



# The diagnostic challenges of separating chronic ulcerative stomatitis from oral lichen planus

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**Objective.** To attempt to establish criteria to differentiate between chronic ulcerative stomatitis (CUS) and oral lichen planus (OLP) with hematoxylin and eosin (H&E) staining alone.

**Study Design.** Ten confirmed cases of CUS were reviewed from the Stomatology Clinic at the Texas A&M University Baylor College of Dentistry.

**Results.** The original diagnosis on H&E evaluation was OLP, chronic mucositis, or mucositis with lichenoid features, but subsequent direct immunofluorescence (DIF) revealed a positive speckled intranuclear deposition of immunoglobulin G (IgG) in the basal and parabasal layers of the epithelium, confirming a diagnosis of CUS.

**Conclusions.** No consistent histopathologic features were present that would allow recognition of CUS from H&E analysis alone. DIF remains the gold standard for diagnosis. (Oral Surg Oral Med Oral Pathol Oral Radiol 2015;120:622-627)

Chronic ulcerative stomatitis (CUS) is a painful chronic ulcerative mucocutaneous process that can occasionally be associated with skin lesions as well. CUS was identified fairly recently and was first described as a separate entity by Jaremko in 1990.<sup>1</sup> It is an immunopathologic condition in which autoantibodies bind to nuclear protein in stratified squamous epithelium, disrupting epithelial growth and differentiation and resulting in ulcerative lesions or desquamative gingivitis. It is predominantly found in white females over the age of 50 years.<sup>2</sup> The ulcers can be seen anywhere in the oral cavity, but the most common location is the tongue followed by the buccal mucosa and gingiva, where it can present as desquamative gingivitis.<sup>3</sup> Therefore, other lesions characterized by desquamative gingivitis, such as oral lichen planus (OLP), pemphigus vulgaris (PV), and mucous membrane pemphigoid (MMP), must be included in the clinical differential diagnosis.<sup>4-6</sup> Light microscopic findings typically help to easily differentiate between CUS and vesiculobullous lesions (PV and MMP), making direct immunofluorescence (DIF) unnecessary for distinguishing CUS from PV and MMP. PV demonstrates an intraepithelial separation (acantholysis) producing a suprabasilar vesicle, and tzanck cells are usually seen floating in the vesicular area. MMP, however, produces a subepithelial separation between the epithelium and connective tissue.<sup>7</sup>

Lichen planus (LP) is considered a chronic dermatologic disease that also affects the oral mucosa, although oral involvement is more common than skin lesions. The cause of LP is unknown, but such

exacerbating factors as stress, dental material sensitivity, tooth decay, and periodontal disease have been implicated as potential contributing factors.<sup>8</sup> The skin lesions are usually very distinctive, described as polygonal, purple, pruritic papules. When LP is found in the oral cavity without associated dermatologic lesions, it is referred to as OLP. Patients diagnosed with skin LP are 50% to 70% more likely to develop oral lesions, whereas patients diagnosed with OLP are only 15% more likely to show skin lesions.<sup>9</sup>

LP has 5 subtypes: reticular, plaque-like, atrophic, erosive, and bullous.<sup>10</sup> In most cases, OLP is seen in the asymptomatic reticular form, with bilateral white striae on the buccal mucosa, tongue, and gingiva.<sup>11</sup> However, the erosive type of OLP is clinically indistinguishable from CUS, with pain and generalized ulcers being the patients' complaints. Histologically, both OLP and CUS illustrate classic atrophic epithelium, hydropic degeneration of the basal cell layer with cytoid bodies, and a band-like inflammatory infiltrate.<sup>12,13</sup> So far, the only consistently reliable method to establish a definitive diagnosis between the 2 lesions is through DIF. CUS demonstrates a speckled immunoglobulin (IgG) deposition in the nuclei of keratinocytes in the lower one-third of the epithelium, whereas OLP lacks IgG positivity, expressing instead a nonspecific linear pattern with fibrinogen along the basement membrane zone.<sup>14-16</sup> It is important to differentiate CUS from OLP

## Statement of Clinical Relevance

Routine hematoxylin and eosin (H&E) staining failed to reveal consistent features that increase suspicion for chronic ulcerative stomatitis (CUS). Direct immunofluorescence (DIF) remains the sole means to establish a definitive diagnosis.

