Reversible stomatocytosis

Akanksha Agrawal, Deepanshu Jain, Mitchell Goldstein

ABSTRACT

Abstract is not required for Clinical Images
Reversible stomatocytosis

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CASE REPORT

Stomatocytosis is a rare morphological condition of the red blood cells in which the normal central zone of pallor is replaced by a mouth-like or slit-like pattern. Stomatocytosis can be either hereditary or acquired in the setting of acute alcohol consumption, chronic liver disease [1]. It may be asymptomatic or lead to hemolysis presenting as anemia. We present a case of a young lady with chronic alcoholism who presented with symptomatic anemia. Alcoholism is known to cause hypophosphatemia [2], which can cause stomatocytosis. Repletion of phosphorus and abstinence of alcohol improved the patient's anemia, improving the stomatocytosis on the peripheral smear. The use of an easily available, rapid and cheap test like peripheral smear in guiding the therapy in such a patient reflects the importance of peripheral smear and its cost-effectiveness.

A 38-year-old African-American female with history of chronic pancreatitis, cholelithiasis, diabetes mellitus and alcohol abuse presented with severe anemia and light-headedness. She was consuming about 80 grams of alcohol on a daily basis. On admission, she had hemoglobin of 5.6 g/dL, mean corpuscular volume (MCV) 90 fL (normal), iron level 92 µg/dL (normal) and ferritin 1188 ng/mL. Her vitamin B12 and folate levels were normal and reticulocyte count corrected for anemia was 1.2%. Her phosphorus was 1.0 mg/dL (critically low). Abdominal ultrasound was consistent with hepatic steatosis and distended gallbladder with possible gallstones. On peripheral smear, she had stomatocytosis (Figure 1A). Numerous RBCs were described with fish mouth appearance, lacking the typical central pallor. After three days of phosphorus repletion, the phosphorus level improved to 2.7 mg/dL and peripheral smear showed marked improvement with negligible stomatocytes (Figure 1B). Patient’s anemia improved significantly. She was counseled to abstain from alcohol use, and discharged home with adequate follow-up.

DISCUSSION

Stomatocytosis can be hereditary or acquired secondary to medications (vincristine, vinblastine, chlorpromazine, etc.), acute alcohol intoxication or chronic liver disease [1, 3, 4]. Our patient had hypophosphatemia due to alcohol ingestion, which further led to stomatocytosis of the blood cells. In a study by Rauchenzauner et al., 3.4% of patients with acute alcohol intoxication had hypophosphatemia [5]. This results from decreased phosphate absorption and increased urinary phosphate excretion. In addition, chronic alcoholism can induce cellular phosphate depletion [6]. A study done in

Figure 1: The peripheral smear on the left showing stomatocytes in the setting of hypophosphatemia due to chronic alcohol consumption. The subsequent smear on the right side reflects the improvement in the blood picture with almost no stomatocytes after phosphorus repletion.
1979 by Wislöff et al. studied the peripheral blood smears in 100 alcoholic patients. They reported 15% patients manifesting marked stomatocytosis [1]. Low serum phosphorus level depletes the ATP level in RBC affecting the RBC pliability. The complex metabolic sequelae of hypophosphatemia also include 2,3-diphosphoglyceric acid depletion, a shift to the left in the oxygen dissociation curve, decreased glucose utilization, and increased lactate production, resulting in rigid and non-yielding RBCs.

In the review of recent literature, not many studies have commented on the association of hypophosphatemia with stomatocytosis. This case illustrates the presence of hypophosphatemia with chronic alcohol use and its effect on peripheral smear in the form of stomatocytosis. It also reports the prompt improvement of stomatocytosis with repletion of phosphorus. Peripheral smear is an easily available, rapid and a cheap test. The presence of a rare finding in a common scenario like chronic alcohol consumption highlights the clinical importance of peripheral smear.

CONCLUSION

This case depicts the reflection of significant laboratory value on the peripheral smear in a patient with severe hypophosphatemia in the setting of chronic alcohol consumption leading to stomatocytosis. This rare occurrence in a common clinical scenario highlights the importance of peripheral smear as a clinical tool.

Keywords: Alcoholism, Phosphorus, Stomatocytosis

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