A rare case of myelodysplastic syndrome with refractory thrombocytopenia

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Abstract

Myelodysplastic syndromes (MDS) represent a variety of clonal abnormalities, possibly preleukemic and display numerous phenotypic manifestations. Specific mutations carry high morbidity and mortality rates due to cell line dysplasia. MDS commonly presents with symptoms related to anemia, and approximately two-thirds will develop thrombocytopenia, a rare, but potentially lethal complication that increases complexity in treatment and morbidity, and may be due to unique genetic mutations leading to refractory thrombocytopenia, ultimately leading to an overall reduction in survival. Careful identification and monitoring of this patient subdivision can significantly reduce morbidity and mortality, and potential identification of specific gene mutations and advances in treatment options will hopefully provide guidance on treating at-risk patients in the future. We present a case of a man with MDS-U (karyotype 46, XY, del (20) (q11.2q13.3) (20) with no detected JAK2 V617F mutation), who in despite of appropriate evidence based treatment, continued to exhibit refractory thrombocytopenia.

Case Report

A 71 year-old Caucasian male ex-smoker without any significant past medical history presented to the emergency department complaining of worsening redness and swelling in his left lower leg. He presented five days earlier and was given antibiotic treatment which did not resolve the problem. On physical exam BP 119/68 mHg, Pulse 61/min, Resp 17/min, Temp: 96.6°F, O2 saturation 96% on Room air. Laboratory testing showed hemoglobin 12.2 g/dL, WBC 7.3 K/uL, Platelet count 26 K/uL, Neutrophils 29, Lymphocytes 20%, MCV 73.2 fl, glucose 120 mg/dL, BUN 14 mg/dL, Creatinine 0.8 mg/dL, Calcium 8.7 mg/dL, albumin 4.3 g/dL, Sodium 137 mmol/L, Potassium 4 mmol/L, Chloride 100 mmol/L, and CO2 25 mmol/L. Liver enzymes were within normal limits. X-ray ruled out osseous contribution to his problem and venous Doppler was negative for DVT. Subsequently a diagnosis of cellulitis was made. CBC demonstrated multiple cytopenias, including thrombocytopenia (Tables 1 and 2). A review of hospital records noted previous findings of thrombocytopenia as far as four years earlier. Considering pancytopenia an oncology consult was called who reviewed the peripheral smear which showed slight anisocytosis, monocytes with marked thrombocytopenia with some giant platelets, No pseudo-Pelger-Huet cells or circulating blasts were noted (Figure 1A). Given the laboratory findings, leukemia was considered as a differential and therefore a bone marrow biopsy was performed which showed the differential (Table 3) granulopoiesis, hypercellular marrow with increased myelomonocytic cells and megakaryocyte-gigantiblasts (Figure 1B,C). Immunohistochemistry showed CD117: about 5-10% positive cells, consistent with immature cells/ blast, CD34. No increase in CD34 positive cells, CD113: Highlights predominantly monocytic component, CD123: Negative. Reticulin staining showed mild diffuse reticulin fibrosis. Immunophenotyping by flow cytometry analysis FLG13-859 shows mild myelomonocytic abnormalities. PCR study for JAK2 is negative. FISH was performed for BCR/ABL1 to detect the (9;22) translocation associated with CML and less commonly ALL or AML were normal. Cytogenic testing demonstrated an abnormal karyotype 46, XY, del(20)(q11.2;q13.3)(20) (Figure 2). Other 15 metaphase spreads examined showed a normal male karyotype, 46, XY. Patient was diagnosed with myelodysplastic syndrome, Unclassified (MDS-U) with refractory thrombocytopenia.

Discussion and Conclusions

MDS is a hematologic disorder that typically presents with one or more cytopenias. Anemia is ordinarily part of a bi- or pancytopenia, with independent neutropenia and thrombocytopenia cell lines being unusual. Refractory thrombocytopenia is a rare, but potentially lethal complication that increases complexity in treatment for the physician and increased
A reduction in any cell line can lead to potential adverse outcomes in patients. After an extensive review of the current literature, it is evident that thrombocytopenia is one of the...
most serious problems found in many patients with MDS, yet normally successfully treated. In few cases, due to poten-
tially unique genetic mutations, platelet counts remain low despite 
evidenced based treatment. Careful identification and monitoring of this patient subdivision 
can significantly reduce morbidity and mortality. Identification of specific gene mutations 
and advances in treatment options will hope-
fully provide forthcoming guidance on detect-
ing at-risk patients in the future.

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