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**Table I.** Demographics of the 10 patients

Case #	Gender	Age (y)	Race
1	F	54	C
2	F	57	C
3	F	73	C
4	F	50	C
5	F	49	C
6	F	60	C
7	M	59	H
8	F	66	C
9	F	28	U
10	F	66	C

F, Female; M, male; C, Caucasian; H, Hispanic; U, unknown.

because lesions of CUS may be resistant to the steroid therapy that is typically used to control erosive OLP, and alternative treatment with hydroxychloroquine may help achieve disease control.

Our aim in this study was to evaluate the histopathologic features of 10 CUS cases that were originally diagnosed as OLP, mucositis with lichenoid features, or chronic mucositis and attempt to establish criteria that might distinguish between CUS and OLP by hematoxylin and eosin (H&E) staining alone without the need for DIF.

**MATERIALS AND METHODS**

Data from 10 cases diagnosed as CUS and having DIF confirmation were collected from files of the Stomatology Clinic at Texas A&M University Baylor College of Dentistry. (Table I). Examination revealed no concomitant skin lesions. Patients’ chief complaints included bleeding gingiva, pain, and ulcerations. Clinical examination revealed some variability in individual features, but all patients presented with generalized diffuse erythema with white plaque-like lesions on the buccal mucosa, facial gingiva, lower

lip, and/or tongue. All patients had a routine biopsy performed at 1 of the sites and the specimen was divided into 2 specimens, with 1 sent for light microscopic analysis and the other for DIF testing. The H&E-stained slides were retrieved from the archives and reviewed to tabulate the presence or absence of 9 specific histopathologic features Table II.

**RESULTS**

Based on the H&E-stained slides alone, the biopsies were initially interpreted as: OLP in 6 patients, chronic mucositis with ulcerations in 2 patients, and chronic mucositis with lichenoid features in 2 patients. None of the 10 patients had any significant skin lesions<sup>17</sup> The microscopic findings were generally nonspecific but demonstrated lichenoid features, such as ulceration, hydropic degeneration of basal layer cells and reduplication of the basement membrane, variation in epithelial thickness (with some lesions having a flat interface between the epithelium and connective tissue), saw-tooth rete ridges, and colloid bodies. The band-like infiltration of inflammatory cells varied in composition, with some infiltrates composed purely of lymphocytes and others having a mixture of lymphocytes and plasma cells.

The distribution of the inflammatory infiltrate also varied. Some lesions had the classic intense band-like inflammatory infiltrate limited to the superficial lamina propria at the interface with the overlying epithelium and showing a sharply defined deep edge. Other lesions had a uniform infiltrate extending in areas into the deeper lamina propria, producing an irregular or hazy deep edge (Table II). In each case, tissue submitted for DIF revealed a positive speckled intranuclear deposition of IgG in the basal and parabasal layers of the epithelium with occasional traces of IgA, IgM, and fibrinogen along the

**Table II.** Summary of hematoxylin and eosin (H&E) findings in the 10 cases

Case #	Biopsy	Ulcer*	H&E diagnosis	HD	VE	SRR	FI	RBM	BLI	PL	SI	CB
1	BM	N	CM w/LF	Y	Y	N	N	N	Y	N	Hazy	Few
2	BM	Y	CM w/U	Y		Y	N	Y	N	N	Hazy	Few
3	LL	N	OLP	Y	Y	Y	N	N	Y	Y	Y	Few
4	BM	N	OLP	Y	N	N	N	Focal	Y	Y	Y	Few
5	G	Y	OLP	Y	N	N	Y	N	Y	N	Y	Few
6	G	Y	CM w/U	Y	Minimal	Y	Y	Y	Diffuse	N	Hazy	Few
7	G	N	OLP	Y	Y	Y	Y	N	Y	N	Hazy	Many
8	T	N	OLP	Y	N	Y	N	N	Y	N	Y	Few
9	BM	Y	CM w/LF	Y	N	N	Y	Minimal	Y	Mostly	Y	None
10	BM	N	LP	Y	N	N	Y	Y	Y	Y	Hazy	None

BM, Buccal mucosa; LL, lower lip; G, gingiva; T, dorsum of tongue; HD, hydropic degeneration; VE, variation of epithelium (hyperplastic/atrophic); SRR, saw-tooth rete ridges; FI, flat interface; RBM, reduplication of basement membrane; BLI, band-like infiltration; PL, pure lymphocytes; SI, superficial infiltration only (no deep); CB, colloid bodies; CM w/LF, chronic mucositis with lichenoid features; CM w/U, chronic mucositis with ulcer; OLP, oral lichen planus; N, No; Y, Yes; C, Caucasian; H, Hispanic; U, unknown race.

\*Localized area of the specimen had ulcer without epithelium on surface.

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