Scurvy and Vitamin D Deficiency: The Cost of a Cheap Meal
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Introduction

Scurvy – Severe Vitamin C Deficiency
- Common Features: anemia, perifollicular hemorrhage, myalgias, gum disease, and “corkscrew” hairs
- Defects: impaired iron absorption and collagen synthesis

Vitamin D Deficiency
- Common Features: risk of accelerated bone loss and fractures, muscle weakness, and difficulty walking
- Defects: reduced absorption of calcium and phosphorus

Clinical Vignette

A 26-year-old male with no significant past medical history presented to the ED with ascending bilateral lower extremity pain with weakness, and multiple bruises on his extremities. Labs were notable for normocytic anemia and indirect bilirubinemia. He was discharged home with appropriate follow up appointments.

During his second specialist visit 3 weeks later, he complained of progressive weakness resulting in inability to walk, frequent episodes of self-resolving epistaxis and bruising. He was referred to the ED for further evaluation.

Additional history obtained on admission revealed a nutritionally insufficient and homogenous diet for the duration of the COVID-19 pandemic.

Physical exam findings and labs from his second presentation to the ED and subsequent admission are shown in the central panel. Additionally, exam was significant for pallor, thinning hair, and inability to extend his legs at the hips and knees.

Empiric treatment with high dose vitamin C and vitamin D supplementation were initiated on admission.

He was discharged to a skilled nursing facility for rehabilitation given his inability to walk due to his severe contractures and weakness.

Physical Exam Findings and Notable Laboratory Data

Clinical images of large areas of ecchymosis over bilateral thighs and flexion contractures of bilateral knees (A, B, D, E). Detailed image of skin highlighting perifollicular hemorrhage and “corkscrew” hairs (C). Patient also had bleeding gums (F).

Study | Reference Range | Patient | Study | Reference Range | Patient
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Hematocrit | 41.5 - 50.4 % | 29.0 % | Albumin | 3.5 - 5.0 g/dL | 3.2 g/dL
Hemoglobin | 14.0 - 17.5 g/dL | 9.6 g/dL | Total Protein | 6.4 - 8.2 g/dL | 7.4 g/dL
MCV | 80.0 - 96.0 fl | 87.9 fl | Bilirubin, Total | 0.0 - 1.0 mg/dL | 1.5 mg/dL
Reticulocytes | 0.5 - 1.5 % | 4.3 % | C-Reactive Protein | 0.0 - 0.4 mg/dL | 3.0 mg/dL
Iron | 50 - 170 ug/dL | 20 ug/dL | CK, Total | 39 - 308 U/L | 39 U/L
TIBC | 250 - 425 ug/dL | 204 ug/dL | TSH | 0.400 - 4.500 mIU/L | 3.150 mIU/L
Iron Saturation | 20 - 50 % | 30 % | Parathyroid, Intact | 19 - 88 pg/mL | 59 pg/mL
Ferritin | 8 - 388 ng/mL | 81 ng/mL | Vitamin D | 0.2 - 2.1 mg/dL | 0.1 mg/dL
pT3 | 27.0 - 37.7 sec | 31.0 sec | Vitamin D2, 1.25 Dihydroxy | <20 ng/mL | <8 pg/mL
PT | 10.7 - 13.8 sec | 16.8 sec | Vitamin D 25 Hydroxy | deficiency | 7 ng/mL
INR | 1.4 | | |

Discussion

- Physical exam and detailed history are key to early diagnosis of nutritional deficiencies, which are treatable with supplementation.
- Inability to walk with profound weakness and contractures likely resulted from a combination of both vitamin D deficiency and scurvy. Peripheral neuropathy can develop from nerve compression into a hematoma or hemorrhage into the nerve sheath.1,2
- A global pandemic leading to severe social isolation, unemployment, and predominantly indoor activity likely contributed to his presentation. At least one other case of scurvy associated with the pandemic has been reported.3
- At 5 week follow up, he was able to ambulate independently, and stigmata of scurvy had resolved.

Conclusion

- Illustrates the importance of dietary history, social history, and physical exam, especially during a pandemic when access to adequate nutrition may be limited.
- Recognizing features of nutritional deficiency is critical to early intervention.

References