Pleural Effusion as First Sign of Extramedullary Plasmacytoma*

Adalberto Pacheco, M.D.; Anunciación Perpiñá, M.D.; Luis Echarriano, M.D.; Iziar Sanz, M.D.; and Carmen Bellas, M.D.

A patient with mediastinal EP with extension to pleural spaces and subsequent pleural effusion is described. The finding of many plasma cells in pleural fluid led to diagnosis. Similar histologic findings such as multiple myeloma and immunoblastic lymphoma were ruled out by clinical approach and immunohistochemistry, respectively. This pleural effusion represents the first case described caused by EP.

(Chest 1992; 102:296-97)

CT = computed tomography; EP = extramedullary plasmacytoma; LDH = lactic dehydrogenase

Extramedullary plasmacytomas are uncommon manifestations of plasma cell neoplasms. These neoplasms usually occur in the head and neck area, but a few cases have been described in the mediastinum.1 We report the clinical and radiologic features of a plasmacytoma in the posterior mediastinum with contiguous invasion of pleural spaces and consequent effusion. Monthly chemotherapy produced a complete remission at seven months of clinical and radiologic follow-up.

CASE REPORT

A 58-year-old man was admitted to the hospital with a pleural effusion. He related a three-month history of a dull right lower chest pain which was not made worse by coughing or deep inspirations. No hemoptysis, fever or weight loss were present. On examination there were no signs of congestive heart failure and neither lymphadenopathy nor hepatomegaly was found. The chest x-ray film showed a free right pleural effusion. Routine blood, coagulation and serum biochemistry studies were within normal limits. A thoracentesis with pleural biopsy was indicated. Pleural fluid was straw-colored with a pH of 7.41, total protein level of 3.7 g/L and an LDH value 484 U/L (normal value 252 U/L); the smear showed plasmacytoid neoplastic cells, and the biopsy specimen from the pleural spaces revealed chronic pleural inflammation. An abdominothoracic CT scan showed a mediastinal mass with bilateral pleural effusion more apparent at the right side (Fig 1), with extension to the abdomen through the retrocervical space, infiltrating the right hemidiaphragm, and further down, the cephalic portion of the psoas muscle. Fine needle aspiration cytology with CT scan control revealed plasmablasts.

To rule out the diagnosis of multiple myeloma the following studies were done: serum and urine electrophoresis which were normal, a bone marrow biopsy and aspirate showed no increase or atypias of plasma cells, and a total skeletal x-ray film which was normal. The serum immunoglobulin values were normal. A right posterior thoracotomy was performed and a large hard tumor near the spine was found with extension to the abdomen and to both bilateral pleura, mediastinal and parietal; the biopsy revealed a plasmablastic plasmacytoma.

Representative blocks were chosen and paraffin sections stained by the PAP immunoperoxidase technique2 for kappa and lambda chains (Dako A/S, Copenhagen, Denmark) showing that the plasmacytoma presented intracytoplasmatic monoclonal secretion of the lambda chain (Fig 2).

After three cycles with M2 protocol3 including carmustine, vincristine, cyclophosphamide, melphalan and prednisone at monthly intervals, the abdominothoracic CT scan showed a great reduction of the mass without pleural effusion. After seven cycles the patient is in total remission. One year later the CT scan is still normal.

DISCUSSION

A plasmacytoma can be defined as a more or less well-

*From the Pneumology, Hematology and Pathology Services, Hospital Ramón y Cajal, Universidad de Alcalá, Madrid, Spain.

Reprint requests: Dr. A. Pacheco, Servicio de Neumología, Hospital Ramón y Cajal, Madrid, Spain 28034

Figure 1. Thorax CT scan: bilateral paravertebral mass (O) which displaced aorta (A) toward the front, with bilateral pleural effusion more evident at the right side.

Figure 2. Plasmacytoma showing monoclonal staining pattern positive for lambda chain (immunoperoxidase, original magnification × 400).

[Image: Thorax CT scan showing bilateral paravertebral mass displacing the aorta]

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Pleural Effusion and Extramedullary Plasmacytoma (Pacheco et al)
defined neoplastic proliferation of plasma cells in the absence of generalized plasma cell disorders. The most common differential diagnosis concerns multiple myeloma and immunoblastic lymphoma. Multiple myeloma has histologic features identical to, but is clinically distinguishable from, localized plasmacytoma, and the presence of the lambda light chain in the majority of the tumor cells and its relatively uniform distribution in the cytoplasm, rule out an immunoblastic lymphoma.

