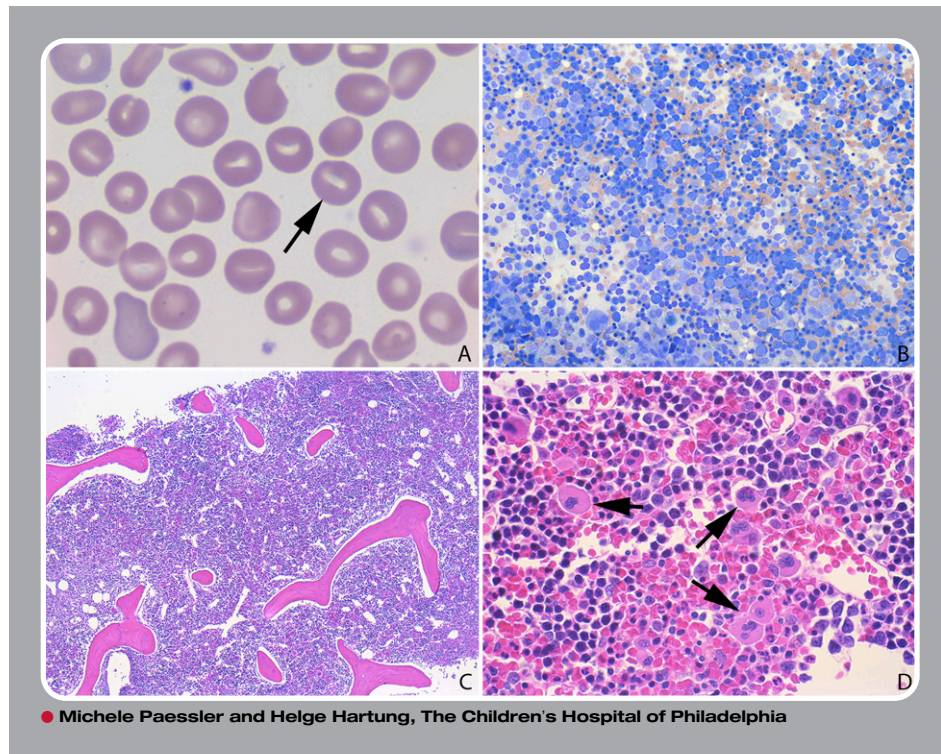


## Dehydrated hereditary stomatocytosis masquerading as MDS



**A** 23-year-old man presented to our clinic for a second opinion. He was given the diagnosis of myelodysplastic syndrome (MDS) years prior, based on a history of iron overload and bone marrow biopsy findings of a hypercellular marrow with erythroid hyperplasia and dysmegakaryopoiesis. Further history revealed intermittent jaundice and scleral icterus. His physical examination was notable for short stature, dental caries, bilateral short fourth fingers, and splenomegaly (spleen palpable 4 cm below the costal margin). The complete blood count showed macrocytosis, reticulocyte count of 18.6%, plus 0.4% nucleated reds. Hemoglobin and platelet count were normal. Comprehensive metabolic panel was unremarkable: lactate dehydrogenase, 1636 U/L; ferritin, 477 ng/mL. The peripheral smear showed anisocytosis and marked stomatocytosis (panel A: peripheral blood, original magnification  $\times 100$ ; anisopoikilocytosis and increased stomatocytes [arrow]). A repeat bone marrow aspirate and biopsy confirmed a hypercellular marrow with erythroid hyperplasia (panel B: bone marrow aspirate, original magnification  $\times 5$ , marked erythroid hyperplasia; panel C: bone marrow biopsy, original magnification  $\times 5$ , hypercellular marrow with trilineage hematopoiesis), as well as dysmegakaryopoiesis (panel D: bone marrow biopsy, original magnification  $\times 40$ ; cluster of megakaryocytes including small and hypolobated forms [arrows]). Cytogenetics and single-nucleotide polymorphism array were normal. Whole-exome sequencing revealed a pathogenic germ line mutation in *PIEZO1*, c.6239\_6256dup18, consistent with the diagnosis of dehydrated hereditary stomatocytosis. Of note, a second pathogenic mutation was identified in *PROPI* and was likely the cause of the familial short stature. The cause of the skeletal abnormalities remains unknown.

Autosomal-dominant mutations in *PIEZO1* causing “dehydrated hereditary stomatocytosis” have been discovered recently and result in increased red cell membrane permeability for cations, shortened red cell survival, and the clinical picture of hemolytic anemia. Common sequelae are iron overload, splenomegaly, and cholelithiasis. Our case illustrates that this clinical entity can be associated with bone marrow hyperplasia and dysmorphology and thus be misdiagnosed as MDS.



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