Linear white lesion in the oral mucosa

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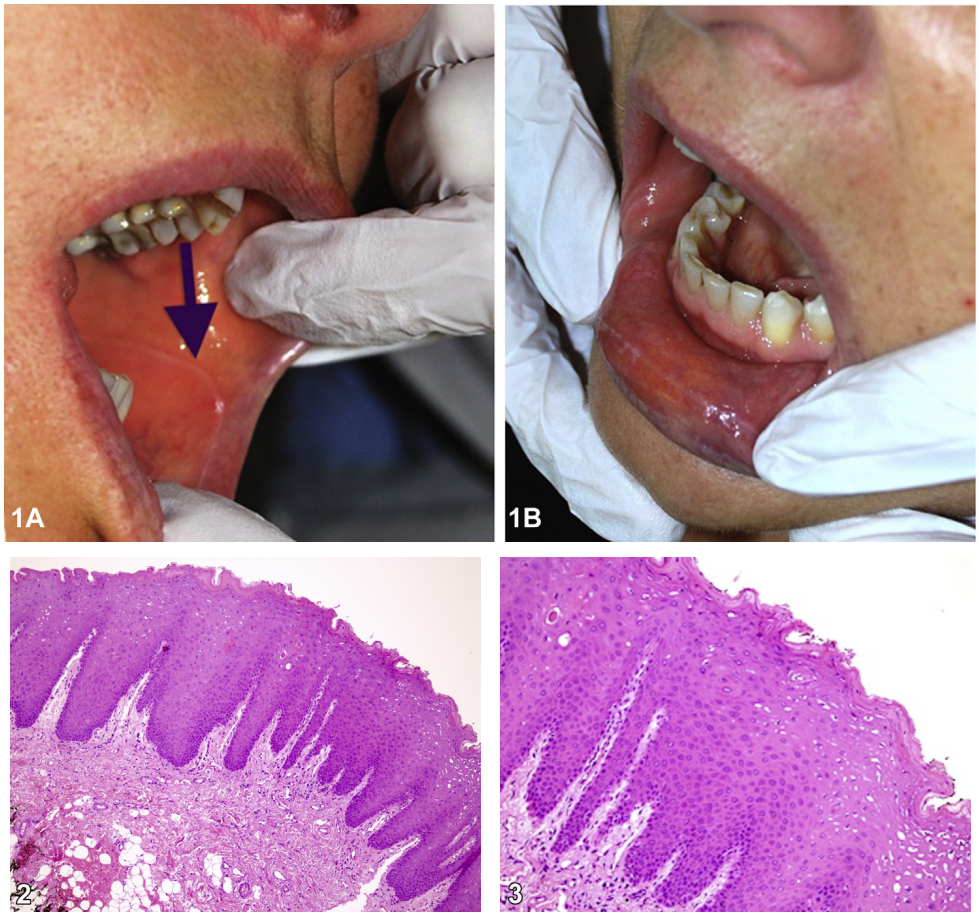

PRESENTATION OF CASES

Two unrelated patients aged 60 and 61 presented with an asymptomatic, white, slightly raised line on the buccal mucosa extending bilaterally from the commissure to the last molar teeth along their occlusal line, involving also the inner lower lip mucosa (Fig 1, *A* and *B*). The lesions could not wipe off on scratching. Medical history was unremarkable. Histopathology showed hyperparakeratosis without granular layers and

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regular acanthosis vacuolated cells in the upper spinous cell layer with some dyskeratotic cells in the absence of dysplasia (Fig 2). Neither inflammatory infiltrate nor bacterial colonies attached to the surface or fungal elements were seen (Fig 3).

Question 1: What is the most likely diagnosis?

