Hemoptysis as the Sole Presentation of Thyroid Carcinoma

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A 23-year-old man experienced hemoptysis in 1968, secondary to papillary carcinoma of the thyroid with metastasis to the lungs. The patient was treated initially with thyroidectomy and iodine-131 (^{131}I), and subsequently with radical neck dissection. Following a period of fifteen years in which the patient was well clinically, he experienced recurrent hemoptysis. No other source of bleeding was identified, and the hemoptysis was attributed to the lung metastases of the thyroid carcinoma.

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Papillary carcinoma of the thyroid is a slowly growing tumor seen in patients of all ages. It presents as a neck mass in the vast majority of cases, but occasionally its presence is detected due to symptomatic metastases. Early metastasis to the lung is rare. Large reviews of thyroid cancer have included only sporadic cases in which hemoptysis is an initial presentation of metastatic disease (*1,2*). We present a patient with hemoptysis on two occasions, fifteen years apart, presumably due to metastatic thyroid cancer. This is, to our knowledge, a phenomenon not previously reported.

CASE REPORT

A 23-year-old man was in good health until September 1968, when he was admitted to the hospital with a 1-day history of cough productive of a cup and a half of blood clots. He denied chest pain, weight loss, night sweats, fever, or chills. There was no history of chronic cough, sputum production, or prior lung disease. He had never smoked and took no medications. The patient was in no acute distress, and except for mild enlargement of a right cervical lymph node, physical examination was normal. Multiple small nodules in both lung fields were present on the chest roentgenogram.

Rigid bronchoscopy was normal and no bleeding site was identified. A right cervical node biopsy demonstrated papillary cystadenocarcinoma with psammoma bodies. A thyroid scan revealed a "cold" nodule in the right lobe of the thyroid.

One week later, an open-lung biopsy was performed and demonstrated papillary adenocarcinoma compatible with a thyroid origin. A week after this development, a total thyroidectomy was performed; the specimen revealed a 1.5 cm × 2.5 cm nodule in the right lobe of the thyroid. On histological examination, this specimen was found to be papillary carcinoma with follicular elements multifocal in origin. Recovery from surgery was uneventful and the patient was discharged on thyroid hormone replacement. Eight weeks later, after an ^{131}I scan demonstrated uptake of tracer in the neck and in both lungs, 100 mCi of ^{131}I was given. A repeat scan four mo later again demonstrated diffuse bilateral pulmonary uptake as well as uptake in the right side of the neck; a right radical neck dissection was performed. Tumor was found in 6/8 lymph nodes, with associated lymphatic invasion. Thyroid hormone was continued in a suppressive dose. Repeat ^{131}I scan two yr later still demonstrated uptake in both lungs and in the right neck. Two yr later, the patient discontinued the thyroid hormone and stopped coming for followup visits. After 10 more yr without symptoms, hemoptysis recurred and he was readmitted to the hospital for evaluation. The chest examination revealed bilateral crackles at the lung bases. Laboratory studies were normal except for a TSH of 8.7 U/ml (normal < 7). The chest roentgenogram again revealed numerous small nodules throughout both lung fields (Fig. 1). Multiple sputum cultures were negative for bacteria and fungi. No further hemoptysis occurred.

Fiberoptic bronchoscopy revealed mild blood streaking of the left mainstem bronchus. No endobronchial lesion was found; bronchial washings were normal. An ^{131}I scan (Fig. 2) demonstrated bilateral diffuse lung uptake and no tracer uptake in the neck. The patient was given 180 mCi of ^{131}I and discharged on thyroid replacement.

