CORRESPONDENCE

Multiple Myeloma: A Rare Haematological Cause of Nasal Septal Perforation and a Vasculitis Mimic

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Received: 1 September 2016 / Accepted: 28 September 2016 / Published online: 8 October 2016
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Multiple myeloma (MM) is characterized by malignant proliferation of plasma cells derived from a single clone producing monoclonal immunoglobulins and end organ dysfunction commonly described as “CRAB” features [1]. We describe a 34-year old gentleman who presented to our hematology clinic with complaints of epistaxis and low grade fever since 8 months and nodular skin lesions for 3 months. He denied any trauma, cocaine abuse, genital lesions, haematuria and hemoptysis. General examination was remarkable for pallor, papulo-nodular, erythematous, non-tender and non-hemorrhagic lesions distributed over shoulders and trunk (Fig. 1a, b) and an antero-inferior nasal septal perforation (2 × 2 cm) (Fig. 2a, b). A clinical

possibility of vasculitis possibly granulomatosis polyangiitis was kept. His blood investigations revealed hemoglobin—61 g/L, white cell count— $8.9 \times 10^9/L$, platelets— $216 \times 10^3/L$, sedimentation rate—95 mm/h, serum sodium 129 mmol/L, potassium 4.9 mmol/dL, blood urea nitrogen—16 mg/dL, creatinine 1.6 mg/dL, proteins—10.2 mg/dL, albumin—2.51, corrected calcium—11 mg/dL, β_2 microglobulin—5.6 mg/dL and LDH-540U/L. Serum protein electrophoresis (SPEP) identified a prominent M band (5.4 g/dL, IgG λ subtype). Twenty four hour urinary protein was 240 mg and was negative for Bence Jones proteins and active sediments. Urine protein electrophoresis (UPEP) and immunofixation (IFE) was unremarkable. Serum free light chain assay revealed κ : λ -0.05 (κ -30 mg/dL, λ -600 mg/dL). Chest-X-ray showed pleural effusion in right hemithorax (Fig. 3a). Autoimmune work-up (anti-nuclear antibodies and anti-neutrophil cytoplasmic antibodies) and viral markers (HIV serology, Australia antigen and IgG-Hepatitis C) were negative. Contrast enhanced CT of the chest revealed right-sided pleural effusion and a lytic expansile bony lesion on posterior aspect of left 6th rib (Fig. 3b). Pleural fluid analysis revealed a total cell count—3000/mL (70 % lymphocytes and 30 % neutrophils), protein—10.3 g/dL, sugar—84 mg/dL, adenosine deaminase (ADA)—84 IU/L and a negative polymerase chain reaction for *Mycobacterium tuberculosis*. Flow cytometry identified an infiltration of pleural fluid by CD 138 positive plasma cells. CT guided biopsy from the lytic bone lesion was suggestive of plasmacytoma. Biopsy from the skin lesions revealed an infiltration by CD 38 and CD 138 positive plasma cells (plasmacytoma) along with deposition of pink amorphous material with apple green birefringence in plane polarized microscopy suggestive of amyloidosis (Fig. 4a–c). Bone marrow aspirate revealed 58 % plasma cells. Nasal septal biopsy performed from the

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Fig. 1 Clinical pictures of the patient showing erythematous papules (a) and nodules (b) on the skin of shoulder and arms before treatment. There is complete resolution of these lesions (c, d) post-therapy

edge of the perforation revealed clusters of CD138 positive plasma cells along with amyloid deposition (Fig. 4d–f). Serum cryoglobulins were negative. Patient was diagnosed as a case of MM (RISS-III, IgG λ) with extramedullary plasmacytomas (skin, rib and nasal septum), myelomatous pleural effusion and AL amyloidosis and treated with VCD regimen [Cyclophosphamide (300 mg/m^2 oral weekly), Bortezomib (1.3 mg/m^2 subcutaneous weekly) and Dexamethasone (40 mg oral weekly)-28 days cycle]. He achieved a complete remission (negative SPEP, UPEP and IFE, non FDG avid rib lesion and resolution of pleural effusion on PET scan and no clonal plasma cells on bone marrow examination) with disappearance of skin lesions after 4 cycles of VCD (Fig. 1c, d). Nasal perforation however persisted. Patient is planned for high dose therapy

