An 80-Year-Old Man With Idiopathic Pulmonary Fibrosis and New Bilateral Lung Densities*

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An 80-year-old man presented with a history of cough for 2 months with production of purulent, sometimes blood-tinged sputum, 2 weeks of increasing shortness of breath, and an abnormal chest radiograph. Five years previously he was diagnosed to have idiopathic pulmonary fibrosis (IPF) after an open lung biopsy done at another hospital. Other than having mild hypertension, his past medical history was unremarkable. He experienced a weight loss of approximately 10 lbs in the previous 3 to 4 months and was taking furosemide and benazepril for hypertension. He smoked 2 packs of cigarettes per day for more than 45 years.

Physical examination revealed presence of crackles in both mid lung fields posteriorly and finger clubbing was present. Laboratory values and electrocardiogram were normal. Results of arterial blood gas tests while breathing room air showed pH 7.42, PCO₂ 38.3, Po₂ 62, HCO₃ 25, and O₂ sat 91%. Pulmonary function studies showed moderate restrictive lung disease, with a current DLCO of 35% of the predicted value, which had worsened compared to a study done 4 years before.

A chest roentgenogram done 3 years before (Fig 1) showed increased bilateral interstitial markings, particularly in both lower lung fields. A chest roentgenogram (Fig 2) and a computed tomography of the chest (Fig 3) were done at the time of consultation and showed increased interstitial markings in both lungs and new areas of infiltrating soft tissue in the right mid lung field posteriorly and in the left mid lung field medially.

What is the diagnosis?
Figure 2. Chest radiograph at the time of consultation shows increased interstitial markings bilaterally and new soft tissue densities in the right and left mid lung fields.

Figure 3. Computed tomography of the chest reveals peripheral interstitial infiltrates with some cystic changes bilaterally; focal areas of infiltrating soft tissue are noted in the posterior segment of the right upper lobe and in the superior segment of the left lower lobe.

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**Diagnosis:** Bilateral synchronous squamous cell carcinoma of the lungs associated with IPF.

The patient underwent fiberoptic bronchoscopy with transbronchial biopsy and endobronchial brushings of both masses on different days. The microscopic examination of the specimens revealed moderately differentiated squamous cell carcinoma with pulmonary fibrosis.

**DISCUSSION**

The association of IPF and lung cancer has been well established. It has been shown that there is an excess risk for lung cancer in patients with IPF not wholly accounted for by sex, age, or smoking habit. The risk of developing lung cancer in patients with IPF is even higher if we consider male patients who are smokers. It has also been noted that the areas of more severe fibrosis in the lungs are the ones developing malignant transformation more frequently. The association of synchronous multiple lung cancer and IPF exists, but reports are rare, probably because of the rare occurrence of multiple lung cancer.

In a review of the Japanese cases of synchronous multiple lung cancer associated with IPF, Mizushima and Kobayashi indicated that the features characteristic to this association are: (1) male patients; (2) smokers; (3) small cell carcinoma histologic type; (4) lower lobes; and (5) peripheral type, all of which showed a high rate of occurrence. All of these characteristics were present in our case presentation, except for the histologic type. The combinations in synchronous multiple lung cancer vary according to different investigators, but they agree that the two more common histologic types are squamous and small cell carcinomas. The simultaneous presentation with the characteristics cited above and the absence of mediastinal lymphadenopathy make this case an example of synchronous multiple lung cancer associated with pulmonary fibrosis.

IPF is a disease that offers a background for the development of malignancies. Physicians caring for IPF patients need to follow them closely with clinical and radiographic screening.

**REFERENCES**

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