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CASE REPORT

WILEY

Complete spontaneous remission of small cell lung cancer in the absence of specific treatment: A case report

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Abstract

Small cell lung cancer (SCLC) is a unique tumor that has a distinct clinical behavior and dismal prognosis. If untreated, it can become aggressively malignant, and life expectancy could be limited to weeks. Spontaneous regression of lung cancer has rarely been reported, and among them SCLC is even rarer. The underlying mechanisms of spontaneous regression are poorly understood. Here, we report a case of complete spontaneous SCLC remission in an elderly patient.

KEYWORDS

Beta vulgaris, remission, small cell lung carcinoma, spontaneous

INTRODUCTION

Small cell lung cancer (SCLC) is a poorly differentiated, high-grade, aggressive neuroendocrine carcinoma; the 5-year survival rate is a dismal 7%. Spontaneous remission of malignant tumors, especially lung cancer, is rare and has been reported more in non-small cell lung cancer (NSCLC) than SCLC.[1] SCLC exhibits faster disease progression and poorer prognosis than other types of lung cancer. SCLC is highly sensitive to initial chemotherapy and radiation therapy, but most patients eventually die of recurrent disease. Here, we report a rare case of complete spontaneous remission in an elderly patient with SCLC.

CASE REPORT

An 80-year-old man was referred to our hospital with hemoptysis and hoarseness. He had smoked 20 cigarettes daily for 50 years. Chest X-ray revealed a bulging contoured lesion in

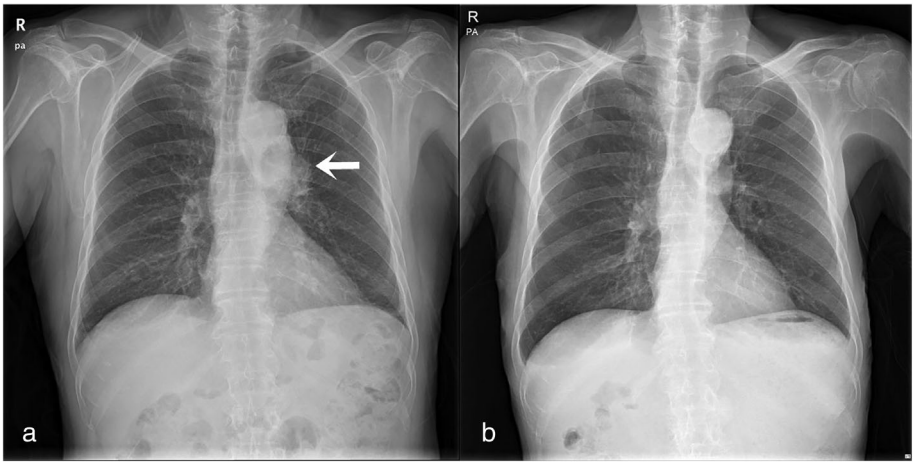

FIGURE 1 (a) Chest X-ray shows a bulging contoured lesion in the left hilum and (b) chest X-ray shows the previous bulging contoured lesion has completely disappeared in the left hilum

