

# 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

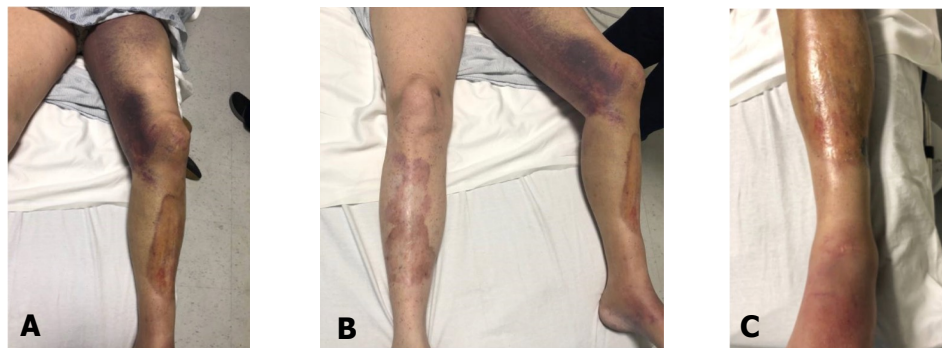
### Laboratory Data:

- 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

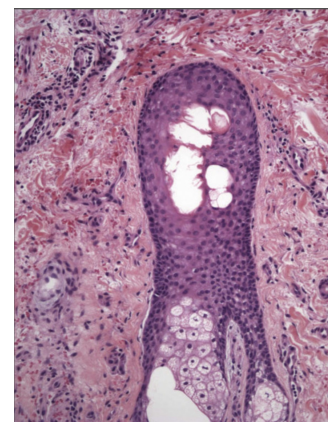


**Figure 1.** Swelling of the LLE accompanied by purpura in the form of ecchymoses and petechiae (A); perfollicular, non-blanchable red-purple macules on the RLE (B); shiny, atrophic purple-tan patches on the anterior tibiae bilaterally (C).

## 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 perfollicular 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 2.** Perfollicular hemorrhage, consistent with scurvy diagnosis.

## 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

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