

A Rare Presentation of Scurvy in a Well-Nourished Patient

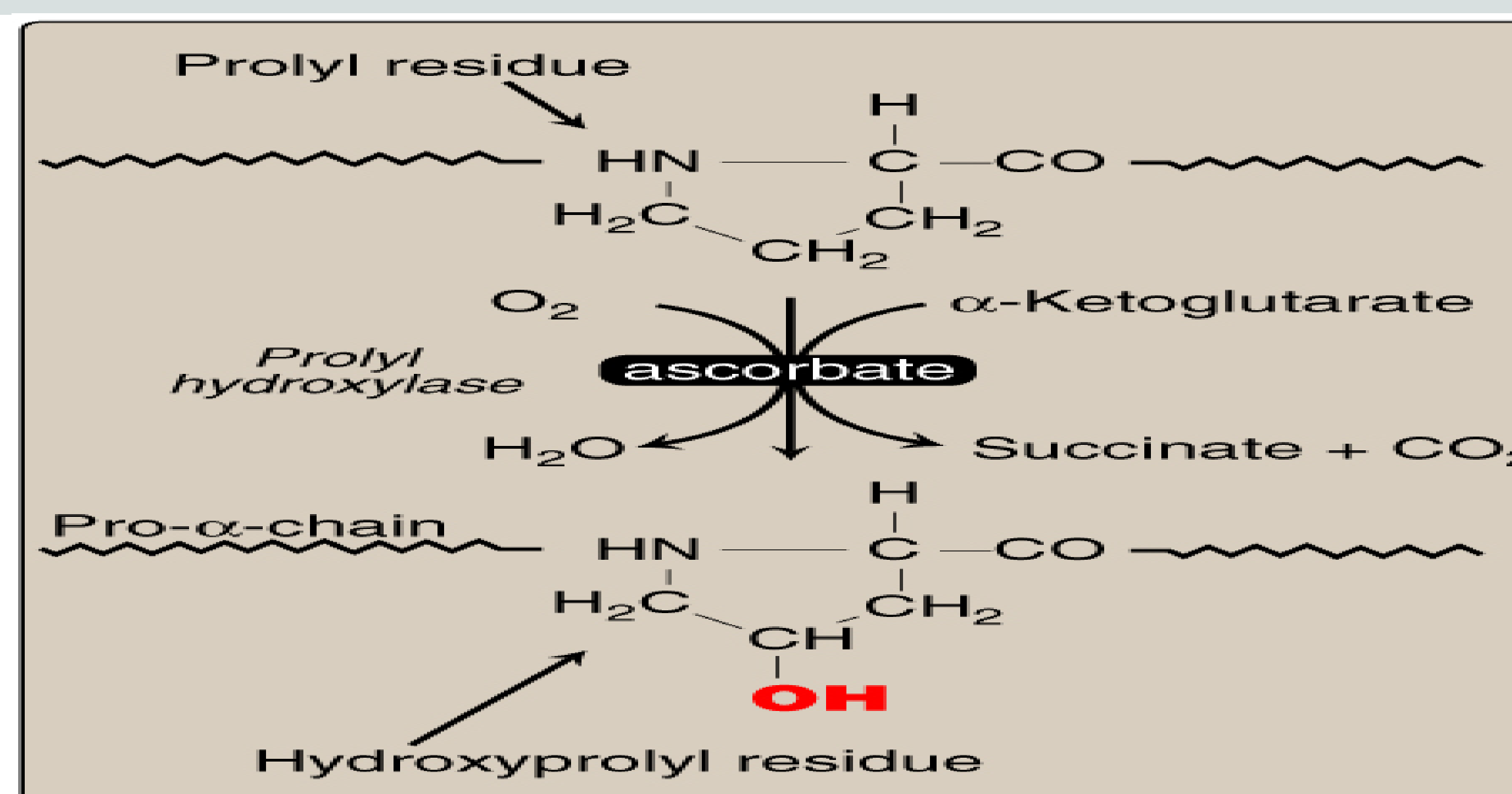


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Introduction

- The prevalence of Vitamin C deficiency varies worldwide, with the United States reporting rates as low as 7%.
- Humans lack the capacity to synthesize ascorbic acid, but this organic substance is essential to the human diet due to its role as a cofactor in many metabolic processes, the most important being collagen synthesis
- The onset of clinical symptoms usually occurs when total body storage levels of vitamin C are less than 300 mg for over one to three months
- Classical symptoms of scurvy include mucocutaneous petechiae, poor wound healing, ecchymosis, hyperkeratosis, corkscrew hair, gingival swelling, and bleeding gums. Rheumatologic problems include muscle and soft tissue hemorrhaging and painful hemarthrosis.
- Effective treatment of scurvy usually leads to symptomatic improvement with complete recovery within months of treatment onset
- Recent reports of patients with unresolved symptoms were found to have gastrointestinal comorbidities such as inflammatory bowel disease (IBD) and celiac disease (CD), suggesting a malabsorptive etiology of scurvy.
- Although malabsorption may lead to a higher risk of scurvy, intravenous vitamin C supplementation and pharmacological treatment of the gastrointestinal disorder resolves symptoms in most patients.



Case Presentation

Initial Presentation:

- A 37-year-old female
- Three-week history of non-blanching erythematous macules on the upper extremities and spontaneous ecchymoses on the abdomen and extremities
- Lesions were not pruritic or painful, and the patient denied joint pain
- One-year history of bilateral lower extremity edema with episodic anasarca and relative exercise intolerance.
- Past medical history was notable for severe opioid use disorder treated with a standard regimen of buprenorphine/naloxone, due to chronic musculoskeletal pain, leading to sustained remission for several years. The patient had no documented history of eating disorders or malnutrition.

4.5 month follow-up

- Symptom progression with the development of alopecia and brittle fingernails
- Arthralgias, bleeding gums, broken teeth, malaise, and depression were also reported by patient
- Diagnosis of scurvy; Treatment 500-1000 mg vitamin C daily

Physical Exam

- Bruising and generalized edema
