

Case Report: Hemoglobin of 2.0 g/dL-
Secondary to Excessive Cow’s Milk Intake
in a 2-Year-Old Male

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INTRODUCTION

Iron deficiency anemia (IDA) is a common condition in young children, particularly those who consume large amounts of cow’s milk, which is low in iron and can contribute to iron depletion over time. The incidence of IDA is as high as 20.1% in industrialized countries and 39% in developing countries among children aged 0–4 years.¹ Excessive cow’s milk consumption can lead to occult gastrointestinal blood loss, colitis, and impaired iron absorption.² This report describes a 2-year-old male with severe IDA secondary to excessive cow’s milk intake, requiring admission to the pediatric intensive care unit and multiple blood transfusions. This case highlights the importance of assessing nutrition in young children and recognizing the risk of anemia associated with overconsumption of cow’s milk.

CASE REPORT

A 2-year-old male presented to the emergency department (ED) with his parents, who reported worsening weakness, fussiness, and poor appetite over the past six months. They noted that he could no longer climb a flight of stairs without becoming fatigued and fussy.

On presentation, his vital signs were within normal limits: temperature 36.7°C, heart rate 139 beats per minute, respiratory rate 22 breaths per minute, and oxygen saturation 97% on room air. His height was 82.55 cm, and his weight had declined from the 97th percentile a year prior to the 37th percentile. Physical examination revealed a pale but alert, active, and playful child. There were no signs of acute illness, rash, bruising, or hepatosplenomegaly.

Initial laboratory workup showed profound anemia (Table 1). Peripheral smear revealed microcytic anemia with anisopoikilocytosis, including ovalocytes, polychromasia, and elliptocytes. Given the severe anemia, additional history was obtained from the parents, who disclosed that the child primarily consumed cow’s milk, approximately half a gallon per day, and was a highly selective eater, refusing most other foods. They denied any significant bleeding, epistaxis, or easy bruising but reported low-volume, hard stools without visible blood.

The child was admitted to the pediatric intensive care unit for further management. His anemia was attributed to iron deficiency from inadequate dietary intake and chronic gastrointestinal blood loss secondary to cow’s milk protein-induced colitis. He received a total of 15 mL/kg of packed red blood cells, divided into three equal aliquots administered six hours apart. Hematology was consulted and recommended continued iron supplementation following transfusion. He received iron dextran (100 mg daily for five days) and was started on oral elemental

iron (30 mg daily).

Table 1. Initial labs in the emergency department.

Lab	Result
Hemoglobin	2.0 g/dL
Hematocrit	9.9%
Mean Corpuscular Volume	50.8 fL
Mean Corpuscular Hemoglobin	10.3 pg
Mean Corpuscular Hemoglobin Concentration	20.2 g/dL
Red Cell Distribution Width	24.9%
White Blood Cell Count	8,300/μL
Platelet Count	279,000/μL
Reticulocyte Count	2.7%
Guaiac Test	Positive for occult blood
Iron	37 μg/dL
Total Iron Binding Capacity	682 μg/dL
Iron Saturation	5%
Transferrin	458 mg/dL
Ferritin	5 ng/dL
Lead Level	<1μg/dL

Throughout his hospital stay, the patient’s energy and pallor improved without signs of transfusion-related complications. The presence of occult blood in the stool was attributed to cow’s milk protein-induced colitis. Hematology confirmed the diagnosis of severe iron deficiency anemia (IDA) based on dietary history, clinical presentation, laboratory findings of microcytic, hypochromic anemia, and a positive guaiac test.

After five days of hospitalization, the patient was discharged in stable condition. His parents received extensive counseling on dietary diversification, including increasing iron-rich foods and limiting cow’s milk intake. He also was referred for outpatient nutritional counseling.

At a one-month follow-up with his pediatrician, his hemoglobin had improved to 11.5 g/dL, and he had resumed eating solid foods.

DISCUSSION

IDA is a common condition in toddlers, particularly those who consume excessive amounts of cow’s milk. Cow’s milk is low in iron, inhibits iron absorption, and can cause occult gastrointestinal bleeding due to cow’s milk protein-induced colitis.³ This case highlights the severity of anemia that can develop in such circumstances and underscores the importance of dietary screening and counseling to prevent iron deficiency.

The American Academy of Pediatrics (AAP) recommends limiting cow’s milk intake to 16–24 ounces per day for children aged 1–5 years to prevent nutritional deficiencies.⁴ In cases of severe anemia, blood transfusion may be necessary, as seen in this patient. Following transfusion, iron supplementation is essential to replenish iron stores and prevent recurrence.

CONCLUSIONS

This case of a 2-year-old male with severe IDA illustrates the risks associated with excessive cow's milk consumption in young children. It underscores the importance of early recognition, dietary counseling, and appropriate management to prevent potentially life-threatening complications.

REFERENCES

¹ Moscheo C, Licciardello M, Samperi P, La Spina M, Di Cataldo A, Russo G. New insights into iron deficiency anemia in children: A practical review. *Metabolites* 2022; 12(4):289. PMID: 35448476.

² Ziegler EE. Consumption of cow's milk as a cause of iron deficiency in infants and toddlers. *Nutr Rev* 2011; 69(Suppl 1):S37-S42. PMID: 22043881.

³ Baker RD, Greer FR; Committee on Nutrition American Academy of Pediatrics. Diagnosis and prevention of iron deficiency and iron-deficiency anemia in infants and young children (0-3 years of age). *Pediatrics* 2010; 126(5):1040-1050. PMID: 20923825.

⁴ DiMaggio DM, Cox A, Porto AF. Updates in infant nutrition. *Pediatr Rev* 2017; 38(10): 449-460. PMID: 28972048.

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