

Supplementary Materials

Example patient case: Rescue from 'no-treatment' for early-stage lung cancer

In Spring 2016, Mr. Smith, a 61-year-old African American male from Central Mississippi was evaluated in the Emergency Department (ED) of a local community hospital for what turned out to be phenytoin toxicity. Incidental findings from a computed tomography (CT) scan during the ED evaluation revealed a non-calcified 2.5 cm left upper lobe nodule suspicious for malignancy, and an 8 mm non-calcified right upper lobe nodule deemed possibly a metastatic deposit, along with another nonspecific 5 mm non-calcified nodule in the left upper lobe. There was no lymphadenopathy, but emphysema. He was referred to a pulmonologist, Dr. A, who requested a diagnostic CT-guided biopsy. It was conducted two weeks later and was non-diagnostic.

Two months later a PET/CT scan revealed a '3.2 cm mass in the lateral aspect of the lingula showing marked increase activity consistent with the patient's primary lung cancer, a 4 mm non-calcified pulmonary nodule laterally in the lingula which is below the threshold for PET imaging, and an in-avid 7 mm non-calcified pulmonary nodule in the inferior aspect of the right upper lobe which was unchanged from the study 2 months previously. A follow-up CT of the chest is recommended to document stability of this small nodule.' Done in mid-October 2016 (4 months later) a follow up CT scan revealed that 'the left upper lobe mass has increased in size and is highly suspicious for primary bronchogenic neoplasm, the tiny nodule in the posterior caudal aspect of the right upper lobe is stable as is the tiny nodule in the inferior segment of the lingula. Significant lymph node enlargement is not apparent. There is also an underlying component of interstitial lung disease in a non-specific pattern, with extensive differential diagnosis, including among others DIP, UIP, collagen vascular diseases, and pneumoconioses.'

A repeat CT-guided biopsy attempted the following week revealed poorly differentiated large cell carcinoma of the lung. Brain MRI scan two weeks later revealed 'no metastasis, but chronic encephalomalacia involving the left frontal lobe, similar to brain CT scan findings from 3 years before.' A myocardial perfusion scan done the same day, for cardiac clearance ahead of surgery, revealed 'equivocal pharmacologic stress test secondary to baseline electrocardiogram abnormalities, negative perfusion imaging for any reversible ischemia with a large fixed inferior defect and no other ischemic deficits, but severely reduced left ventricular systolic function with gated ejection fraction calculated at 32%.'

Referred to the multidisciplinary lung cancer clinic, where he was seen in mid-November 2016. He was found to be an active 1pack per day (43 pack-year) smoker since age 16, despite a personal history of above-knee amputation for peripheral vascular disease, two episodes of cerebrovascular accident, and two episodes of acute myocardial infarction.

A PET/CT scan revealed ‘a 3.5 cm mass in the left upper lobe showing marked increased activity consistent with the patient's primary bronchogenic carcinoma; an 8 mm non-calcified pulmonary nodule in the superior segment of the right lower lobe which does not show increased activity on the PET scan. Six-month follow-up CT of the chest is recommended for further evaluation of this small non-calcified pulmonary nodule. A small focus of intense increased activity within the cecum, which may represent physiologic activity, however, cancer cannot be excluded. Colonoscopy is recommended if a recent colonoscopy has not been performed.’

Evaluated by a thoracic surgeon in Multidisciplinary Lung Clinic, after discussion with a cardiologist, it was determined that he had occluded both right and circumflex coronary arteries and his risk of a perioperative cardiac event was high, therefore general anesthesia and surgery were not safe. In light of this information, it was decided that his best option was curative-intent stereotactic body radiation therapy (SBRT), for what was determined to be cT2aN0M0 (stage IB) adenocarcinoma. This information was communicated by the multidisciplinary care team to the patient and his referring pulmonologist. In December 2016, routine telephone post-visit follow up with the patient revealed that he had been referred to hospice care with the advice that nothing else could be done for his lung cancer. After it was re-iterated to the patient that his lung cancer is potentially curable with SBRT, he verbalized interest in pursuing this, and with help from the Multidisciplinary Clinic navigators, he was given an appointment with the radiation oncologist associated with the Multidisciplinary Clinic 3 hours away from where he lived. He was housed in the American Cancer Society’s Hope Lodge, from where he received SBRT in 5 fractions in February 2017.

He has continued to follow up in the multidisciplinary clinic, three hours away from home, every 3 months with surveillance chest CT scans, which have shown no evidence of disease recurrence or progression as recently as August 2018. Unfortunately, he continues to smoke cigarettes, despite cessation counseling by his oncologist and the offer of pharmacologic aids, although he claims to have cut down to 2 cigarettes per day from 1 pack per day previously. On his most recent chest CT scan in November 2018, he had a ‘stable area in the left suprahilar region which may be post-radiation change, no change in non-calcified nodule right upper lobe posteriorly, heavy calcification left anterior descending coronary artery distribution, and mild calcification left circumflex distribution. Clinical correlation recommended as to whether further evaluation for possible significant coronary artery disease.

