ISSN: 2578-3335 (Print) 2578-3343 (Online)

Volume 3 | Issue 1 Article 8

2021

A Sailor's Disease Presenting in Urban America with Red Spots on the Legs

John A. Buchan
University of Cincinnati, jbuchan75@gmail.com

Bruce H. Gray
Prisma Health Greenville, SC, Bruce.Gray@prismahealth.org

Cooper Rowan Medical Journal: https://rdw.rowan.edu/crjcsm

Would you like to be a reviewer? Please fill in this short form to express your interest.

Recommended Citation

Buchan, John A. and Gray, Bruce H. (2022) "A Sailor's Disease Presenting in Urban America with Red Spots on the Legs," *Cooper Rowan Medical Journal*: Vol. 3: Iss. 1, Article 8.
DOI: 10.31986issn.2578.3343_vol3iss1.7
Available at: https://rdw.rowan.edu/crjcsm/vol3/iss1/8

This work is licensed under a Creative Commons Attribution 4.0 License.

This Case Reports and Case Series is brought to you for free and open access by the Rowan University Journals at Rowan Digital Works. It has been accepted for inclusion in Cooper Rowan Medical Journal by an authorized editor of Rowan Digital Works. For more information, please contact brush@rowan.edu.

A Sailor's Disease Presenting in Urban America with Red Spots on the Legs

This case reports and case series is available in Cooper Rowan Medical Journal: https://rdw.rowan.edu/crjcsm/vol3/iss1/8

A Sailor's Disease Presenting in Urban America

John A. Buchan MD[1]* & Bruce H. Gray, DO[2]

[1]University of Cincinnati, Cincinnati, Ohio

[2]Prisma Health, Greenville, South Carolina

*Corresponding author: jbuchan75@gmail.com (John A. Buchan BA)

ABSTRACT

Sailors were often affected by nutritional deficiencies due to the absence of fresh foods on long voyages. One example is the development of scurvy from a lack of vitamin C ingestion. In modern society in which fresh food are available this disease is infrequently recognized. The following case describes a 62-year-old male who presented with "red spots" on his legs and a large area of ecchymosis on his thigh. After initial testing failed to elicit a cause, a dietary history revealed that the patient had a peculiar diet of only ice cream with a total avoidance of fruits and vegetables. This case highlights the importance of a good history and physical examination as the basis for medical diagnosis.

INTRODUCTION

Sailors were notoriously prone to nutritional deficiencies because of the lack of fresh foods in their diet, such as fruits and vegetables. Several centuries ago, the British navy noted that many maladies could be avoided with the addition of citrus to their diet. They routinely stocked voyages with fruit and were thus given the nickname of "limeys".[1] It was later determined that a lack of vitamin C in the diet caused scurvy. To experienced sailors, the diagnosis of scurvy was routine, but today, outside of a humanitarian crisis it is a rare diagnosis.[2–7] The initial symptoms of scurvy are non-specific including fatigue, leg weakness, limb swelling, and spontaneous bruising.[3] The development of bleeding gums with perifollicular hemorrhages (red spots) on the legs are unique to scurvy but can be confused with the petechial/purpuric appearance of cutaneous vasculitis. Dietary history is often omitted in a routine evaluation and consequently, diagnoses such as scurvy are rarely considered in the differential diagnosis. The purpose of this case report is to bring attention to this historical disease and to emphasize the importance of the basics of medical diagnosis—a good history and physical examination.[8]

Case Description

A 62-year-old white male was referred to an outpatient vascular medicine clinic in a large metropolitan

city after initial workup by his local internist. He described a 4-week history of red spots on his right leg. Soon thereafter, the left leg also developed red spots that seemed to arise around hair follicles. With time, the red spots turned more brownish in color without radial expansion. The patient also developed a large ecchymosis on the right proximal, medial thigh and ankle. There was no history of trauma or recent catheterization. His daily medication included: citalopram, clonazepam, clonidine, diazepam, divalproex, levothyroxine, and omeprazole. He was not taking any anticoagulants, antiplatelet agents, herbal or over-the-counter medications. He denied any recent systemic symptoms of infection, cardiovascular or cerebrovascular symptoms. His wife described him as a "couch potato" with no motivation over the last several months to get up and perform activities around the house, let alone outside of the house.

On physical examination, he had normal vital signs. Pictures of the legs are seen inFigure 1 , with patient and institutional consent. There was no other ecchymosis on the upper extremities. The oral examination was unremarkable. The overall skin color was pale without jaundice or discolored sclera. His heart tones were without murmur and lungs were clear to auscultation. He had normal pulses in the lower extremities.

