



Scurvy, From Suspicion to Current Reality

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Abstract

We report the case of a 37-year-old woman with anorexia nervosa, admitted to the psychiatry ward with profound malnutrition due to restrictive eating habits (practically free of fruit and vegetables) and purging. She had difficulty walking due to the malnutrition and developed a severe form of scurvy, accompanied by arthromyalgia in the lower limbs and a limp. Physical examination revealed spontaneous ecchymosis, folliculitis with perifollicular purpura in the lower limbs, gingival hypertrophy without bleeding, and moderate anemia.

This case is illustrative and describes an immediate clinical suspicion of a rare, life-threatening but easily curable disease if considered in the proper clinical context.

Case Presentation

A 37-year-old woman with a history of anorexia nervosa since age 11 was referred from her mental health unit for elective admission to the psychiatry ward (Eating Disorders Unit) due to severe malnutrition. She was receiving regular treatment with lorazepam and desvenlafaxine. In December 2020, she had an episode of decompensation with progressive eating restrictions (elimination of fruits and vegetables), self-induced vomiting, use of laxatives, and increased physical exercise. The patient demonstrated partial awareness of her illness and conciliation insomnia. At the time of admission, she did not present psychotic alterations but did have progressive difficulty in managing anxiety, with crises on nearly a daily basis and pronounced mood lability, without meeting criteria for endogenous depression. She also reported intense asthenia and arthromyalgia in the lower limbs (attributed to malnutrition), which made walking difficult and painful and caused her to limp. Given the severity of the progression of the condition, she was admitted.

Through an internal consultation with internal medicine, the patient was assessed for walking problems, arthromyalgia in the lower extremities, and limp. The physical examination revealed spontaneous ecchymoses, folliculitis with perifollicular purpura in the lower limbs, and gingival hypertrophy without bleeding. She did not report a history of trauma. On admission, she weighed 42.5 kg (Body Mass Index [BMI] 15.2 kg/m²). Deep vein thrombosis was ruled out using bilateral Doppler ultrasound of the lower limbs. In the initial analysis, hemoglobin was 9.1 g/dL (Reference Value [RV] 12-15.5), iron 49 µg/dL (RV 50-170), iron saturation 14.5% (RV 15-45), total protein 5.39 g/dL (RV 6.4-8.3), albumin 3.29 g/dL (RV 3.5-4.6), prealbumin 18 mg/dL (RV 16-38), and folate 2.1 ng/mL (RV 3.1-20.5). The rest of the analytical parameters, including coagulation, were normal. Given the clinical suspicion of scurvy, plasma levels of ascorbic acid were requested, and one month of empirical replacement treatment with vitamin C (1 g/day) was prescribed. Treatment led to significant and rapid improvement (day +4) of the joints, skin, and mucous membranes, along with progressive normalization of gait. The pending results of the analysis for ascorbic acid were subsequently received, showing baseline levels of 0.6 mg/L (RV 4.6-14.9). Treatment with oral iron (100 mg/day) and folate (5 mg/day) supplements were added, with progressive recovery of the red series (Hb 12.5 g/dL at 15 days).

The patient adapted to the functioning and established dynamics of the award from the beginning

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of her stay, recovering normal eating habits and progressively becoming more aware of her disease process. Psychiatric assessments revealed cognitive schemas and behavioral responses to stress and/or emotional overflow compatible with a cluster B dysfunctional personality (emotional instability, low stress tolerance, easy frustration, need for immediate gratification, search for acceptance by third parties leading to dependent functioning, low self-concept). She experienced repeated anxiety crises, some accompanied by behavioral alterations that suggested a dissociative and/or conversion component. A certain tendency for mood lability was observed in relation to her emotional dysregulation. No structured self-harm ideas or dysfunctional self-injury behaviors were observed. Frank depression was ruled out. The patient was discharged three months after admission, with a weight of 53.8 kg (+ 11 kg; BMI 19.3 kg/m²) and ascorbic acid levels of 11.8 mg/L. Definitive diagnoses were scurvy due to restrictive eating, secondary to anorexia nervosa, and cluster B dysfunctional personality traits.

Discussion

We present the case of an adult woman previously diagnosed with anorexia nervosa and anxiety who presented with a limp, difficulty walking due to arthromyalgia in the lower extremities, intense asthenia with ecchymosis, folliculitis and spontaneous perifollicular hemorrhages, and gingival hypertrophy, accompanied by mixed anemia. The suspected diagnosis of scurvy was established based on clinical symptoms and a history of restrictive eating (absence of green fruit and vegetable intake) and confirmed by determination of baseline ascorbic acid levels.

In addition to generalized asthenia, the symptoms primarily reflected alterations in the formation of mature connective tissue, which can lead to spontaneous skin hemorrhages (ecchymosis, perifollicular hemorrhaging, and at times petechiae), gingivitis/gingival bleeding, and joint hemorrhages that can even affect other locations (peritoneum, pericardium, adrenal glands) [1]. In addition to a psychiatric evaluation, it is important to perform a physical examination to detect scurvy in the presence of risk factors, such as in our patient, who continued to be unsatisfied with the weight loss achieved through restrictive eating and occasional purging, maintaining her behavior despite reaching her self-imposed weight loss goals.

The human body is not capable of synthesizing vitamin C, so dietary intake constitutes the main source of this vitamin [2]. Vitamin C (ascorbic acid) is an important enzyme cofactor and a strong antioxidant agent, a component of numerous enzyme systems involved in drug metabolism. It is crucial in the synthesis of connective tissue collagen and contributes to the synthesis of various peptide hormones, the conversion of dopamine into norepinephrine, and the absorption of iron. Vitamin C deficiency causes scurvy and is also associated with iron and folate deficiency, as in our patient, which may help to establish a suspected diagnosis. In fact, the existence of other biochemical deficits does not exclude the coexistence of scurvy.

In our patient, no further complementary examinations were deemed necessary, as there were no data compatible with the presence of significant associated complications (e.g., neurological, cardiac, pulmonary, gastrointestinal). Currently, given the low rate of diagnostic suspicion, patients undergo multiple complementary studies to rule out mainly oncohematological and rheumatological diseases [3,4]. If diagnosis is delayed and replacement treatment with exogenous vitamin C is not instituted, scurvy can be life-threatening, with severe hemodynamic compromise and systemic inflammatory response. With adequate care, it has a good prognosis and responds rapidly to treatment [5], underlining the importance of diagnostic suspicion in clinical scenarios such as the one described here.

Conclusion

The diagnosis of scurvy in adults is infrequent and sporadically described, but it should be considered a diagnostic possibility in the presence of spontaneous bleeding and difficulty walking in patients with eating disorders (anorexia nervosa, young adults with poor diet) and other associated risk factors (alterations in mental health, advanced age, alcoholism, drug abuse, malabsorption conditions, strict consumption of macrobiotic diets).

Ethical Considerations

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

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