Small Cell Lung Cancer in a 26-Year-Old Man with Significant Cannabis Exposure

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A 26-year-old man presented with a 3-month history of chest pain, facial swelling, lumps within his axillae, and weight loss. Examination confirmed right axillary lymphadenopathy and early signs of superior vena caval obstruction. He had no significant medical or family history. The patient denied cigarette smoking; however, smoked large quantities of cannabis. He began smoking cannabis at the age of 14 years, initially one to two joints daily. Between the ages of 18 and 24 years, his cannabis consumption increased to eight joints daily.

Chest radiograph (Figure 1) showed widening of the right superior mediastinum. Opacities were seen in right hilar and right paratracheal regions. Computed tomography (CT) of the thorax (Figure 2) showed a large anterior mediastinal mass with right hilar, right paratracheal, and subcarinal lymphadenopathy. There was a small-volume lymph node in the right axilla. Multiple pulmonary nodules and two small liver lesions were identified.

Initial impression was of metastatic teratoma or lymphoma. Ultrasound of the testicles was normal. The axillary node at 1 cm was equivocal; therefore, CT-guided biopsy of the mediastinal mass was performed. The histology result was small cell lung cancer (Figure 3).

The patient received chemotherapy with six cycles of cisplatin and etoposide. After chemotherapy treatment, repeat CT scan demonstrated an improvement in appearance of lymph nodes and stable lung nodules. The mediastinal mass appearance was stable in size but denser in appearance. The liver nodules had increased in size, and concerns of potential new bony lesions were raised.

Because of this progression through treatment, further chemotherapy was proposed. Cyclophosphamide, doxorubicin, vincristine, and etoposide were used in combination in the CAVE regimen. The patient received five cycles; however, CT scan demonstrated definite evidence of disease progression in the anterior mediastinum and liver after this treatment.

The patient decided to source private treatment after being informed that there were no further conventional treatments available and that priority would be symptom control. The patient traveled to Mexico and received weekly carboplatin supported by “Focused Anti-Neoplastic Chemotherapy” for 3 months.

Unfortunately, the disease again progressed through treatment, and the patient died on return to UK after this course of chemotherapy in Mexico. Time of survival form diagnosis was 2 years, 16 days.

Cannabis is the most commonly used illegal drug in UK,1 usually consumed through smoking, with tobacco, in unfiltered joints.2 It is unclear whether cannabis can increase progression in the anterior mediastinum and liver after this treatment.

FIGURE 1. Chest radiograph at initial presentation showing widening of the superior mediastinum, predominantly on the right side, with opacities in the right hiliar and right paratracheal regions.
the risk of developing cancer of the respiratory tract independently from tobacco, as reports have produced conflicting evidence. Recent research suggests that the risk of pulmonary malignancy could be significantly increased by cannabis use.3

At 26 years, this patient is by far the youngest to be diagnosed with small cell lung cancer at our institution. In the West Midlands, there have been 31 cases of lung cancer reported in patients younger than 30 years over the past 20 years, only one of which had small cell carcinoma morphology (3.2%) (West Midlands Cancer Intelligence Unit, e-mail communication, 24 February 2010).

Data from the National Lung Cancer Audit database demonstrate that approximately 0.05% of small cell lung cancer patients in UK have presented at age younger than 30 years. This equates to 5 of the 10,495 patients held in this dataset (National Lung Cancer Audit Network, e-mail communication, 18 March 2010).

In this case, there was a low total smoking pack-year exposure and no known genetic predisposition to developing lung cancer. A recent case–control study from Aldington et al.3 of young New Zealand residents found that each joint-year (one joint per day for 1 year) increased the risk of lung cancer by 8%. Smoking one joint of cannabis per day produces a similar risk of malignancy as smoking 20 cigarettes per day.3 With a 20 joint-year cannabis history, equivalent to a 20 pack-year history,3 it seems likely that this patient’s cancer developed as a result of cannabis smoking. From a public health perspective, young people should be aware that smoking cannabis is likely to be associated with development of lung cancer, which in the case of our patient led to his early demise.

REFERENCES