Iron overload, G6PD deficiency, and lead levels on blood smears

Paolo D. Pigatto¹ · Anna Ronchi² · Gianpaolo Guzzi³

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In their insightful case report, Vander Meeren and colleagues [1] describe a 12-year-old boy with hemochromatosis associated with episodic hemolysis from glucose-6-phosphate dehydrogenase (G6PD) deficiency [1]. During the initial and thorough workup for acute hemolysis, the peripheral blood smear was examined, and the authors found that the patient's red blood cells contained an unexpectedly abundant basophilic stippling of polyribosomal origin [1]. We congratulate the authors on this case report, as it has a number of interesting clinical features [1]. However, we would like to offer an alternative view to the interpretation of this case study [1]. The patient's blood lead (Pb) level was checked and found to be 12 µg/L. Although, according to the CDC guidelines [2], the acceptable lead (Pb) level limit of blood lead (Pb) is <5 µg/dLin children, we would like to stress that the normal blood lead (Pb) level is zero (0) [3]. We believe that exposure to lead (Pb) is an even more serious issue in children than in adults [4]. After ingestion or inhalation of lead (Pb), intestinal lead (Pb) absorption, as well as lead (Pb) absorption by the lungs, may be physiologically higher than in adults [4]. In the same way, children and adolescents metabolize lead (Pb) more rapidly than adults, leading to higher lead (Pb) absorption. There is

also strong evidence that lead (Pb) exposure affects heme synthesis by inhibiting 5-aminolevulinic acid (ALA) dehydratase [5–7], causing accumulation of 5-aminolevulinic acid (ALA) [4]. Metabolically active lead (Pb) is able to impair heme synthesis at concentrations of 10 µg/L [4]. Therefore, exposure to environmental lead (Pb) may cause or exacerbate acute diseases associated with other causes [4]. It is, thus, biologically plausible that even a relatively low level of exposure to lead (Pb) may have contributed to the observed basophilic stippling [8] on the peripheral blood smears in the report by Vander Meeren and colleagues [1].

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✉ Gianpaolo Guzzi
gianpaolo_guzzi@fastwebnet.it

¹ Department of Biomedical, Surgical and Dental Sciences, Unit of Oral Pathology and Medicine, IRCCS Galeazzi Hospital, University of Milan, Milan, Italy
² Pavia Poison Control Center and National Toxicology Information Centre, Toxicology Unit, IRCCS Maugeri Foundation and University of Pavia, Pavia, Italy
³ Italian Association for Metals and Biocompatibility Research-A.I.R.M.E.B. (Not-for-Profit Organization), Via A. Banfi, 4, 20122 Milan, Italy