BITOT SPOTS

Malnutrition leads to atypical ocular surface disease.

BY JACOB LANG, OD, FAAO

A 15-year-old Asian female was sent to my ocular surface disease (OSD) clinic for consultation. Previous notes indicated a multitude of OSD disorders, including corneal erosions in each eye (separate episodes), recalcitrant corneal staining, chalazia, hordeola, and meibomian gland dysfunction, for which she had been treated with various therapeutics in the past 4 years with mixed results. Current therapy included doxycycline 50 mg/day and preservative-free lubricant eye drops. Ocular examination revealed significant corneal staining, but more importantly, conjunctival lesions consistent with Bitot spots in each eye (Figure).

The patient's medical history was also significant for congenital hearing loss, failure to thrive, and an undiagnosed genetic condition related to nutritional malabsorption. Nyctalopia was not reported.

YOU "SPOT" IT, YOU GOT IT

Bitot spots are conjunctival lesions characterized by white, foamy accumulations that represent an early clinical sign of vitamin A deficiency, often preceding more severe manifestations, such as xerophthalmia, corneal ulcers (especially neurotrophic), and blindness.[1] Typically found on the temporal conjunctiva, Bitot spots are comprised of desquamated epithelial cells mixed with mucus due to impaired goblet cell function.

Vitamin A is essential for vision, immune response, corneal nerve function, and epithelial tissue maintenance. It is also a critical component of rhodopsin in the retina, necessary for low light and color vision. Vitamin A deficiency can typically be attributed to malnutrition or intestinal parasite infestation.[1] Nearly half of all cases occur in either Southeast Asia or Africa.[2] Nyctalopia, although not present in this case, is another common clinical manifestation of vitamin A deficiency.[3]

Diagnosis of Bitot spots and vitamin A deficiency involves clinical assessment, dietary history, and serum retinol level measurement. A multidisciplinary care team, including ophthalmologists, pediatricians, internists, dermatologists, and nutritionists, may be required to manage this condition.[3] Treatment strategies are aimed at addressing the underlying deficiency through dietary modification, supplementation, and fortification programs; however, many chronic or longstanding spots will not resolve. Watching for progression, especially corneal involvement, is critical. Foods rich in vitamin A, such as liver, dairy products, and vegetables rich in beta-carotene, are recommended.

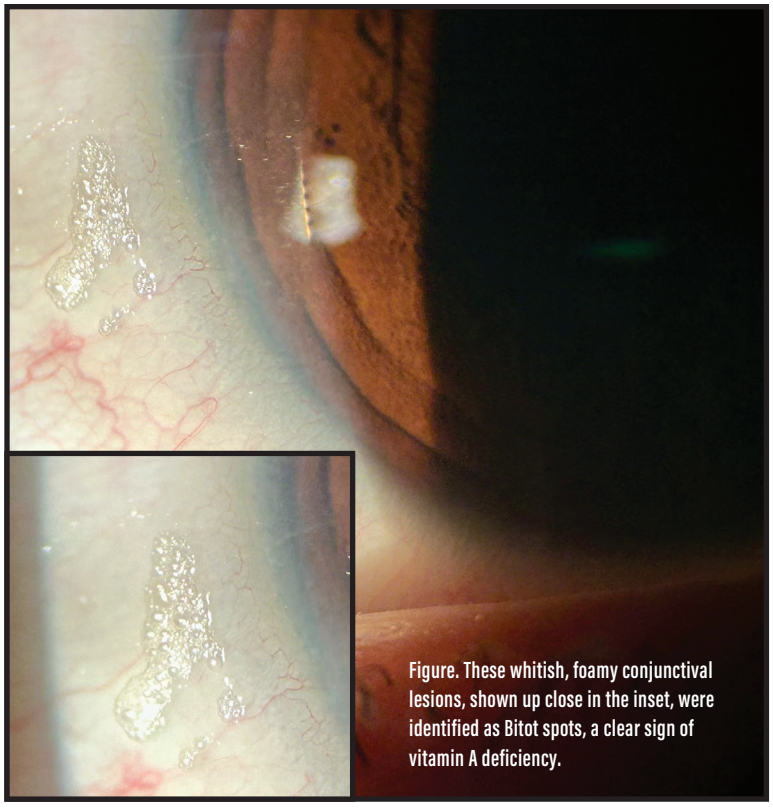

Figure. These whitish, foamy conjunctival lesions, shown up close in the inset, were identified as Bitot spots, a clear sign of vitamin A deficiency.

THE BIG PICTURE

Bitot spots are important early indicators of vitamin A deficiency,[3] underscoring the value of adequate nutrition for ocular and systemic health. The patient's vitamin A levels were confirmed to be low via serology. Supplementation was initiated, and her other health care providers were notified to create an organized approach to monitor her for vitamin A and other important nutrients. The Bitot spots resolved completely, along with the corneal staining, in approximately 1 month. ■

1. Das S, Chandra A. Bitot spots: a pathognomonic sign of vitamin A deficiency. *Am J Med*. 2023;136(10):e195-e196.
2. Madan S, Beri S. Bitot spot: early marker for avoidable blindness. *CMAJ*. 2017;189(40):E1264.
3. Faustino JF, Ribeiro-Silva A, Dalto RF, et al. Vitamin A and the eye: an old tale for modern times. *Arq Bras Oftalmol*. 2016;79(1):56-61.

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