ELISABETH GÓMEZ-MOYANO, MD, PhD
Department of Dermatology, Carlos Haya University Hospital, Málaga, Spain

LUIS M. PÉREZ-BELMONTE, MD, PhD
Department of Internal Medicine, County Hospital of The Axarquía, Vélez-Málaga, Málaga, Spain

LEANDRO MARTÍNEZ-PILAR, MD, PhD
Department of Dermatology, Carlos Haya University Hospital, Málaga, Spain

DANIEL J. GODOY-DÍAZ, MD
Department of Dermatology, Carlos Haya University Hospital, Málaga, Spain

Erythema and atrophy on the tongue

A 26-year-old woman was referred to the dermatology department with a 6-month history of a painful burning sensation on the tongue. Examination revealed a reddish, atrophic area on the dorsum of the tongue (FIGURE 1).

She had been treated unsuccessfully with topical antifungal drugs (clotrimazole and nystatin) for a presumed diagnosis of oral candidiasis. Otherwise, her medical history was notable only for occasional episodes of epigastric pain. She did not smoke or drink alcohol.

Fungal culture and oral exfoliative cytology studies were negative.

Laboratory results:

- Red blood cell count 3.9 × 10^{12}/L (reference range 4.2–5.4)
- Hemoglobin 11.3 g/dL (12–16)
- Mean corpuscular volume 92 fL (80–99)
- Mean corpuscular hemoglobin 29 pg (27–34)
- Iron 14 µg/dL (37–145),
- Vitamin B_{12} 119 pg/dL (250–900)
- Zinc 33 µg/dL (66–110)
- Serum gastric parietal cell antibody positive
- Serum creatinine and liver enzyme tests were normal.

Biopsy of the gastric mucosa revealed severe atrophic gastritis, so the possibility of atrophy related to gastroesophageal reflux was considered. But the laboratory results and the patient's presentation pointed to iron deficiency and pernicious anemia (due to deficiency of vitamin B_{12}). Zinc deficiency is associated with oral burning but not atrophic glossitis.

Based on the patient's symptoms and the testing results, she was given the diagnosis of atrophic glossitis. She was treated with oral iron supplementation, intramuscular injections of vitamin B_{12}, and oral zinc supplementation. The glossitis resolved, and the gastric symptoms improved within 2 months, thus supporting our diagnosis of atrophic glossitis.

FIGURE 1. The patient's tongue had an erythematous, atrophic patch (arrows).

ATROPHIC GLOSSITIS

The diagnosis of abnormalities of the tongue requires a thorough history, including onset and duration, antecedent symptoms, and tobacco and alcohol use. Examination of tongue morphology is also important.[1] Tongue abnormalities related to tobacco use and to alcohol use include leukoplakia, erythroplakia, oral submucosal fibrosis, lichen planus, and oral squamous cell carcinoma.

Atrophic glossitis is often linked to an underlying nutritional deficiency of iron, folic acid, vitamin B_{12}, riboflavin, or niacin, although other nutritional deficiencies can be implicated. As noted, zinc deficiency can cause oral burning but not atrophic glossitis,

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and it resolves with correction of the underlying deficiency.[2] Cobalamin deficiency is the main cause of atrophic glossitis.

As our patient's presentation illustrated, oral symptoms can be multifactorial. Oral conditions may be an early clinical manifestation of a nutritional deficiency, but they can also reflect an alteration of the gastric mucosa[3]; a bacterial, viral, or fungal infection; neoplastic disease; autoimmune disease; endocrine disorder; local mechanical trauma; exposure to an irritant; or an allergic reaction.[2]

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***ADDRESS**: Luis M. Pérez-Belmonte, MD, Department of Internal Medicine, County Hospital of The Axarquía, Finca El Tomillar, s/n 29700, Torre del Mar, Vélez-Málaga, Málaga, Spain; e-mail: luismiguelpb@hotmail.com*