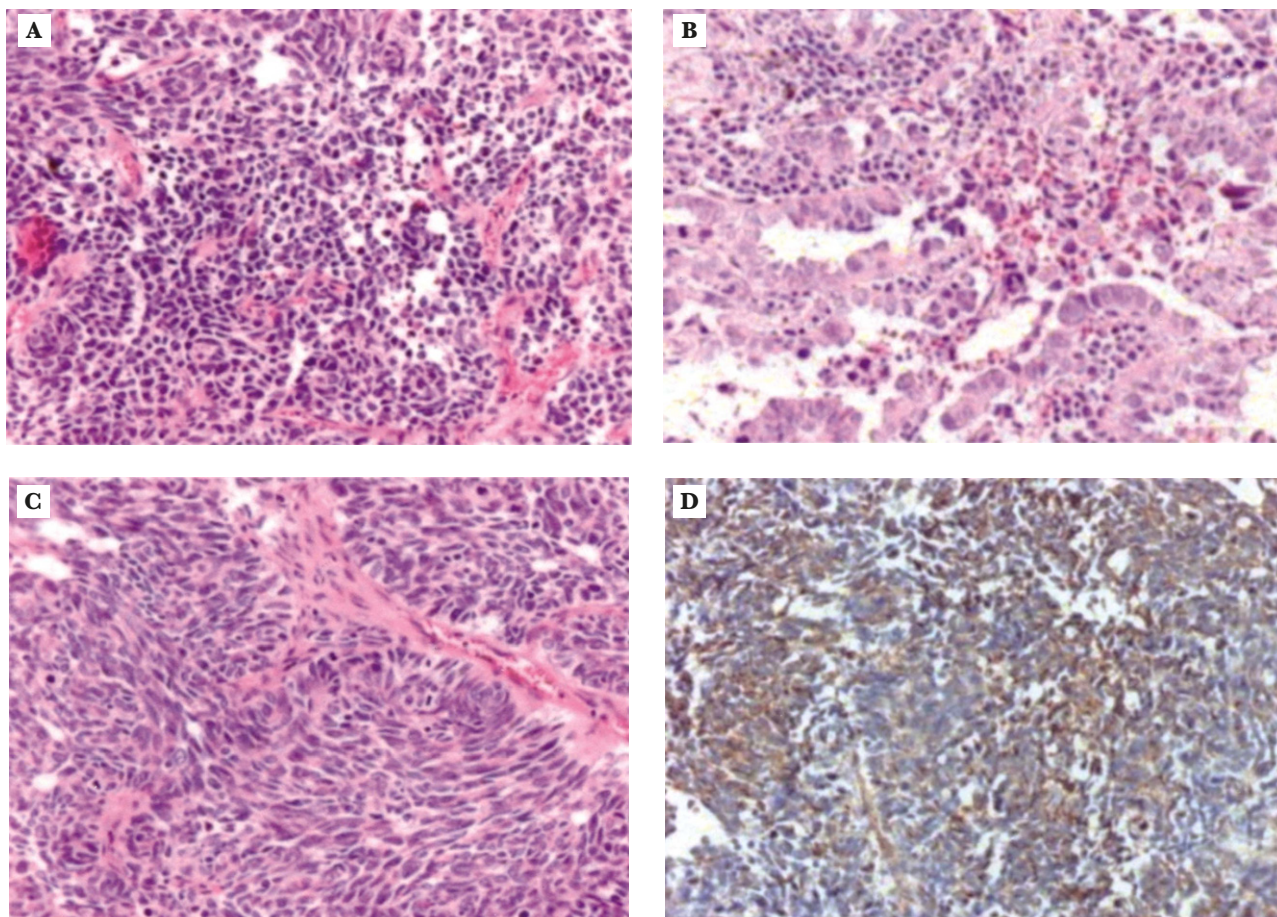


Figure 2. Histology pictures. (A) Histology of the lung nodule specimen by hematoxylin–eosin stain showed prominence of infiltrating small round cells. (B) Small-cell carcinoma mixed with adenocarcinoma of a glandular structure (lower part). (C) Small-cell carcinoma mixed with a spindle-shaped cell tumor of sarcomatous change (middle part). (D) Focal positive on vimentin stain was noted over the spindle-shaped cell area. (A–D, original magnification 200 \times .)

Extrapulmonary small-cell carcinoma, which is a tumor arising from extrabronchial sites, is a rare tumor and should also have been considered in this patient since the soft tissue was the first site recognized to have small-cell carcinoma [15–17]. However, the final diagnosis was not extrapulmonary small-cell carcinoma because we found the same tumor from the lung soon after. The new finding suggests that the case was not an extrapulmonary small-cell carcinoma and supports the diagnosis of SCLC. This result also stresses the need for a careful survey of the chest before drawing final conclusions in such patients.

In summary, we report a case of SCLC with three components: small-cell carcinoma, adenocarcinoma, and spindle-shaped cell tumor. These three

components, in particular, the spindle-shaped cell tumor, along with soft tissue metastasis, are very rare.

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一個以軟組織轉移為表現的罕見 合併型小細胞肺癌

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合併型小細胞肺癌是一種罕見的合併小細胞癌及其他成份的腫瘤。我們提出一個含有小細胞癌、腺癌及紡錐型腫瘤三成份的合併型小細胞肺癌病例及其不尋常的軟組織轉移表現。此病患一開始於右肩有一腫塊，並於檢查後發現肺部有一結節。經以肺葉切除術將整個肺結節切除後發現，此為含有三種成份 (小細胞癌、腺癌及紡錐型細胞腫瘤) 的合併型小細胞肺癌病例。除了三種成份的腫瘤少見以外，此一病患以軟組織轉移來表現也是少見。

關鍵詞：合併型小細胞肺癌，肺癌，軟組織轉移，紡錐型腫瘤
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