- Body mass index (BMI) was calculated at 29 kg/m².
- Vital signs included blood pressure of 134/99
- Heart rate of 71 beats per minute
- Respiratory rate of 18 breaths per minute
- Body temperature of 98 oF (36.7 oC).

Discussion

- Patients who have gastrointestinal disorders such as IBD and primary sclerosing cholangitis are prone to nutritional deficiencies, one of those being vitamin C
- Reported that 21.6% of IBD patients had laboratory findings consistent with vitamin C deficiency
- Patients who have IBD frequently decrease nutritional intake or avoid certain food groups altogether. In addition, malabsorption and enteric loss of nutrients caused by the chronic release of inflammatory cytokines are also responsible for nutrient deficiencies found in IBD
- TNF- α has been found to have profound effects on the major vitamin C intestinal transporter, SVCT-1, by inhibiting the protein, mRNA, and hnRNA expression levels of the transporter
- Our patient's low serum levels of vitamin D could also be explained by an underlying gastrointestinal disease, as it has been reported that patients who have IBD have higher risk for concomitant nutritional deficiencies, including hypovitaminosis D
- In cases where gastrointestinal etiology is suspected and absorption of nutrients is compromised, oral supplement may prove ineffective, therefore intravenous administration is required to elevate and stabilize serum levels of ascorbic acid to its normal range

Laboratory

Laboratory Study	Measured Value	Reference Range
Hematocrit	37.4%	35.0 - 46.0%
Platelet count	312 x 10 ³ / μ L	130 - 400 x 10 ³ / μ L
Mean platelet volume	7.8 fL	7.4 - 10.4 fL
Creatinine	0.97 mg/dL	0.5 - 1.1 mg/dL
25 hydroxy-Vitamin D	13.2 ng/mL	30 - 100 ng/mL
Vitamin C	< 0.1 mg/dL	0.4 - 2.0 mg/dL
Prothrombin time	11.4 seconds	10 - 13 seconds
INR	0.9	0.9 - 1.2
aPTT	27.1 seconds	24 - 37 seconds

TABLE 1: Notable laboratory values near time of scurvy diagnosis.

INR = international normalized ratio; aPTT = activated partial thromboplastin time.

Conclusion

- We present a rare case of scurvy nonresponsive to oral vitamin C intake within a well-nourished patient in an industrialized country. Though rare, practitioners should still consider scurvy in patients with typical findings of cutaneous and systemic signs of vitamin C deficiency. Gastrointestinal workup may be indicated to establish a cause for lack of sufficient vitamin levels if adequate dietary intake is suspected.