A Case of Papillary Thyroid Cancer Presenting as Pleural Effusion

Divisions of 1Respiratory and Critical Care Medicine, 2Endocrinology, Departments of Internal Medicine, 3Pathology, 4Thoracic and Cardiovascular Surgery, Korea University Ansan Hospital, Ansan, Korea

Ki Hwan Jung, M.D.1, Ji A Seo, M.D.2, Ju-Han Lee, M.D.3, Won Min Jo, M.D.4, Je Hyeong Kim, M.D.1, Chol Shin, M.D.1

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Introduction

Papillary thyroid cancer (PTC) is the most common kind of thyroid cancer and the clinical outcomes for patients with PTC are excellent because of an indolent clinical course and a favorable prognosis1,2. It has been diagnosed increasingly in the subclinical phase as a result of frequent use of ultrasound imaging and surveillance2. Since PTC is diagnosed in relatively early stage and usually tends to advance locally to regional lymph nodes, distant metastases are rare. The lungs and bone are common sites of metastases, but most of these metastases occur after initial treatment of thyroid cancer. Only approximately 4% of patients presented initially with distant metastasis in well-differentiated thyroid cancer3. Moreover, metastatic pleural effusion by itself, as the initial manifestation of papillary thyroid cancer, is infrequent4.

We report here a 47-year-old male who presented with shortness of breath and pleuritic chest pain induced by left-sided pleural effusion, and diagnosed as metastatic papillary thyroid cancer to the pleura.

Case Report

A 47-year-old man presented with 3-week history of worsening shortness of breath and left-sided pleuritic chest pain. His medical history was unremarkable. He was a current smoker of total 15 pack-years. On review of symptoms, he denied fever, night sweating, or weight loss. On physical examination, he was afebrile and complained of shortness of breath. Examination of the neck demonstrated no palpable nodules and chest auscultation revealed diminished breathing sound over the left lower lung field. The others were unremarkable. Simple chest radiography showed a pleural effusion in
the left hemithorax (Figure 1A).

Diagnostic thoracentesis revealed clear, amber-colored pleural fluid with protein concentration of 5.4 mg/dl and lactate dehydrogenase concentration of 69 IU/L. The serum total protein and lactate dehydrogenase measured on the same day were 7.8 mg/dl and 510 IU/L, respectively. The total leukocyte count of pleural fluid was 1,760/mm³, and this consisted of 80% lymphocytes and 20% polymorphonuclear leukocytes. The overall nature of the pleural effusion was lymphocyte-dominant exudate. The adenosine deaminase (ADA) level was 16.4 U/L and the polymerase chain reaction (PCR) was negative for *Mycobacterium tuberculosis*. The staining for acid-fast bacilli was also negative. The glucose concentration was 89 mg/dl and gram staining showed no bacteria. Repeated cytologic analyses of the pleural effusion revealed no evidence of malignancy. To evaluate the underlying cause such as malignancy, computed tomography (CT) of the chest (Figure 1B) and flexible fiberoptic bronchoscopy were

Figure 1. Chest radiograph on the day of admission showed a left pleural effusion (A). Contrast-enhanced chest computed tomography showed a left-sided, unilateral pleural effusion, and collapse of the left lung with no pathologic endobronchial mass or lymphadenopathy (B).

Figure 2. Thoracoscopic examination revealed small multiple patchy lesions on the diaphragmatic pleura (A). Histology of the pleural metastasis showed papillary proliferation of atypical cells and complex and branching papillae with a central fibrovascular core (B, hematoxylin and eosin stain, ×200).