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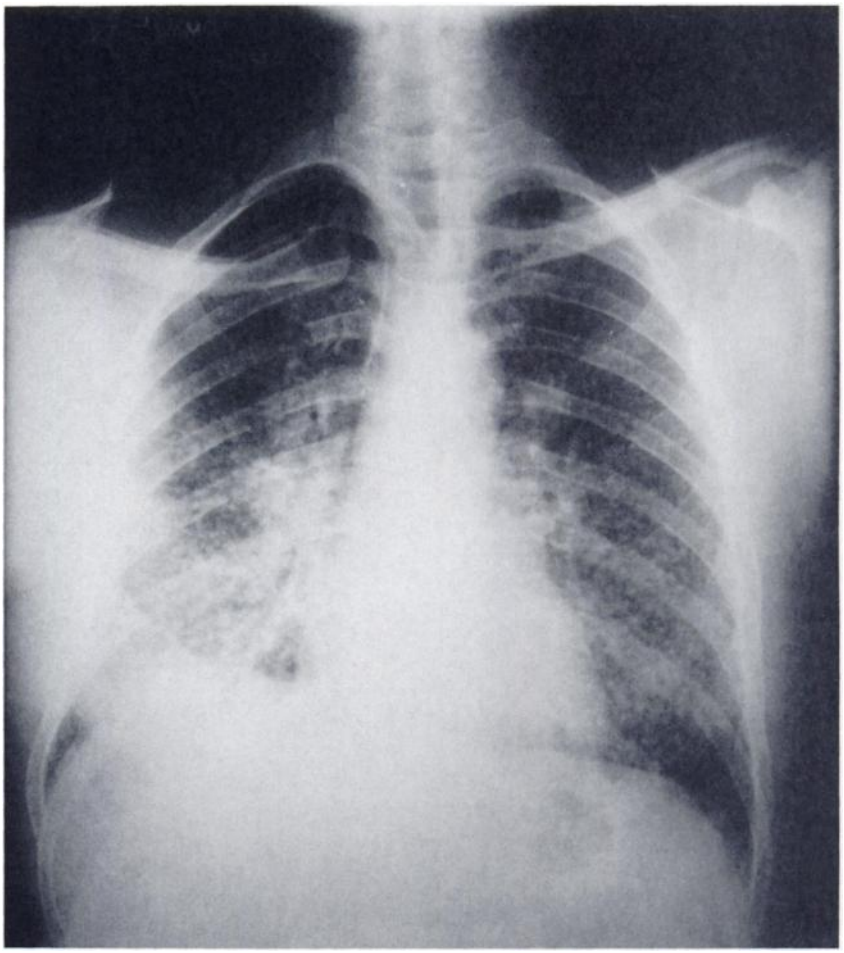

FIGURE 1
Chest roentgenogram (posteroanterior view) showing multiple small nodules throughout both lungfields

DISCUSSION

Thyroid carcinoma, with an incidence of about 37 new cases per 1 million population per year (*1*), is an uncommon disease.

The presentation of hemoptysis in thyroid carcinoma is rare. Hemoptysis in the absence of clinically apparent disease in the thyroid is even more unusual. In one series of 885 patients with thyroid carcinoma (*2*), six presented with hemoptysis, and only two in the setting of a clinically normal thyroid gland, as seen in our patient.

Papillary carcinoma is the most common histologic type of thyroid cancer, accounting for 61% of Woolner's series (*2*). It includes tumors with pure papillary elements and mixed papillary-follicular. It occurs in a younger age group than most cancers, with a peak incidence in the third to fifth decades (*1*), but can occur at any age. Papillary carcinoma is characterized by slow growth and a frequently indolent clinical course, with a 10-yr survival in excess of 80% (*1,2*).

Nonetheless, approximately 40% of papillary thyroid carcinomas are metastatic to local lymph nodes at the time of diagnosis (*2*), as in this case. The tumor is metastatic to lung less commonly, with an initial incidence of less than 1%, increasing to 2-4% if delayed metastases are included (*1,2*). These figures reflect a diagnosis based only on an abnormal chest x-ray; a higher incidence is seen if nuclear imaging is also used for diagnosis of metastatic disease (*3*). Harness, et al. (*4*) reports an autopsy series of 50 patients with thyroid carcinoma and found pulmonary metastases in 18, eight of whom had a normal chest x-ray a week before death.