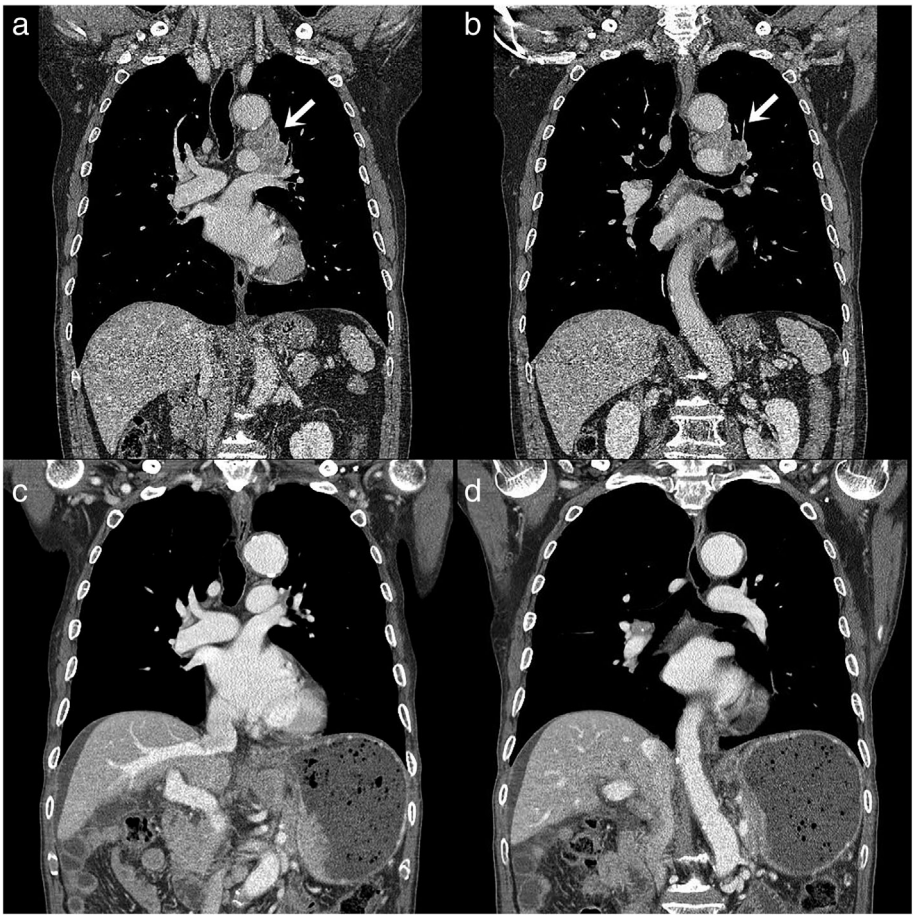

FIGURE 2 (a and b) Chest computed tomography (CT) scan shows a tumor in the left upper lobe with enlarged lymph nodes in the left hilum and mediastinum. (c and d) Chest CT scan shows the previous tumor lesion has completely disappeared

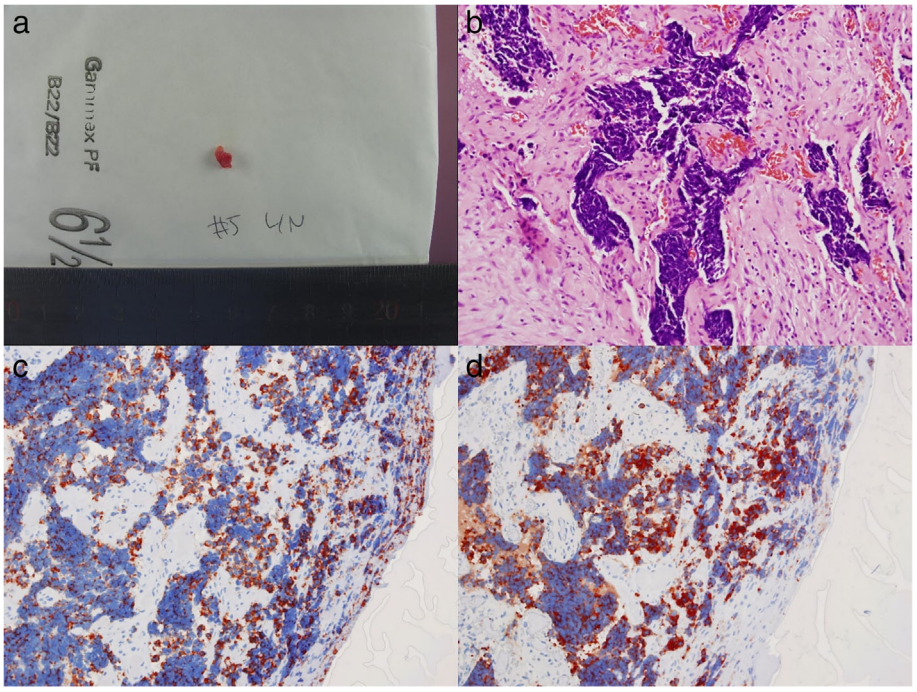

FIGURE 3 Pathological findings. (a) Subaortic lymph node removed by video-assisted thoracoscopic surgery (VATS). Pathological investigation revealed a dense, sheet-like growth of small, round tumor cells with sparse cytoplasm and finely dispersed chromatin ((b) hematoxylin and eosin, 100×). The tumor cells were positive for chromogranin A ((c) immunohistochemistry, 200×) and synaptophysin ((d) immunohistochemistry, 200×)

