

# Image Diagnosis: Spontaneous Hematoma from Scurvy

Diane Apostolakos, MD, MS; Lee O Halvorsen, MD

Perm J 2014 Winter;18(1):e117-e118

<http://dx.doi.org/10.7812/TPP/13-105>

## Case Study

A 58-year-old alcoholic man presented with pain, swelling, and bruising of his right leg. He had no history of trauma or injury. His medical history was significant for frequent spontaneous hematomas in his legs (Figure 1), the first and most dramatic of which was a large thigh hematoma occurring 4 years earlier. This area became infected, developing necrotizing fasciitis that required emergency surgery.

On physical examination, he had hyperplastic gums and no teeth. He had no body hair below his head. The calf of his right leg was enlarged and tender, with more swelling medially than laterally. Dependent bruising was noted in the popliteal fossa initially as his leg was elevated; several days later, when he started ambulating, bruising became apparent around his ankle.

His initial blood alcohol level was 0.28%, and his Aspartate Aminotransferase and Alanine Aminotransferase levels were 90 and 61 international units/microliter, respectively. His platelet count and coagulation studies were normal. His body mass index was 30 kg/m<sup>2</sup>.

Color flow Doppler ultrasound of his right leg was performed, and no deep venous thrombosis was identified. Imaging of his leg by a contrast-enhanced computerized tomography scan (Figure 2) showed a large hematoma in the right calf (white arrows), measuring 7.5 x 3.5 x 12.6 cm (anterior-posterior, transverse, and caudal-cranial dimensions, respectively). Extravasation of intravenous contrast was seen, indicating active bleeding (black arrowhead). There were no aneurysms or other vascular malformations in or near the hematoma.

This patient drank a 1.75-liter bottle of vodka daily and smoked cigarettes. He ate mostly precooked hash brown potatoes, pasta, and occasional canned tuna. He did not eat fresh vegetables and rarely ate fruit.

## Discussion

The diagnosis of scurvy (vitamin C deficiency) is based largely on clinical evidence and requires a high index of suspicion. The dietary history of the patient should be obtained. Laboratory testing for ascorbic acid (vitamin C) levels to corroborate the diagnosis is possible but is seldom useful because of the frequent use of intravenous fluids with vitamins, commonly referred to as banana bags, which contain 200 milligrams of vitamin C per liter. Testing the leukocyte level of vitamin C is more accurate than testing serum or plasma levels to evaluate total body stores.<sup>1</sup> Initial symptoms of scurvy involve skin changes, which are more likely to occur in the lower extremities, including corkscrew hairs, perifollicular hemorrhages, and perifollicular keratosis.



Figure 1. Hematoma on right leg.

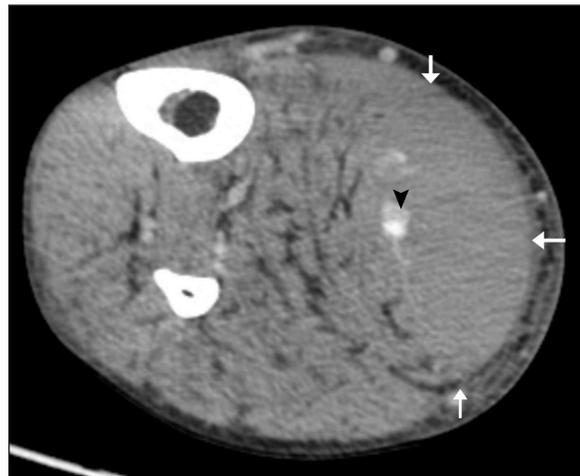


Figure 2. Computed tomography scan of the right calf. White arrows indicate large hematoma and the black arrowhead indicates active bleeding.

Malaise, loose teeth, gum abnormalities, edema, hematomas, and musculoskeletal pain are frequent symptoms. Wound healing is impaired, and well-healed wounds can become painful and reopen.<sup>2</sup> Cutaneous hemorrhages frequently become palpable, and with the presence of rheumatologic symptoms, scurvy can mimic vasculitis as well as bleeding disorders.<sup>3</sup>

Most animals are able to synthesize ascorbic acid. Humans, apes, fruit-eating bats, and guinea pigs are missing the enzyme L-gulonolactone oxidase and require vitamin C in the diet. Vitamin C is required for a number of enzymatic processes, including the hydroxylation of the proline and lysine residues serving to cross-link collagen fibers. The hematomas and other bleeding seen in scurvy are a result of abnormal collagen.<sup>4</sup>

Scurvy is a historically prominent disease, causing many deaths during long sea voyages and wars. Although scurvy is now rare in industrialized countries, it still occurs in people who do not eat sufficient fresh fruits or vegetables. ♦

---

**Acknowledgment**

*The authors thank Jane Smith, RN, BSN, JD, for taking the photograph and Laura McNeill, RD, CNSC, for the dietary consult.*

---

**References**

1. Vasudevan AR, Kumar S, Lim A, Kimani R, Brensilver JM, Tamarin FM. Purple skin and a swollen thigh in an alcoholic. *Postgrad Med J* 2002 Jul;78(921):430, 434. DOI: <http://dx.doi.org/10.1136/pmj.78.921.430>.
2. Hirschmann JV, Raugi GJ. Adult scurvy. *J Am Acad Dermatol* 1999 Dec;41(6):895-906, quiz 907-10. DOI: [http://dx.doi.org/10.1016/S0190-9622\(99\)70244-6](http://dx.doi.org/10.1016/S0190-9622(99)70244-6).
3. Francescone MA, Levitt J. Scurvy masquerading as leukocytoclastic vasculitis: a case report and review of the literature. *Cutis* 2005 Oct;76(4):261-6.
4. Carpenter KJ. The discovery of vitamin C. *Ann Nutr Metab* 2012;61(3):259-64. DOI: <http://dx.doi.org/10.1159/000343121>.