Our patient remained symptom free for 15 yr after diagnosis. Kressel, et al. (*5*) reported four cases of papillary thyroid carcinoma with pulmonary metastases that were clinically stable for extended periods (14–25 yr after diagnosis of metastatic disease). In three of these cases the lung findings followed the diagnosis of thyroid cancer by 2–14 yr; in one case the disease was metastatic to the lung at the time of the original diagnosis. Unlike our patient, none of these cases demonstrated clinical symptoms or uptake of ^{131}I for extended periods.

Varma, et al. (*6*) showed that ablation of ^{131}I uptake with therapeutic use of radioiodine was associated with higher survival rates than in those in whom uptake was not ablated. Pulmonary metastases from thyroid carci-

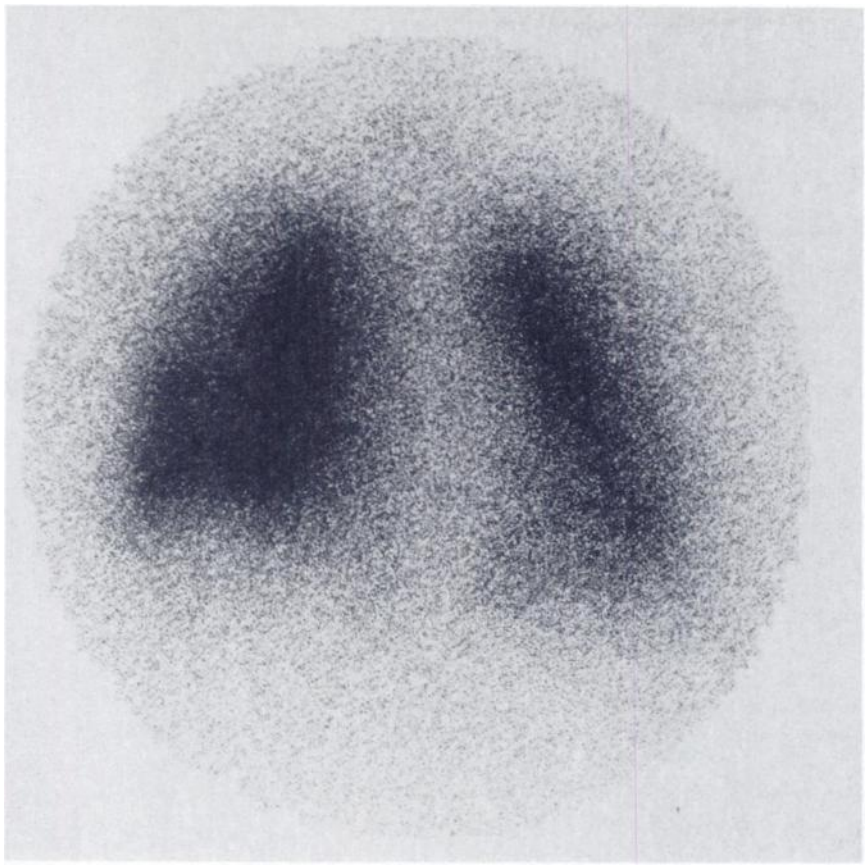

FIGURE 2
Iodine-131 scintiscan (anterior view) showing diffuse bilateral lung uptake. No uptake was seen in neck or any other area

noma have been shown to regress following ^{131}I treatment (*5*). Although our patient showed ^{131}I uptake repeatedly throughout his course, he remained asymptomatic until 15 yr after the initial therapy.

We have presented an unusual clinical variant with hemoptysis as the presenting manifestation of thyroid cancer on two separate occasions. The occurrence of pulmonary arteriovenous fistulae in metastatic thyroid carcinoma has been reported (*5*), and this phenomenon may have accounted for the hemoptysis in our patient, although the reason for the bleeding was not established.

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