The patient's initial laboratory evaluation by the primary care physician was extensive and included: a complete blood count, complete metabolic profile, thyroid profile, and rheumatologic profile (i.e.-antinuclear antibody, rheumatoid factor, anticardiolipin antibody, complement levels). All results were unremarkable except for a slightly elevated sedimentation rate (ESR- 26 mm/hr; reference <20 mm/hr). Subsequent testing for C-reactive protein (CRP), cryoglobulin levels, vitamins A, B12, & C levels along with skin biopsy of the red spots on the legs was done. The results showed an elevated CRP of 44.1 mg/dl (reference <3.0 mg/dl), cryoglobulin was non-detected, vitamin A of 46 mcg/dl (reference 38-98 mcg/dl), vitamin B12 of 571 pg/ml (reference 200-835 pg/ml, and vitamin C of 0.5 mg/dl (reference 0.2-1.5 mg/dl). Punch biopsies of the lower legs showed chronic inflammation with dermal fibrosis and red blood cell extravasation, inconsistent with vasculitis.

After reviewing the laboratory studies, including the biopsy, additional history was offered by the patient's wife that his diet consisted of only ice cream for the past six months, despite his wife's encouragement to "eat normal". There was no known organic reason for his food preference. The patient was given the working diagnosis of scurvy, given vitamin C supplementation (~500 mg/day), and was asked to include fruits and vegetables into his diet. Within two weeks the spots had resolved (Figure 2); his leg pain and generalized fatigue improved gradually over several months.

DISCUSSION

There are a variety of reasons for which an individual in a developed country with access to nutritious foods may develop scurvy. Most contemporary case reports involving scurvy describe individuals with

malabsorption syndromes, alcoholics, mentally ill, isolated elderly, and refugee camp inhabitants.[2–4] Our patient did not have any of these known predisposing conditions.

This case represents the challenges of diagnosing scurvy in the developed world. It is often not considered as a diagnosis until after extensive investigation. Part of the reason for this may be that in developed nations with fortified foods and access to a varied diet, scurvy is thought to be rare. However, past cross-sectional studies have demonstrated as recently as 2004 that as many as 7.1% of Americans had low levels of vitamin C measured in their serum.[6] The recommended dietary allowance of vitamin C is 90 mg/d and 75 mg/d for males and females respectively.[9] The initial laboratory evaluation of the patient presented here did not provide any evidence for a specific diagnosis and did not help to explain the cutaneous hemorrhages. A primary coagulopathy was unlikely was a normal platelet count and coagulation studies. Leukocytoclastic vasculitis (LCV) was considered although there is always an underlying cause for LCV. LCV can result from a viral, parasitic or bacterial infection, secondary to medications, autoimmune diseases (i.e.- lupus, rheumatoid arthritis, or Sjogren's syndrome), cryoglobulinemia, and paraneoplastic syndromes (i.e.- myelodysplasia, lymphoma). These seemed unlikely due to the lack of constitutional symptoms in the face of classic perifollicular hemorrhages/ecchymoses, normal laboratory results and a biopsy without evidence of vasculitis or leukocytoclasis (fragmentation of white blood cells). Furthermore, the patient's symptoms resolved promptly with dietary change without the use of corticosteroids. The working diagnosis of scurvy was made despite the vitamin C levels being "low normal". A level of ascorbic acid of >0.6 mg/dl excludes the diagnosis and cases that advance to the most severe form (bleeding gums, loose teeth, leg swelling) typically have undetectable levels. Recent small ingestion of vitamin C can falsely elevate the serum level despite depletion of total body stores, although we could not identify a source of vitamin C in our patient.[10] The serum level of ascorbic acid was non-diagnostic as an isolated test, but yet the detectable level did not dissuade against the diagnosis. The diagnosis of scurvy is based on clinical findings. In this case, the history, physical examination, laboratory studies, and clinical course fit with the rare diagnosis of scurvy. This highlights the importance of this case report- physicians make the diagnosis not any individual laboratory finding.[8]

CONCLUSION

Scurvy has been well documented for centuries, although much rarer in modern times. The classic features of perifollicular hemorrhage with bruising should expand our typical history to include a detailed dietary and social history. In this patient, the complete resolution of systemic symptoms with simple medicinal and dietary changes makes scurvy a relevant diagnosis, even in urban America today.