the left hilum (Figure 1a). Chest computed tomography (CT) revealed a malignant tumor in the left upper lobe and enlarged left hilar and mediastinal lymph nodes (Figure 2a,b). Bronchoscopic biopsy failed because the exophytic lesion was not clearly visible. Video-assisted thoracoscopic surgery (VATS) was performed and a subaortic lymph node was excised.

Pathological examination revealed SCLC (Figure 3). The clinical stage was identified as limited-stage disease. Because the patient was older, he refused chemotherapy and radiation therapy, and was discharged without treatment. Fifty-two months later, he revisited our hospital because he was unable to eat and was severely debilitated. Chest X-ray revealed the absence of the bulging left hilar contoured lesion (Figure 1b). Chest CT scans confirmed complete remission of the previous SCLC in the left upper lobe, mediastinum, and hilum (Figure 2c,d). During the time since his previous visit, he had not undergone any surgery and had not received chemotherapy or radiation therapy. He had consumed beetroot (*Beta vulgaris*) juice daily for 2 years after SCLC was diagnosed. He did not complain of any neurological disorders and exhibited no abnormal neurological signs. However, abdominal CT scans and gastroscopy revealed advanced stomach cancer. He refused treatment and died 40 days later.

DISCUSSION

The mechanism behind spontaneous regression of a malignant tumor is unclear, but several mechanisms explain the possible reasons for the natural regression of cancer. Immunological and cytokine repair processes, differentiation, apoptosis, surgical trauma (operation or biopsy), infection, hormonal mechanisms, inhibition of angiogenesis or paraneoplastic sensorimotor neuropathy have been considered as part of this mechanism.[2] Paraneoplastic sensorimotor neuropathy has been reported as a mechanism of spontaneous SCLC remission.[3,4] In patients with sensorimotor neuropathy, specific antineuronal autoantibodies react both to the tumor and nervous system, and it is known that this inflammatory response is related to the antitumor immune response. Most cases of spontaneous SCLC regression have been accompanied by these neurological symptoms, but no neurological abnormalities were observed in this case.

Surgical trauma, including bronchoscopic biopsy, could especially lead to spontaneous SCLC regression.[5,6] Cole reported 176 cases of spontaneous cancer regression, of which 40% were associated with some type of surgical trauma.[7] The healing process associated with trauma causes an increase in immunological resistance to tumor growth and may induce spontaneous remission.[8]

It is still questionable whether dietary supplements have anticancer effects, but many cancer patients take additional vitamin or mineral supplements after cancer diagnosis.[9] Beetroot (*Beta vulgaris*) is of interest because it contains betanin and betalains. One in vitro study reported these nanoparticles biosynthesized from *Beta vulgaris* extract had an antitumor effect on lung cancer,[10] and another in vitro study showed *Beta vulgaris* root extract had antitumor effects on lung cancer in mice.[11] In this case, the patient started to consume beet juice after his cancer diagnosis, and he did not receive chemotherapy or take other herbal supplements. However, scientific conclusions cannot be drawn on how spontaneous regression of cancer is related to the consumption of beetroot juice.

Advanced gastric cancer, diagnosed before death, was judged to be clinically and histologically separate from SCLC, and it was difficult to find evidence of any correlation in the literature.

In conclusion, here we document a rare case of complete spontaneous remission of SCLC in an elderly patient who did not undergo any medical treatment. Surgical trauma and beetroot intake may play some role in tumor regression, but the precise mechanism is unknown. The main challenge is to identify the exact nature of these triggers in spontaneous remission of SCLC.

CONFLICT OF INTEREST

The authors report no conflict of interest.

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