

Introduction

Scurvy is a clinical syndrome which occurs secondary to vitamin C deficiency. Commonly occurring through a variety of different mechanisms, in modern times it is most often seen in the setting of restrictive diets and alcoholism. As deficiency progresses, patients can develop perifollicular petechiae, dental loss, and gingival hemorrhage. Due to vitamin C's effect on iron absorption, scurvy can also be associated with anemia. Pancytopenia, however, has not been frequently documented. Here we document a rare presentation of scurvy with diffuse cytopenia of all blood cell lines.

Case Presentation

- 49-year-old female with history of smoldering myeloma presents as a transfer from outside hospital for pancytopenia
- Initial presentation at outside facility: shortness of breath, weakness, easy bruising, and vaginal bleeding ongoing for an unclear duration of time. CT and radiograph imaging was performed and negative therefore she was discharged with outpatient follow up
- At follow up, she was hypotensive and thus urgently was taken to the same outside facility ED. Her hospital stay was complicated by worsening pancytopenia requiring multiple blood product transfusions
- She was transferred to our facility with WBC of 5,000 cells/mcL, Hg 8.2 g/dL, and Plt of 46,000/mcL. Bone marrow biopsy performed at time of transfer
- Physical exam revealed tender diffuse ecchymoses of lower extremities (figure 1), poor dentition. Extensive rheumatologic workup was negative and skin biopsy performed with concerns for vasculitis revealed subcutaneous hemorrhagic foci.
- Peripheral smear was unremarkable. Bone biopsy yielded myeloid hypoplasia and abundant plasma cells. Renal function and calcium levels were normal. There was no M-spike or lytic lesions on imaging.
- Vitamin C levels were drawn on admission which ultimately returned undetectable. She was diagnosed with scurvy-induced pancytopenia



Figure 1: Diffuse ecchymosis seen on initial physical examination

Table 1.1 : Risk factors for vitamin C deficiency [resources]

Risk Factors for Vitamin C Deficiency

- Alcoholism
- Smoking
- Low socioeconomic status
- Babies fed strictly cow's milk
- Tea and toast diet or other restrictive diets
- Eating disorders
- Type I Diabetics with high Vitamin C requirements
- Inflammatory bowel disease
- Iron overload or hemochromatosis

Discussion

- There are several risk factors that can lead to vitamin C deficiency, which restrictive diet being one of the more common causes and the one seen in our case
- Historic manifestations of scurvy such as corkscrew hairs, poor dentition, easy bleeding, and skin breakdown are readily explained by the pathophysiology of vitamin C deficiency
- More elaborate effects of vitamin C deficiency include impaired gastrointestinal absorption of iron which can lead to anemia
- Yet, as presented in our case, there are still rare and unexplained effects of this well-known disease such as pancytopenia
- Our patient's clinical course supported this diagnosis as her pancytopenia began to improve with vitamin C supplementation
- Proposed mechanisms for this are based around vitamin C's support of bone marrow production but are not clearly elucidated further

Conclusion

Scurvy in modern day medicine requires a high index of suspicion given today's emphasis on a well-rounded, nutritious diet. To make this diagnosis more difficult, the illness can present with uncharacteristic findings such as pancytopenia. Further research should be directed towards the pathophysiology of vitamin C deficiency and pancytopenia, which may lead to utility in those with suppressed marrow.

References

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2. Maxfield L, Crane JS. Vitamin C Deficiency. [Updated 2022 Oct 12]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK493187/>