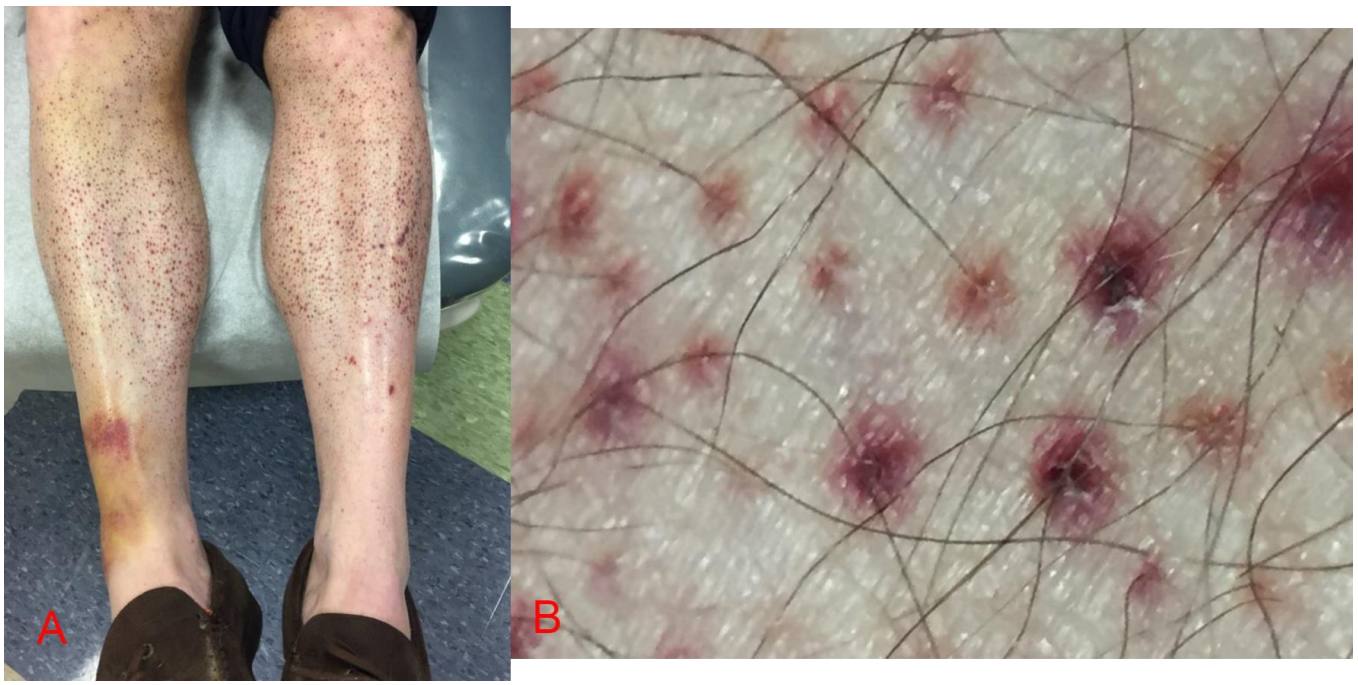

Figure 1 Image A shows perifollicular hemorrhage of both legs with a spontaneous ecchymoses in the right leg. (Note the hemorrhages' color vary from red to brown and the ecchymosis seems to also be of variable age.) **Image B** is a close up of the perifollicular hemorrhages.

Figure 2 Image shows resolution of the hemorrhage's 2 weeks after treatment with Vitamin C

REFERENCES

1. Hirschmann J V, Raugi G J. Adult scurvy. *J Am Acad Dermatol.* 1999;41(6):895-906.
2. Reuler J B, Broudy V C, Cooney T G. Adult scurvy. *JAMA.* 1985;253(6):805-807.
3. Velandia B, Centor R M, Mcconnell V, Shah M. Scurvy is still present in developed countries. *J Gen Intern Med.* 2008;23(8):1281-1284.
4. Wijkmans Raa, Talsma K. Modern scurvy. *J Surg Case Rep.* 2016;(1):2016-2016.
5. Smith A, Primio Di, Humphrey-Murto G, S . Scurvy in the developed world. *CMAJ Can Med Assoc J J Assoc Medicale Can.* 2011;183(11):752-755.
6. Schleicher R L, Carroll M D, Ford E S, Lacher D A. Serum vitamin C and the prevalence of vitamin C deficiency in the United States: 2003-2004 National Health and Nutrition Examination Survey (NHANES). *Am J Clin Nutr.* 2009;90(5):1252-1263.
7. Pakula A S, Garden J M, Roth S I. Cryoglobulinemia and cutaneous leukocytoclastic vasculitis associated with hepatitis C virus infection. *J Am Acad Dermatol.* 1993;28(5):850-853.
8. Levavasseur M, Becquart C, Pape E. Severe scurvy: an underestimated disease. *Eur J Clin Nutr.* 2015;69(9):1076-1077.
9. Gray B H. From the Masters: Seven lessons from a master clinician - Dr Jess Young's clinical method. *Vasc Med.* 2015;20(6):566-568.
10. Fossitt D D, Kowalski T J. Classic skin findings of scurvy. *Mayo Clin Proc.* 2014;89:61-61.