A. Oral lichen planus

B. Oral leucoplakia

C. Linea alba

D. White sponge nevus

E. Leukoedema

Answers:

A. Lichen planus — Incorrect. Oral lichen planus is characterized by bilateral, white, fine reticular lines on the cheeks, gingiva, and tongue. Additional clinical forms include reticular, papular, plaque-like, atrophic, and erosive lesions, but lichen planus never presents with a linear streak along the occlusion line. Histopathology shows an interface lichenoid mucositis.[1]

B. Oral leucoplakia — Incorrect. Oral leucoplakia in its homogeneous form is a potentially malignant condition, characterized by a flat, unilateral, non-scrapable white plaque with well-defined borders and striations involving a single large site on the gingiva, buccal mucosa, and tongue. Histopathology varies from mild hyperkeratosis to verrucous hyperplasia with varying degrees of dysplasia.

C. Linea alba — Correct. Linea alba is a horizontal, asymptomatic white linear lesion seen on the buccal mucosa at the level of the occlusal plane of the teeth, often mistaken for leukoplakia.[2] Histopathology includes hyperkeratosis, prominent granular layer, which may be reduced like in our case, and acanthosis.

D. White sponge nevus — Incorrect. This rare autosomal dominant condition presents during childhood with asymptomatic, diffuse, bilateral, white plaques on the buccal mucosa and tongue. Histologically, it shares some findings similar to linea alba including acanthosis, parakeratosis, and vacuolization of the suprabasal keratinocytes, the last being more extensive in white sponge nevus.

E. Leukoedema — Incorrect. Leukoedema presents as an asymptomatic, bilateral, grayish-white, rough-surfaced mucosal alteration that typically disappears when the mucosa is stretched. Histopathology shows acanthosis and intracellular edema without atypical cells.

Question 2: What is the etiology of this condition?

A. Tobacco smoking

B. Human papilloma virus (HPV) infection

C. Dental amalgam

D. Chronic irritation caused by friction

E. Genetic transmission

Answers:

A. Tobacco smoking — Incorrect. Oral white lesions that are associated with tobacco smoking include, in addition to leukoplakia and squamous cell carcinoma, nicotinic stomatitis that appears as a diffusely gray-white slightly elevated plaque on the palate with small raised punctate red centers corresponding to irritated minor salivary glands.[3] Linear alba has not been related to tobacco smoking.

B. HPV infection — Incorrect. The classical oral lesions associated with HPV are squamous cell papilloma, condyloma acuminatum, verruca vulgaris, and focal epithelial hyperplasia. Focal epithelial hyperplasia, caused by HPV 13 and 32, is characterized by multiple circumscribed, sessile, elevated white-to-pinkish papules that occur diffusely in the oral cavity in young patients.

C. Dental amalgama — Incorrect. Amalgam can cause an oral lichenoid reaction clinically and histologically indistinguishable from oral lichen planus. The clinical clue is a whitish, localized asymmetrical lesion near a dental amalgam filling.

D. Chronic irritation caused by friction — Correct. Linea alba is caused by chronic irritation of the teeth against the buccal mucosa along the plane of occlusion and is considered as a frictional keratosis.[4] Additional causes include orthodontic appliances, frictions of the dentures, uneven teeth, and aggressive oral hygiene.

E. Genetic transmission — Incorrect. Linea alba is an acquired condition without any proven genetic background. Among white oral lesions, white sponge nevus is an autosomal-dominant condition that does not exhibit a linear pattern.

Question 3: What is the best treatment for this condition?

A. Topical steroids

B. Smoking cessation

C. No medical treatment necessary

D. Topical retinoids

E. Laser ablation

Answers:

A. Topical steroids — Incorrect. Topical steroids are useful in the treatment of oral lichen planus but they are ineffective in linea alba.

B. Smoking cessation — Incorrect. Linea alba is not caused by smoking. Nicotinic stomatitis is likely to resolve after smoking discontinuation.

C. No treatment is necessary — Correct. Explanation and reassurance are recommended for these patients; every frictional irritant should be removed and sucking, biting, or chewing habits should be discontinued.

D. Topical retinoids — Incorrect. Topical retinoids (both tretinoin and isotretinoin) have been tried with variable success in some oral conditions such as oral lichen planus and oral leukoplakia,[5] but this treatment has never been tried in linea alba.

E. Laser ablation — Incorrect. No surgical intervention including laser ablation is indicated for linea alba, which is a benign condition with no malignant potential.

Abbreviation used:

HPV: human papilloma virus

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