In our case, there was an EP in the posterior mediastinum with extension to the abdomen and invasion of pleural spaces and consequent effusion at the right side, without evidence of multiple myeloma which Hobbs defined as presence of neoplastic cells within the bone marrow, presence of destructive bone lesions on a skeletal survey and the production of paraproteins which were continuously absent in all the tests undertaken within the 17-month follow-up period.

The incidence of EP is 3 percent of the plasma cell tumors, and the most common sites of involvement are the upper respiratory tract, the gastrointestinal tract and the skin. The mediastinal location of EP is extremely rare; Wiltshaw in 272 patients with EP, found 13 tracheobronchial and pulmonary cases but no mediastinal. The prognosis is variable with an estimated survival of ten years in more than 50 percent of patients. Some patients subsequently developed multiple myeloma. Our patient was primarily treated with chemotherapy because the great extension of the tumor advised against resection or radiotherapy which are the treatment of choice in more localized lesions. This case represents another cause of pleural effusion not previously described. It draws attention to the fact that the presence of many plasma cells in the pleural fluid is not always a sign of the more frequent multiple myeloma.

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Transesophageal Echocardiography to Diagnose and Demonstrate Resolution of an Acute Massive Pulmonary Embolus*

Mark D. Gelernt, M.D.; Allen Mogtader, M.D.; and Rebecca T. Hahn, M.D.

A 54-yr-old man presented with acute respiratory failure and hemodynamic collapse. Acute massive pulmonary embolus was confirmed with visualization of the thrombus by transesophageal echocardiography. Successful resolution after thrombolysis was confirmed by a repeat study. Transesophageal echocardiography can be used for both diagnosis and assessment of therapy in select cases of acute massive pulmonary embolism. (Chest 1992; 102:297-99)

F = pulse rate; TEE = transesophageal echocardiography; tPA = tissue plasminogen activator; TTE = transthoracic echocardiography

Echocardiography has only recently been successfully used to diagnose pulmonary emboli. Thromboemboli have been visualized in the pulmonary artery by two-dimensional transthoracic echocardiography (TTE) and by transesophageal echocardiography (TEE). We describe a case of massive acute pulmonary embolus initially diagnosed by TEE and successfully treated with thrombolysis, with resolution documented by repeat TEE.

CASE REPORT

A 54-yr-old man presented with several hours of severe shortness of breath and subxiphoid chest pain that occurred acutely at rest. He also described severe midscapular back pain radiating downward. There was no history of leg pain, swelling, recent trauma, or prior embolic episodes. Physical examination revealed a cool mottled man with a blood pressure (BP) of 90/40 mm Hg, pulse rate (P) 130 beats per minute, and respiration rate (R) of 36/min. There was 6-cm jugular venous distention, normal findings on pulmonary and cardiac examinations, mild pedal edema bilaterally, and diminished pulses in the right leg. The initial ECG demonstrated sinus tachycardia with a rightward axis, an rSR’ in leads V1 to V6, and a persistent deep S wave in leads V3 to V6. There was a marked alveolar-arterial gradient, and ventilator support was subsequently required due to the patient’s persistent tachypnea. The chest roentgenogram was normal. An emergent TTE demonstrated dilatation of the right atrium, right ventricle, and pulmonary artery. Doppler echocardiography demonstrated severe tricuspid regurgi- tation, with a peak instantaneous systolic pressure gradient across the tricuspid valve of 77 mm Hg, as determined by the modified Bernoulli equation, indicating severe pulmonary hypertension. The size and function of the right ventricular chamber were consistent with pressure and volume overload. The size of the left ventricular chamber was diminished, with hyperdynamic wall motion. A singleplane TEE was performed immediately afterward to exclude the possibility of aortic dissection in the setting of the patient’s severe back pain, asymmetric pulses, and the probable need for thrombo-

*From the Division of Cardiology and Medical Service, St. Luke’s-Roosevelt Hospital Center, and the Department of Medicine, Columbia University College of Physicians and Surgeons, New York.
Reprint requests: Dr. Mogtader, St. Luke’s-Roosevelt Hospital Center, Amsterdam Avenue at 114th Street, New York City 10025

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