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A 12 Year-Old Girl with Severe Iron Deficiency Anemia Secondary to Chronic Pediculosis Infestation

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A 12 year-old female presented to an outside emergency department with her grandmother due to worsening fatigue over the preceding six months. She also reported intermittent right-sided abdominal discomfort for two months. The patient's past medical history was only remarkable for chronic infestation with*Pediculus humanus capitis*(head louse), reportedly treated multiple times with topical medications without resolution. The infection had been persistent for six years. She did not consume excessive amounts of cow's milk.

Physical exam was remarkable for pallor, tachycardia, systolic ejection murmur and visible nits. Laboratory studies showed hemoglobin 4.7 g/dL, mean corpuscular volume (MCV) 53.4 fL, reticulocytes 3.9%, white blood cell count 14.2 x 103 /µL, platelet count 449 x 103 /µL, total iron binding capacity (TIBC) 472 µg/dL, serum iron 8 µg/dL, iron saturation 2%, and ferritin 2 ng/mL. Peripheral blood smear showed a severe microcytic hypochromic anemia with anisopoikilocytosis, without schistocytes or blasts. She was premenarchal. Stool was negative for occult blood, ova and parasites, and celiac studies were negative.

A diagnosis of iron deficiency of anemia (IDA) was made by the classic presentation of microcytic, hypochromic anemia with hypoferritinemia and elevated TIBC, along with an inappropriately low reticulocyte count. The most common etiologies of iron deficiency anemia in children were ruled out by history and laboratory evaluation, making chronic pediculosis the most likely cause in this patient. She received aggressive treatment for pediculosis, packed red blood cell transfusions, and oral ferrous sulfate. By day 65 after presentation, her laboratory values had normalized (hemoglobin of 13.6 g/dL, MCV of 80.3 fL, ferritin of 28 ng/mL). Pediculosis infestation remained resolved.

Iron deficiency is the leading etiology of anemia worldwide and the most common hematologic disorder. Parasitic and vector-borne infections are a common cause of IDA internationally, but uncommon in developed countries. Severe iron deficiency secondary to pediculosis in children is an exceedingly rare entity despite high infestation rates, with nearly 40% of North American children affected. *Pediculus humanus* is an Arthropod species of sucking lice belonging to the family *Pediculidae*. The two subspecies are *Pediculus humanus capitis* (head louse) and *Pediculus humanus humanus* (body louse). The average child with pediculosis infestation will average 0.008 mL of blood loss per day due to louse consumption; however, heavily infested children can lose up to 0.7 mL per day. Thus, the patient may have had greater than 1.5 liters of blood consumed during her period of infestation.

To our knowledge, this is the only reported case of a child in the United States with severe IDA secondary to chronic severe lice infestation. Iron deficiency is likely an under-recognized complication of severe and/or chronic pediculosis. In patients with history of mental health conditions, homelessness, or children who are in neglectful social situations, an evaluation of hemoglobin and iron status by the pediatrician may be a useful adjunct in severe cases.

Disclosures

No relevant conflicts of interest to declare.

Author notes

* Asterisk with author names denotes non-ASH members.