Severe Iron Deficiency Anemia Causing Pericardial Effusion

Emily C. Skutnik DO

Anita Fei MD

Alisha Hossain DO

Desire G. Guthier DO

Andrew Viscusi DO

See next page for additional authors

Authors

Emily C. Skutnik DO, Anita Fei MD, Alisha Hossain DO, Desire G. Guthier DO, Andrew Viscusi DO, Bradley Lash MD, and Ali Yazdanyar DO

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Lehigh Valley Health Network, Allentown, PA

Introduction

Pericardial effusions are caused by numerous etiologies including metabolic, cardiac disease, infection, neoplastic, or idiopathic. They may be isolated or part of a systemic illness. Severe iron deficiency anemia causing pericardial effusion has been rarely reported and is not well studied.[1]

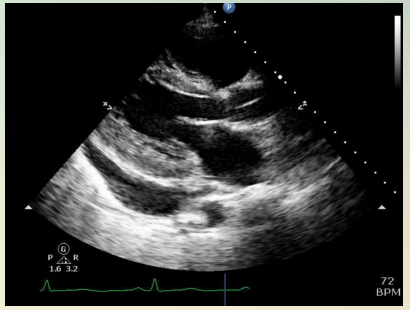
Clinical Presentation

A 48-year-old female without significant past medical history presented with shortness of breath and exercise intolerance. She reported a five-month history of menometrorrhagia with blood clots. Physical examination was significant for a grade 3 systolic murmur and pitting edema to the knees. Labs revealed a hemoglobin of 1.7 g/dL, hematocrit of 6.3%, MCV of 51, RDW of 34.2, and reticulocyte count of 0.0245. Hemolysis markers were negative. She was transfused four units of packed red blood cells. Iron studies were not collected prior to administration of the blood transfusions, and therefore, iron studies were not available for review. However, peripheral smear demonstrated hypochromic and microcytic red blood cells with anisocytosis, poikilocytosis, and cigar cells which are diagnostic of iron deficiency anemia. She received 1 g IV Dextran for her presumed iron deficiency anemia. Echocardiogram revealed a moderate-large circumferential pericardial effusion anterior and posterior to the heart without evidence of tamponade. The location of the effusion and her anemia precluded pericardiocentesis. Other rheumatologic and cardiac workup was negative. Her symptoms improved and she was transitioned to oral iron supplementation with a hemoglobin at discharge of 6.6 g/dL.

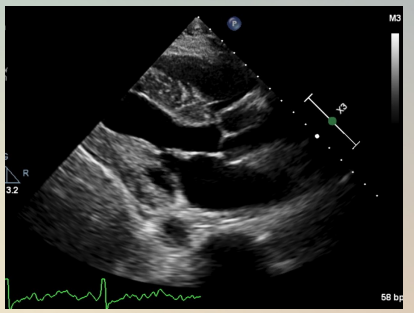
Within three weeks of iron infusion, her hemoglobin normalized to 12.3 g/dL. A repeat echocardiogram three months after her presentation showed a small posterior pericardial effusion, markedly reduced from prior. During this period, she was readmitted for new onset status epilepticus, thought to be due to CNS vasculitis.

Conclusion

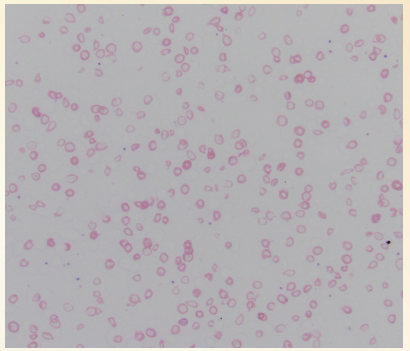
Iron deficiency anemia has been associated with high output heart failure, and subsequent pulmonary arterial hypertension, which may cause pericardial effusions.[3] The differential diagnosis for pericardial effusion is extensive and should be considered in each clinical context with every patient.



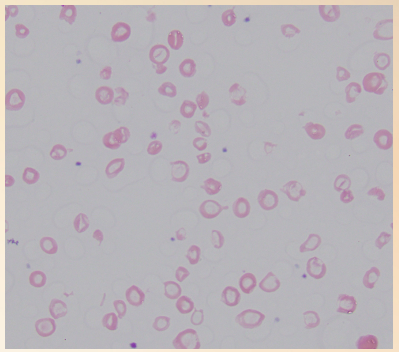
Echocardiogram Parasternal
Long Axis December 28, 2020



Echocardiogram Parasternal
Long Axis March 12, 2021



Peripheral blood smear low power
Photo by Nupam Patel, MD



Peripheral blood smear high power
Photo by Nupam Patel, MD

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