

**KAITLIN A. VOGT, BLA**University of Missouri-Kansas City  
School of Medicine, Kansas City, MO**JULIA S. LEHMAN, MD**Department of Dermatology, Division  
of Dermatopathology and Cutaneous  
Immunopathology, Mayo Clinic,  
Rochester, MN

# Corkscrew hairs



**FIGURE 1.** Physical examination revealed follicular hyperkeratosis, “corkscrew” hairs (circled), and perifollicular hyperpigmentation, signs of ascorbic acid deficiency.

**A** 22-YEAR-OLD WOMAN with a 1-year history of mild systemic lupus erythematosus presented with disproportionately severe constitutional symptoms of fatigue and malaise. Physical examination showed multiple follicular-based hyperkeratotic papules with coiled “corkscrew” hairs on the outer surface of the arms and on the front of the legs (FIGURE 1). The patient reported a diet consisting mainly of white meat and processed foods. Although levels of serum folate, ferritin, zinc, and vitamins A, B<sub>1</sub>, B<sub>2</sub>, B<sub>6</sub>, B<sub>12</sub>, D, and E were within normal limits, the serum ascorbic acid level was low at 0.2 mg/dL (reference range 0.6–2.0 mg/dL). Ascorbic acid supplementation and dietary modification were recommended.

Ascorbic acid deficiency, or scurvy, is often considered a disease primarily of historical

significance, with occurrences today limited to malnutrition or poverty.<sup>1</sup> However, 18% of adults in the United States consume less than the recommend daily allowance of ascorbic acid.<sup>2</sup> Ascorbic acid is minimally stored in the body,<sup>3</sup> and scurvy can develop after 60 to 90 days of a diet free of ascorbic acid.<sup>4</sup>

Initial symptoms of fatigue, mood changes, and other constitutional symptoms are non-specific, leading to a delay in diagnosis. Cutaneous manifestations include follicular hyperkeratosis associated with coiled or “corkscrew” hairs. Fragility of cutaneous blood vessels leads to perifollicular hemorrhages, petechiae, purpura, and ecchymoses. Extracutaneous manifestations are diverse and include oral involvement and intramuscular or intra-articular hemorrhage.<sup>1</sup> Clinicians should have a high index of suspicion in socially isolated adults, elderly patients, those with alcoholism, mental illness, or chronic illness, and those with restrictive dietary preferences, particularly with predominant intake of processed foods.<sup>5</sup>

## REFERENCES

1. Nguyen RT, Cowley DM, Muir JB. Scurvy: a cutaneous clinical diagnosis. *Australas J Dermatol* 2003; 44:48–51.
2. Hampl JS, Taylor CA, Johnston CS. Vitamin C deficiency and depletion in the United States: the Third National Health and Nutrition Examination Survey, 1988 to 1994. *Am J Public Health* 2004; 94:870–875.
3. Kluesner NH, Miller DG. Scurvy: malnourishment in the land of plenty. *J Emerg Med* 2014; 46:530–532.
4. Popovich D, McAlhany A, Adewumi AO, Barnes MM. Scurvy: forgotten but definitely not gone. *J Pediatr Health Care* 2009; 23:405–415.
5. Velandia B, Centor RM, McConnell V, Shah M. Scurvy is still present in developed countries. *J Gen Intern Med* 2008; 23:1281–1284.

**ADDRESS:** Julia Lehman, MD, Department of Dermatology, Division of Dermatopathology and Cutaneous Immunopathology, Mayo Clinic, 200 First Street SW, Rochester, MN 55905; e-mail: Lehman.Julia@Mayo.edu

doi:10.3949/ccjm.82a.14135