Small Cell Carcinoma of Lung with Unusual Calcification: a case report

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Calcification in lung lesions is an important assessing factor and usually indicates a benign entity. Review of the present literature shows that reported cases of calcified small cell lung cancer are uncommon and still rare. We present herein a case of small cell lung carcinoma with unusual amorphous calcification.

Key words: **Lung Calcification; Lung Neoplasms; Lung Neoplasms, CT**

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Calcium deposition in a pulmonary nodule usually indicates a benign lesion, especially when the pattern is of the popcorn, diffuse, laminated or central type [1-2]. However, calcification within primary lung cancer has also been reported [3-6]. One retrospective study of 353 patients with CT records for initial evaluation of lung cancer revealed 20 cases (6%) with intratumor calcifications [3]. Of the reported cases of calcified lung cancer in English literature, calcified small cell lung cancer is even more rare. We report a case of small cell lung cancer with intratumoral calcification.

CASE REPORT

A 47-year-old man with habitual smoking habit (2 packs per day for a duration of more than 30 years) had progressive productive cough for about 2 months. Besides smoking, the patient regularly chew 6-8 betel nuts per day for about 20 years. He also suffered from poor appetite for 2 months and body weight loss (loss 3 kilograms in 4 months). A chest radiograph (Fig. 1) showed a lobulated mass with tiny calcified nodules in the left lower field. Unenhanced axial CT images (Fig. 2) of his chest revealed amorphous calcification in the tumor. There was neither associated enlarged lymphadenopathy nor pleural effusion. Consolidative patch at the left posterior basal segment was noted, which may be diagnosed as associated obstructive pneumonia. The mass measured about 7.7cm x 8.5cm x 8cm in size at the left hilum and left lower lobe. The abdominal sonography showed liver cirrhosis related to Hepatitis B. The initial laboratory data of the patient during hospitalization showed the followings: Hemoglobin: 11.4g/dl; blood urea nitrogen: 13.7 mg/dl; creatinine: 0.9 mg/dl; phosphate: 3.1mg/dl; calcium: 4.76 mg/dl. CT-guided biopsy of lung was performed and two tissue cores were obtained. The specimen was proved to be small cell lung cancer histologically (Fig. 3).

The patient subsequently received 3 courses of chemotherapy (VP-16 120 mg/m^2 + Cisplatin

Figure 1. Chest PA plain film shows a lobulated mass with tiny calcified nodules at left lower lobe.

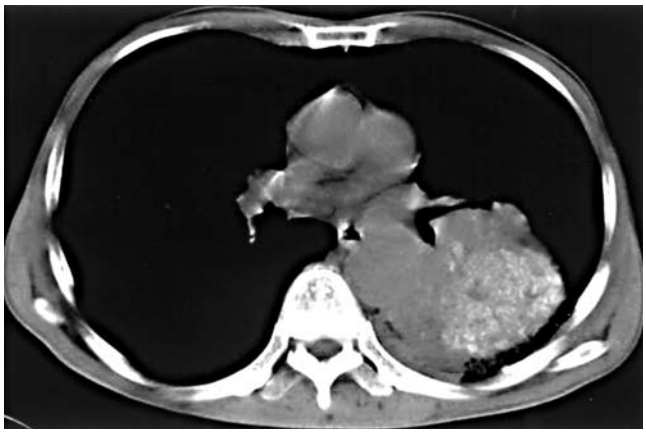

Figure 2. Unenhanced axial CT image reveals a lobulated mass with mottled amorphous calcification at left hilum. The average CT numbers at the high attenuation areas are 90-130 HU. Signal voxel CT number in the same area is up to 174 HU.

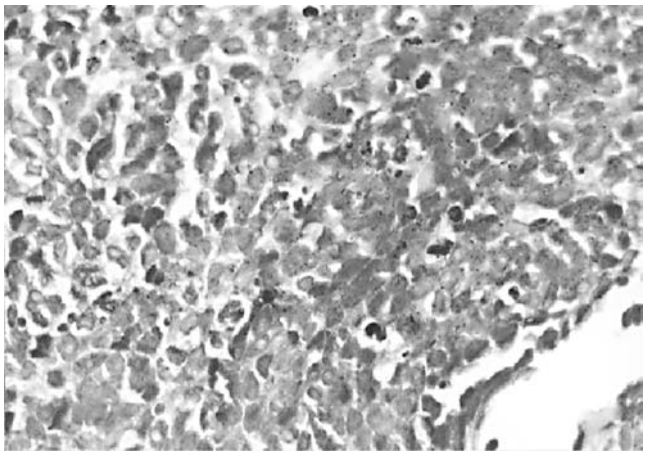

Figure 3. Small cancer cells having round or ovoid nuclei and scanty cytoplasm with nuclear molding and brisk mitotic activity. (H&E stain; original magnification, 80X)

75mg/m^2). Mild shrinkage of the tumor was noted. Unfortunately, brain metastasis developed 7 months after the initial diagnosis and the patient died of respiratory failure and sepsis several days later.

DISCUSSION

Lung cancer is the leading cause of mortality and morbidity in malignancy in many countries. The presence and pattern of calcification is an important factor in assessing the diagnosis of a solitary pulmonary nodule [1-4]. Central, solid and laminated form of calcification is specific to previous granulomatous infection such as tuberculous or histoplasmosis. Popcorn calcification which indicate cartilage component in the nodule, are seen in hamartoma and cartilage tumors. Eccentric or amorphous calcification can present as a calcified granuloma engulfed by a malignancy or dystrophic malignant calcification respectively. Popcorn calcification in a hamartoma or cartilage tumor may simulate the findings shown in our case. The incidence of calcification within lung cancer has been reported to be 6%~10.6% [3, 4] and does not predict histologic subtype. In addition, calcification tends to occur in a large (mean diameter 6.2 cm) and central tumor [4]. The diagnosis of small cell carcinoma correlated better with amorphous calcification mentioned in Mahoney's study [3]. Widespread amorphous or uniform calcification of a nodule, as in this case, occurred presumably to substantially reduce the probability of bronchial carcinoma. Though relatively uncommon, the pattern of calcification reported in this case does not eliminate the possibility of carcinoma. Besides, the large size of 8cm should bring to the suspicious of malignancy. Regardless of the pattern of intratumoral calcification, the size larger than 3cm is not generally accepted as a sign of benign character [2, 7]. The core biopsy confirmed the diagnosis of small cell lung cancer in this patient. ◆

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有不常見鈣化的小細胞肺癌：病例報告

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鈣化在肺病變中是一個重要的評估依據且常是良性的指標。目前的已刊出的文獻中，鈣化的小細胞還是不常見甚至是少見。這裡我們報告一個小細胞肺癌的病例有著不常見的無定形鈣化。

關鍵詞：肝鈣化；肺腫瘤；肺腫瘤，電腦斷層