and autologous stem cell transplantation. Extramedullary plasmacytoma (EMP) may be seen at the time of initial diagnosis (7–18 %) or during the course of MM (6–20 %) and can arise either as (1) a local growth from the underlying bone, (2) hematogenous spread and (3) from invasive surgical procedures or fractures [2–5]. Cutaneous EMPs (5–10 %) are seen most frequently on trunk and abdomen and manifests as erythematous to violaceous cutaneous or subcutaneous papules, plaques or nodules with no evidence of lytic bone lesion directly below [6]. Pleural effusion in myeloma is uncommon (6 %) and usually benign arising from congestive heart disease, renal failure, pulmonary infarctions secondary to hypercoagulable state, plasma cell emboli, hypoalbuminemia and pneumonia. However, myelomatous pleural effusion (MPE) is rare (<1 %), seen

Fig. 2 Clinical photograph showing nasal septal perforation involving its antero-inferior part

Fig. 3 Chest X-ray of the patient showing the presence of pleural effusion in right hemithorax (a) and contrast enhanced CT scan of chest showing a lytic expansile lesion involving the posterior part of right 6th rib (b)

most commonly in IgA myeloma (80 %) and is usually secondary to a lytic rib lesion. The diagnosis of MPE relies upon demonstration of a monoclonal protein in pleural fluid or identification of monoclonal plasma cells in the fluid or pleura (by electrophoresis, flow cytometry and histopathological examination respectively) and may be confused with tuberculosis due to an elevated ADA secondary to lymphocyte proliferation [7]. Patients with nasal cavity involvement by myeloma present with nasal blockade, epistaxis or blood-tinged nasal crusting due to a circumscribed pedunculated tumor which shows monoclonal plasma cells on deeper biopsies due to submucosal location of the tumor and a thicker overlying mucosa due to an

inflammatory reaction [8]. Presentation as nasal septal perforation due to amyloid or plasma cell infiltration is unreported previously. Smith et al. [9] reported a case of nasal septal perforation secondary to cryoglobulinemia associated with waldenstrom's macroglobulinemia [9]. Workup for serum cryoglobulins was negative in our case thereby ruling out a possibility of cryoglobulinemia. We describe an unusual presentation of MM which mimicked vasculitis. Presentation of myeloma as a vasculitic mimic is unusual and may cause a diagnostic dilemma unless a high index of suspicion is maintained and appropriate biopsies coupled with immunohistochemistry and flow cytometry are obtained. Present case widens our

Fig. 4 Panel of photomicrographs of the skin (a–c) and nasal biopsies (d–f). **a** Medium power picture of the skin biopsy showing sheets of moderately pleomorphic plasma cells and occasional pleomorphic giant cells (H&E, $\times 250$). **b** High power photomicrograph to show congophilia of the amorphous material (Congo red, $\times 500$). **c** High power photomicrograph of the immunohistochemistry stained section using CD138 showing membranous positivity of the

plasma cells (peroxidase anti-peroxidase, $\times 500$). High power photomicrographs of the nasal biopsy showing clusters of plasma cells intermixed with pinkish amorphous amyloid protein in **d** (H&E, $\times 500$), which on special staining, showed CD138 positive plasma cell in **e** (peroxidase anti-peroxidase, $\times 500$) and congophilia by amyloid protein in **f** (Congo red, $\times 500$) pictures respectively

knowledge about the spectrum of clinical presentations of myeloma. Multiple myeloma as a rare haematological cause of nasal septal perforation is highlighted in this report.

Compliance with Ethical Standards

Conflict of interest The authors do not have any conflicts of interests to disclose.

Informed Consent The authors state that written consent was obtained from the patient prior to publication of any material relating to him.

Ethical Standard The authors declare that the article follows the required ethical standards as per Helsinki's declaration.

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