Basophilic stippling and chronic lead poisoning

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A 66-year-old female patient presented with a 9-month history of abdominal colic and fatigue that prompted abdominal CT scan and gastrointestinal endoscopy with negative assessments. The hemoglobin was 72-81g/L with an increase in the serum ferroprotein. Bone marrow (Panel A) and peripheral blood smears (Panel B) revealed extensive erythrocytes of coarse basophilic stippling. It was suggested that there may have been an accumulation of heavy metal in her body. The level of lead of her blood and urine increased to 1036 µg/L (permissible < 400 µg/L [1]) and 246 µg/L (permissible < 70 µg/L [1]), respectively. Her blood mercury level was below the permissible level (permissible <15 µg/L [2]). Therefore, she was initially diagnosed with chronic lead poisoning. Further history revealed that she had been taking an
adulterated dietary supplement named as “Fengwangjiang” from unchecked sources for the past more than 1 year. Bone marrow smears showed 4+ iron stores (Panel C) and ring sideroblasts (Panel D) indicating of ineffective heme synthesis. She approved the doctor’s order to stop taking the dietary supplement and received lead-chelation therapy during hospitalization and her symptoms improved. Basophilic stippling provides a clue to the underlying diagnosis and an understanding of the underlying pathogenesis.

**Keywords:** Basophilic stippling, chronic lead poisoning

**Figure 1.** (A) Bone marrow smears and (B) peripheral blood smears revealing extensive erythrocytes of coarse basophilic stippling (X1000, Wright-Giemsa stain). Bone marrow smears showed 4+ iron stores (C) and ring sideroblasts (D) (X1000, iron stain).

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