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Case report

Pleural effusion as first extra-medullary clinical presentation of an occult multiple myeloma: The role of medical thoracoscopy

Antonietta Coppola [a], Giacomo Ghinassi [b], Giuseppina Ciarleglio [b], Uberto Maccari [b], Laura Salerno [b], Elena Torricelli [b], Valentina Granese [b], Maria Lucia Valentini [b], Alessandro Sanduzzi Zamparelli [a], Valerio Torre [c], Raffaele Scala [b,*]

[a] Respiratory Unit, Federico II University, Naples, Italy
[b] Pulmonology and RICU, S Donato Hospital, Arezzo, Italy
[c] Pathology, S Donato Hospital, Arezzo, Italy

A B S T R A C T

Multiple myeloma is a malignant neoplasm of plasma cells that usually invades the bone marrow replacing normal bone marrow and producing large amounts of light chains of immunoglobulins (Ig) [1]. Clinical manifestations are related to the accumulation of these proteins in vital organs such as kidney and heart. Pleural effusion may be a sign of chest involvement that occurs in approximately 6% of patients with Known multiple myeloma [2,3]. We present the case of an 80-year- old man with pleural effusion as first extra-medullary clinical presentation of an occult multiple myeloma.

A 80 years heavy smoker (120 p/y) old man, without a history of occupational or environmental exposure, entered into the emergency room for dyspnoea due to recurrent right side pleural effusion after thoracentesis and treatment with diuretics and steroids. Past history included acute myocardial infarction (AMI) managed with a primary percutaneous angioplasty with drug-eluting stent (PTCA - DES) and an episode of lower digestive hemorrhage due to colon polyps which were endoscopically removed. The current drug therapy consisted of cardioaspirin, pantoprazole, pravastatin and furosemide.

At the physical examination the patient was afebrile, with blood pressure and pulse rate within normal range, while transcutaneous oxyhemoglobin saturation was 85% while breathing room air. Palpable lymphnodes and clubbing were not evident. Lung sound was absent at the right lower field. Blood gas analysis showed hypocapnic hypoxemic respiratory failure (pH: 7.38, PaO2 51 mmHg, PaCO2: 34 mmHg, HCO3- 25.5m Eq/L). Blood tests displayed anemia (Hb 8.1 g/dl) and a IgM-related monoclonal peak (34%) with an increased serum level of free light k-type chains.

After chest X-ray and ultrasound detection of right side pleural effusion, thoracic CT confirmed the presence of an huge right pleural effusion with atelectasis of the right lower lobe Fig. 1).

Patient underwent evacuative thoracentesis with extraction of about 1000 cc of dark yellow pleural liquid. The microbiological examination of the liquid did not revealed pathogenic germ's growth; the physical-chemical analysis disclosed the presence of an exudate according to Light criteria (pleural/serum LDH ratio = 10,7; pleural/serum protein ratio = 0,82)). The cytological examination showed eosinophilic material, lymphocytes, mesothelial cells and rare atypical plasmacytic elements.

It was therefore performed a medical thoracoscopy (Storz 4 mm) under analgosedation with propofol and petidine (0.5 mg/kg). After the evacuation of an amount of 800 cc of dark yellow liquid, the parietal pleura appeared smooth with altered vascular design in the basal regions. Multiple biopsies were performed. The histopathological examination of the parietal pleural samples demonstrated the presence of an infiltration of atypical plasmacytic elements with restriction of the k chains in the context of pleural fragments, at the site of chronic inflammation (Fig. 2). A subsequent slurry talc pleurodesis was performed by means of a large bore drainage channel (trocar 24 Fr) leading to nearly full right lung re-expansion.

Afterwards, the patient underwent a bone marrow biopsy which revealed the presence of plasmacytoid elements (12%); thus confirmed the diagnosis of multiple myeloma with extramedullary localization.

Discussion

Multiple myeloma is a B-cell neoplasm characterized by plasma cell proliferation and paraprotein secretion [1]. These plasma cells

* Corresponding author. Pulmonology and RICU, S Donato Hospital, Arezzo, Italy.
E-mail addresses: lucia_vale@libero.it (M.L. Valentini), sanduzzi@unina.it (A.S. Zamparelli), raffaele_scala@hotmail.com (R. Scala).

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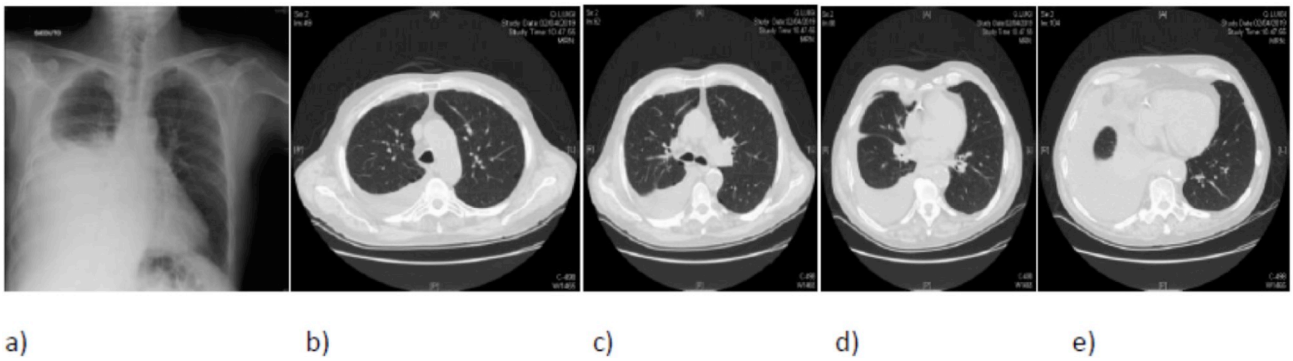

Fig. 1. a) Chest Xray; b)-c)-d)-e): Chest CT at different level from apex to the basis of lung.

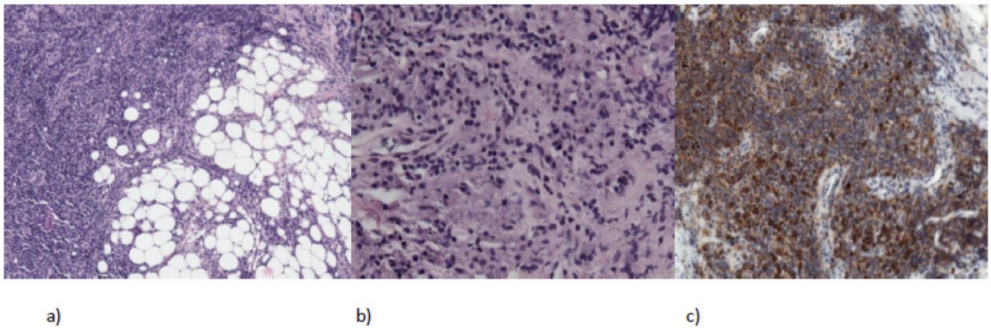

Fig. 2. Pleural biopsy: diffuse plasma cell infiltrate at pleural site with invasion of adipose tissue (2a); At higher enlargement, the morphology of the plasma cells with the presence of sporadic Russel bodies is appreciable (2b); Immunohistochemical staining with CD138 antibody to highlight cellular plasma infiltrate (2c).

accumulate mainly in the bone marrow and more rarely invade other organs, especially the chest [1–3]. Pleural effusion is rarely associated with multiple myeloma and is more often due to concomitant non-neoplastic diseases. Myelomatous pleural effusion is even rarer, as it has been found in less than 1% of cases and is associated with a poor prognosis [4,5]. The peculiarity of this clinical case is represented by the rare pleural localization of multiple myeloma and by the fact that the pleural effusion was the first clinical manifestation of the haematologic disorder. In the case presented, medical thoracoscopy played a crucial role for the diagnostic assessment of the recurrent pleural effusion. This pulmonologist interventional procedure is usually considered a second step exam as is generally performed when thoracentesis have failed to make an specific diagnosis of the recurrent exudative pleural effusion. In the context of pleural disease, thoracoscopic biopsy is characterized by an higher diagnostic accuracy as compared to ultrasound/CT guided pleural fine needle ago-aspiration (FNAB) [6,7].

References

[1] R.A. Kyle, S.V. Rajkumar, Plasma cell disorders, in: L. Goldman, D.A. Ausiello (Eds.), Cecil Textbook of Medicine, WB Saunders, Philadelphia, 2004.
[2] B.T. Uskul, H. Turker, F. Emre Turan, et al., Pleural effusion as the firstsign of multiple myeloma, Tuberk Toraks 56 (2008) 439–442.
[3] A. Harbhajanka, A. Brickman, J.W. Park, V.B. Reddy, P. Bitterman, P. Gattuso, Cytomorphology, clinicopathologic, and cytogenetics correlation of myelomatous effusion of serous cavities: a retrospective review, Diagn. Cytopathol. 44 (2016) 742–747.
[4] X.L. Xu, Y.H. Shen, Q. Shen, J.Y. Zhou, A case of bilateral pleural effusion as the first sign of multiple myeloma, Eur. J. Med. Res. 18 (2013) 7.
[5] H. Chen, P. Li, Y. Xie, M. Jin, Cytology and clinical features of myelomatous pleural effusion: three case reports and a review of the literature, Diagn. Cytopathol. 46 (2018) 604–609.
[6] Local Anaesthetic Thoracoscopy: British Thoracic Society Pleural Disease Guideline, 2010.
[7] F. Rodriguez-Panadero, J.P. Janssen, P. Astoul, Thoracoscopy: general overview and place in the diagnosis and management of pleural effusion, Eur. Respir. J. 28 (2006) 409–421.