Case 606

Hemorrhagic bilateral pleural effusion as first sign of IgG myeloma

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Patient: 51 years, female

Clinical History:

A 51 year-old woman presented with dyspnea due to a bilateral pleural effusion. The pleural fluid was hemorrhagic. The CT scan of the thorax delineated a soft-density tumor encircling the sternum, an intact cortex of the sternal body, mild compression and displacement of the heart by the mass, and a bilateral pleural effusion with no discernible pleural nodules.

Imaging Findings:

A 51 year-old woman presented with progressive dyspnea on exertion that led to hospital admission 20 days later. On physical examination, a soft, ill-delimited, and barely visible mass was overlying the sternal manubrium, and there was a suggestion of bilateral pleural effusion; no other abnormal signs were found. The blood hemoglobin concentration was 11.9 g/dL, the leukocyte count was 9.4 x 10⁹/L with an unremarkable differential, and the platelet count was 312 x 10⁹/L. The erythrocyte sedimentation rate was 42 mm in the first hour. Biochemical measurements in the serum revealed the following: urea 32 mg/dL, creatinine 0.69 mg/dL, glucose 120 mg/dL, urates 5.4 mg/dL, total protein 5.56 g/dL, and beta-2-microglobulin 3.8 micrograms/mL (reference range 0-3). The urine contained 75 mg/dL of proteins, and was otherwise normal. The chest X-ray showed only a bilateral pleural effusion. No bone lesions were seen on serial radiographs of the ribs, spine, pelvis, sternum and cranium. The CT scan of the thorax delineated a soft-density tumor encircling the sternum, an intact cortex of the sternal body, mild compression and displacement of the heart by the mass, and a bilateral pleural effusion with no discernible pleural nodules. On left thoracentesis, hemorrhagic pleural fluid was obtained. This pleural fluid contained 5.1 g/dL of protein, 99 mg/dL of glucose, a red blood cell count of 1.1 x 10¹²/L, a leukocyte count of 11.9 x10⁹/L (70% mononucleated, 30% polinucleated), and an adenosine deaminase activity of 37.7 U/L. The cytologic study of the pleural fluid disclosed neoplastic cells with a plasmacytoid appearance. Serum electrophoresis showed a small monoclonal band, and immunofixation of the serum revealed IgG Lambda monoclonality. Immunoglobulin concentrations in the serum were: IgG 613 mg/dL, IgM 42.6 mg/dL, and IgA 49.3 mg/dL. In the urine, 85.2 mg/dL (reference range 0-0.5 mg/dL) of Lambda light chains were found. A needle biopsy of the presternal mass obtained a sample entirely made up of IgG Lambda myeloma tissue. A bone marrow aspirate and biopsy contained 30% of atypical plasma cells that stained with IgG Lambda antibody.

Discussion:

Myeloma is not among the causes usually considered in the differential diagnosis of pleural effusions [1]. There have been a number of case reports of myelomatous pleural effusions either at presentation or late in the course of multiple myeloma [2], but in most cases the diagnosis of myeloma was previously known. We report a case of IgG
Lambda multiple myeloma presenting as a hemorrhagic bilateral pleural effusion. Hemorrhagic pleural effusions are uncommon and mostly secondary to a pleural based malignancy [3], but we are not aware of any published case of myelomatous hemorrhagic pleural effusion. Pleural effusions develop rarely in the course of multiple myeloma. In a consecutive series of 54 cases of multiple myeloma, only 1 was found to have pleural involvement [4]. There are single case reports of multiple myeloma or even plasmacytoma presenting as pleural effusion, usually unilateral. The adenosine deaminase activity in the pleural fluid has been reported to be elevated in some cases of myelomatous pleural effusion [5], but in our case it was below the discriminant value of 45 U/L. In contrast to our case of IgG Lambda myeloma, the majority of myelomatous pleural effusions have been described in IgA myelomas, apparently because they have a greater propensity for extramedullary involvement [5]. The prognosis of cases with pleural involvement in multiple myeloma is dismal, with survival in reported cases usually less than one year [2,5]. In our case, bilateral talc pleurodesis performed at the beginning of treatment appeared to be effective in the long term, as she did not develop further dyspnea attributable to pleural effusion. The survival of our patient almost 3 years from the time of diagnosis was longer than anticipated. In conclusion, undiagnosed myeloma should be included in the differential diagnosis of unilateral or bilateral pleural effusions, even if they are hemorrhagic.

**Differential Diagnosis List:** IgG Lambda multiple myeloma

**Final Diagnosis:** IgG Lambda multiple myeloma

**References:**


Figure 1

Description: Bilateral pleural effusion without heart enlargement. A soft mass encircling the sternal body spares the sternal cortex and displaces the heart. Origin:
Figure 2

Description: Atypical cells with a plasmacytoid appearance and frequently binucleated can be seen over a hematic background (Papanicolaou stain 400x). Origin: