Title. A case of SF3B1 positive myelodysplastic/myeloproliferative neoplasm with ring sideroblasts and thrombocytosis

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Case presentation – discussion

A 77 year-old woman, previously maintained on phlebotomies -discontinued 3 years before- for a purported diagnosis of iron overload, was assessed for normocytic normochromic anemia. Her blood count showed: hemoglobin 90 g/L(normal 115-160), Mean corpuscular volume 93.2 fL(normal 79-97), erythrocyte distribution width 28.1%(normal 12-15) and platelets 422 x 10^9/L(normal 150-400). Iron studies showed elevated ferritin (491 ug/L; normal 13-150), total iron 14 umol/L (normal 7-26), transferrin saturation 32% (normal 11-56) and unsaturated iron binding capacity 30 umol/L (normal 19.7-66.2). Vitamin B6 level was low (<10 nmol/L; normal 20-96), HFE C282Y, H63D and JAK2 V617F mutations were negative. The peripheral blood smear showed marked anisopoikilocytosis(Fig. A; Wright’s stain x 40). A bone marrow aspirate and biopsy showed a hypercellular marrow (70-80%) with moderate dyserythropoiesis, minimal dysplastic changes in other lineages and increased ring sideroblasts(Fig. B; Perls’ stain x 100), consistent with a myelodysplastic/myeloproliferative neoplasm with ring sideroblasts and thrombocytosis(MDS/MPN-RS-T;WHO 2016). Karyotype was normal. Next generation
sequencing studies reported the presence of an SF3B1:c1986C>A, p.(His662Gln) mutation (Fig. C) with a variant allele frequency of 40.5%. *SF3B1* mutations result in disruption of mitochondrial iron metabolism and define a distinct subgroup of patients with myelodysplasia with a better prognosis than other subtypes.

**Figure Legend.** A. Peripheral blood smear (Wright’s stain x 40) showing marked anisopoikilocytosis. B. Bone marrow aspirate (Perls’ stain x 100) showing increased ring sideroblast (arrowheads). C. Next generation sequencing pileup plot showing sequencing results for location 2q33.1 (red arrowhead) indicating the presence of an SF3B1:c1986C>A mutation (black arrowhead).