Anaplastic Multiple Myeloma with Multiple Genetic Anomalies

Sir,

Anaplastic multiple myeloma (AMM) is an extremely rare morphological variant of multiple myeloma (MM) with remarkably poor prognosis.[1] Morphologically, large-sized plasma-blastic cells with pleomorphic nuclei, often with multilobulation or multinucleation, are observed in AMM.[2] Past studies have revealed that 17p (p53) deletion and t (4;14) and CKS1B amplification occur more commonly in AMM than in nonanaplastic diseases; and this occurrence can lead to genetic imbalance and ultimately a more aggressive course and an unfavourable prognosis.[3,4] Anaplastic morphology might be present during the initial diagnosis or might occur later during the course of the disease [5]. Furthermore, AMM is prevalent among young patients, who are predisposed to extramedullary lesions; and AMM is resistant to conventional chemotherapies and specific novel agents such as bortezomib, carfilzomib, and daratumumab. Moreover, anaplastic plasma cells can pose a diagnostic challenge by mimicking the dysplastic megakaryocytes. We, herein, present a case of a 75-year woman who was diagnosed with AMM with multiple genetic defects.

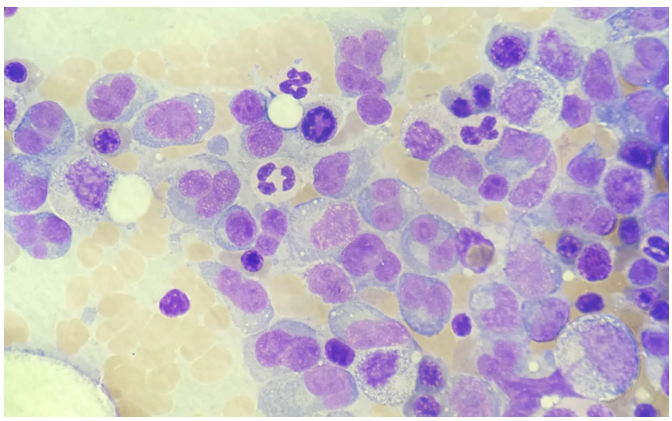

Figure 1: Mono-nuclear and bi-nucleated plasma cells in bone marrow aspiration specimen.

A 75-year woman presented with the complaint of fatigue for the past two months. Her laboratory investigations on admission revealed the following: hemoglobin 9 g/dL; leukocyte count 11,630 /µL; platelet count 183,000/µL; erythrocyte sedimentation rate 43 mm/1st h; creatinine 1.22 mg/dL; calcium 8.72 mg/dL; lactate dehydrogenase 771 U/L; total protein 90.5 g/dL; albumin 39.6 g/L; β-2 microglobulin 7.88 mg/dL; immunoglobulin (Ig) G 33.8 g/L; IgA 0.259 g/L; IgM level 0.183 g/L; serum-free kappa chain 6.13 mg/L; serum-free lambda chain 415 mg/L; and kappa/lambda ratio 0.014. IgG lambda monoclonality was detected on immunoelectrophoresis of the serum sample. The presence of rouleaux formation was determined in the peripheral smear. Predominantly, bi- and tri-lobed plasma cells, comprising nearly 50% of all mononuclear cells, were recorded on bone marrow aspiration (Figure 1). The condition was accordingly diagnosed as MM on bone marrow biopsy [lambda (+), kappa (−), CD138 (+)]. The clonal plasma cells from the bone marrow aspirate were examined by cytoplasmic interphase fluorescence *in situ* hybridization for myeloma-related genomic abnormalities. The positive cut-off level was established as that exceeding 5%. In case of multinucleated cells, any one of the nuclei containing the fluorescence *in situ* hybridisation abnormality was counted as positive. We noted 35% deletion in the 13q14.3 gene region, 35% deletion in the p53 gene region, 30% signals suggesting rearrangement of the IGH gene region, 35% trisomy of arm q of chromosome 1, and 30% t (14-16) fusion during the genetic examination. Moderately diffuse and symmetrically increased fluorodeoxyglucose (FDG) uptake was observed on positron emission tomography-computed tomography (maximum standardised uptake value: 4.55–.6.26) in the axial and the appendicular skeleton in the region conforming to the bone marrow. The patient was accordingly diagnosed with AMM, and treatment with bortezomib, cyclophosphamide, and dexamethasone was initiated. Unfortunately, the patient developed pneumonia at the end of the first cycle of the treatment and died.

CONFLICT OF INTEREST:
The authors declared no conflict of interest.

AUTHORS' CONTRIBUTION:
SD: Conception, design, manuscript writing.
AT: Materials, data collection, literature review.
OC: Manuscript writing, literature review, critical review.

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