Severe Vitamin C Deficiency in a Patient with Crohn’s Disease

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INTRODUCTION
Several micronutrient deficiencies have been observed in patients with Crohn’s disease (CD). Vitamin C deficiency, known as scurvy, is primarily caused by severe lack of vitamin C in the diet. While vitamin C deficiency has been reported in developing countries affected by malnutrition, it has not been well described amongst patients with CD.

CASE DESCRIPTION

History of Present Illness:
- 57 year-old female with history of Crohn’s disease s/p small bowel resection and 60-pack/year tobacco use history presented to the ED with a 2-week history of worsening left lower extremity edema and purpura.
- Lesions began as erythema on left foot, extended up the LLE, and developed into bruising. A second rash developed on RLE one week later. No prior DVT, PE, trauma, or injuries.
- 9 days prior, presented to outside hospital ED and treated with clindamycin for suspected cellulitis on left foot. Hemoglobin normal, and ultrasound of lower extremities negative for DVT on discharge.

Physical Exam:
- Vital Signs: afebrile, BP 94/47, pulse 107
- Exam: 2+ pitting edema in LLE, purpura extending medially from the L-knee to the inguinal region

Laboratory Data:
- CBC: Hemoglobin 7.8, MCV 100.8
- Low iron (35); elevated Ferritin (269), reticulocyte count (4.7%), LDH (250), CRP (5.60), ESR (76)
- Normal haptoglobin, vitamin B12, folate
- BMP: WNL
- PTT/INR mildly elevated: PTT 17.1, INR 1.5
- Hepatitis Panel: negative

Imaging:
- CTA of LLE: widely patent left lower extremity arteries; negative for hematoma or fluid collection
- LLE US: negative for DVT

PHYSICAL EXAM FINDINGS

(Case may include images of physical exam findings such as swelling, edema, purpura, etc.)

CLINICAL COURSE

- Patient was placed on vancomycin for left lower extremity cellulitis and admitted for further workup.
- Surgery was consulted and ruled out necrotizing fasciitis and compartment syndrome.
- Hemoglobin decreased to 6.8, and she received 2 units of packed RBCs.
- Hematology was consulted due to anemia and determined that hemolysis was unlikely contributory, as haptoglobin was normal.
- Dermatology was consulted to evaluate bilateral lower extremity ecchymoses. Punch biopsies were taken from the lower extremities and showed perifollicular purpura consistent with scurvy.
- Further questioning revealed that patient had a poor diet with minimal citrus food intake.
- Vitamin C level was found to be less than 0.1 L (normal 0.3-2.7 mg/dL).
- Patient was started on vitamin C 500 mg BID and discharged home on vitamin C supplementation.

BIOPSY FINDINGS

- Figure 1. Swelling of the LLE accompanied by purpura in the form of ecchymoses and petechiae (A); perifollicular, non-blanchable red-purple macules on the RLE (B); shiny, atrophic purple-tan patches on the anterior tibias bilaterally (C).

DISCUSSION

- This case highlights the importance of vitamin C intake and absorption in patients with underlying CD with history of small bowel resection and long-term tobacco use.
- This patient is at increased risk for vitamin C deficiency due to her history of small bowel resection. Vitamin C is absorbed in the jejunum and ileum, which are also anatomical sites affected by CD.
- Patients with CD are often encouraged to follow a low-residue diet minimizing intake of fresh fruits and vegetables rich in vitamin C.
- Vitamin C promotes iron absorption. Patients with vitamin C deficiency may be more prone to bleeding and ecchymoses, as seen in our patient who presented with purpura and was found to be severely anemic with low iron levels.
- This case suggests iron absorption should be further evaluated and supplementation should be considered in patients with vitamin C deficiency, particularly in patients with CD who are already at risk for iron deficiency anemia.
- Our patient had a 60-pack-year tobacco use history. Vitamin C is an important antioxidant, offering protection by scavenging harmful free radicals and reactive oxidative species. Smoking increases oxidative stress and thus vitamin C turnover. In patients who use tobacco, higher daily vitamin C intake is recommended.
- This case suggests that patients with small bowel CD should be screened regularly for vitamin C deficiency. Supplementation should be considered if additional risk factors, such as tobacco use, are present.

RESOURCES