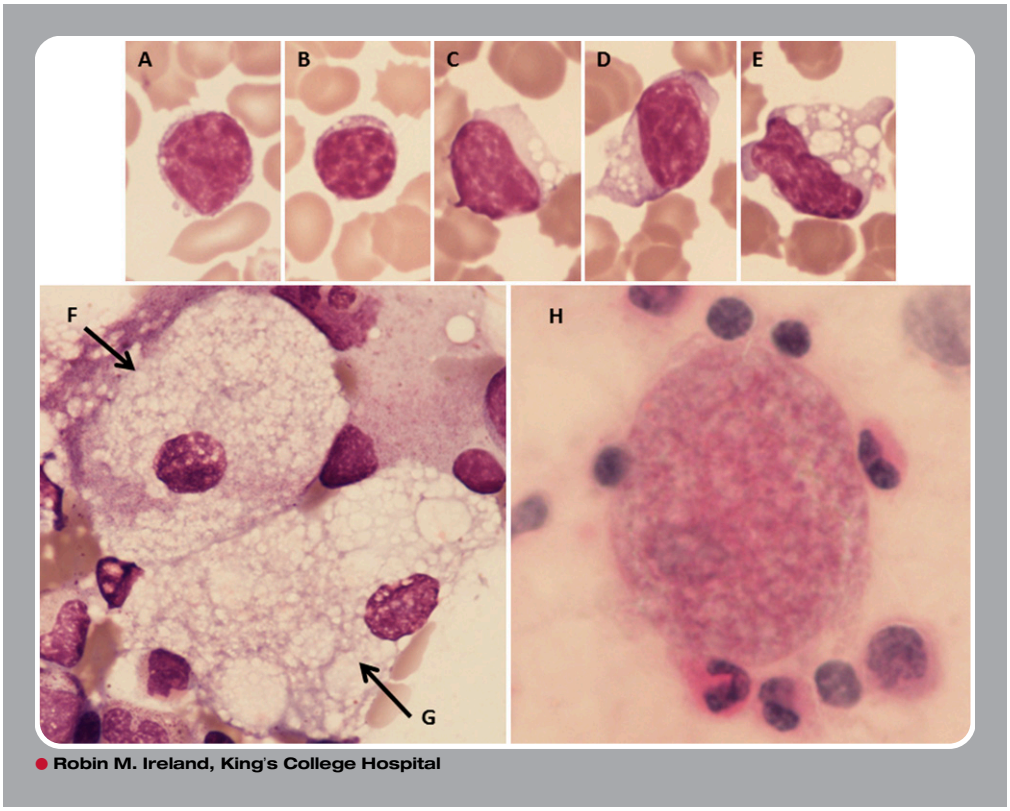
bloodwork
IMAGES IN HEMATOLOGY

Morphology of Niemann-Pick type A metabolic storage disorder



An Italian girl, of nonconsanguineous parents, had normal growth and development but at 1 year, hepatosplenomegaly was noted. An older sister was normal, there was no family history of inherited disorders, and investigations were inconclusive. She failed to thrive with height/weight falling to the 10th centile of normal by 12 years. Hepatomegaly (10 cm) and splenomegaly (11 cm) were present; liver function tests were normal. Fine motor skills were normal but walking was impaired and mental skills regressed. The peripheral blood showed acanthocytes and echinocytes. Lymphocyte vacuolation was present in 2% of lymphocytes with variation in number and size of vacuoles (panels A-E; May-Grunwald–Giemsa stain, original magnification ×100). The bone marrow aspirate demonstrated large macrophages mainly with uniform vacuoles and few inclusions (panel F; May-Grunwald–Giemsa stain, original magnification ×100) though some were of variable size (panel G; May-Grunwald–Giemsa stain, original magnification ×100). Macrophages were moderately periodic acid–Schiff positive (panel H; periodic acid–Schiff, original magnification ×100). The blood, marrow, and rectal mucosal findings were most consistent with Niemann-Pick disease type A (NP-A).

NP-A is an extremely rare lysosomal storage disorder due to acid sphingomyelinase (ASM) deficiency resulting in intracellular sphingomyelin accumulation, neurovisceral degeneration, major organ dysfunction, and premature death. Confirmation of diagnosis involves fibroblast culture with enzyme activity measurement and identification of mutations (mainly missense/nonsense) of the ASM gene (*SMPD1*) on chromosome 11p15.4-p15.1 using standard sequencing techniques.

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