Blue sclera: An overlooked finding of iron deficiency

A 46-year-old woman presented with a 3-month history of progressive fatigue and shortness of breath. She had a history of uterine fibroids with heavy menstrual bleeding but had missed her gynecologic follow-up examination 2 years earlier. Physical examination revealed facial and conjunctival rim pallor, blue sclera (Figure 1A) with conjunctival rim pallor, and koilonychia. Laboratory tests were hemoglobin 4.0 g/dL (reference range 12–16), hematocrit 16.7% (37–47), mean corpuscular volume 54.8 fL (80–98), serum ferritin 0.8 ng/mL (24–307), and transferrin saturation 2.8% (20%–50%). Iron deficiency anemia was diagnosed.

The patient received a blood transfusion and began taking iron supplements. Her uterine fibroids were treated with oral gonadotropin-releasing hormone antagonists. Three months later, her symptoms and physical findings, including the blue sclera (Figure 1B), had resolved, and her hemoglobin and ferritin levels had normalized.

Blue sclera is a common and useful finding of iron deficiency but is often overlooked. In 1908, Sir William Osler first described a blue discoloration of the sclera as a symptom of anemia in young girls and wrote that the eyes “have a peculiar brilliancy and the sclerotics are of a bluish color”.1 Kalra et al2 subsequently found that blue sclera is more common in patients with iron deficiency anemia (87%) than in those with other types of anemia (7%). In adult patients, blue sclera reportedly has 87% to 89% sensitivity and 64% to 94% specificity for iron deficiency anemia and iron deficiency (ie, anemia need not always be present).2,3 Blue sclera has been reported in other conditions, albeit rarely, including rheumatoid arthritis, myasthenia gravis, and long-term steroid therapy.2 Its pathogenesis is thought to involve thinning of the collagen fibers of the sclera due to iron deficiency, which allows the bluish color of the underlying uvea to become visible.

Figure 1. (A) Bluish sclera with peculiar brilliancy and pale skin at presentation. (B) Normalized sclera color 3 months after iron supplementation therapy.

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REFERENCES


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