



Erosive oral lichen planus with genital lesions The vulvovaginal-gingival syndrome and the peno-gingival syndrome

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Lichen planus (LP) is an inflammatory mucocutaneous disorder that may involve mucosal surfaces, such as the oral, genital, and other mucosae, and the skin including the scalp and the nails. The exact incidence of LP is unknown, but it is equal to or greater than common skin diseases, such as psoriasis and alopecia areata [1–4]. The clinical manifestations of LP are protean and may be encountered as isolated or seemingly isolated involvement of an anatomic site. The disease is typically managed by dentists and dental specialists; dermatologists; stomatologists; gynecologists; gastroenterologists; and, rarely, otorhinolaryngologists or ophthalmologists. The clinical range of the manifestations of LP is broad, but the oral cavity and the skin are the major sites of involvement.

Oral lesions are present as the sole manifestation in 15% to 30% of all patients with LP, whereas two thirds of patients with cutaneous LP have oral lesions. Andreason [5] classified the clinical presentation of oral lichen planus (OLP) into six variants: (1) reticular, (2) papular, (3) plaque, (4) atrophic, (5) erosive, and (6) bullous. A simpler classification with three clinical forms has been described: (1) reticular including raised hyperkeratotic lesions, such as papules and plaques; (2) erythematous including atrophic lesions; and (3) erosive including ulcerated and bullous

lesions. The oral and extraoral lesions of LP are discussed in detail elsewhere in this issue.

Cutaneous lesions of LP are typically papulosquamous, characterized by pruritic, purple, polygonal papules often covered by a white hyperkeratotic reticular scale known as *Wickham's striae*. There are many cutaneous variants of LP including actinic; annular; hypertrophic; linear; ulcerative; LP–lupus erythematosus overlap syndrome; and lichen planus pemphigoides, an overlap of pemphigoid and LP [2,6]. Lichen planopilaris represents LP involvement of the scalp and hair follicles causing a scarring alopecia. LP may also involve the nails producing thinning and ridging of the nail plate and splitting of the distal free edge of the nail. Healing with a scar produces a pterygium, an uncommon but characteristic LP nail manifestation.

Other mucosal surfaces may be involved by LP. Unusual sites include ocular [7], esophageal [8], bladder, nasal, laryngeal, otic, gastric, and anal involvement [2,4,9,10]. Genital lesions of LP in women are well recognized and are identified as an important component of the practice of vulvar medicine. Micheletti et al [11] reported vulvar LP in 125 patients among 3350 women (3.7%) who had a vulvar biopsy during the period 1986 to 1999 at the Vulvar Clinic at the University of Turin. Vulvar LP has been recently reviewed by Lewis [12]. Genital lesions of LP are reported to be common among men with cutaneous LP [2].

A unique type of genital and oral mucosal LP was described by Pelisse et al [13] in 1982. The triad of

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Table 1

Characteristics of 122 patients with the vulvovaginal-gingival syndrome of erosive oral lichen planus

Characteristic	Pelisse [15]	Bermejo [16]	Eisen [17]	Rogers [18]	Total
Number of patients	19	3	60	40	122
Age range	27–70	44–65	29–74	18–78	18–78
Median age	44	57	50	51	50
Postmenopausal	N/A	N/A	31	26	57/100 57%
Oral before genital	5	N/A	15	20	40/119 33.6%
Oral = genital	7	N/A	30	15	52/119 43.7%
Genital before oral	7	N/A	15	5	27/119 22.7%
Cutaneous lesions	3	0	7	12	22/119 18.5%
Scalp involvement	1	0	N/A	7	8/62 12.9%
Desquamative gingivitis	1	2	15	13	31/122 25.4%
Nail involvement	N/A	0	N/A	6	6/43 14%

erosive or desquamative vulvitis, vaginitis, and gingivitis (the vulvovaginal-gingival [VVG] syndrome) was detailed in a series of publications in the 1980s [13–15]. Pelisse [15] reported 19 patients in 1989, Bermejo et al [16] reported 3 patients in 1990, and Eisen [17] reported 22 patients in 1994. Rogers [18] reported 25 more patients at the 1997 World Congress of Dermatology. Erosive LP lesions in men involving the oral and genital mucosa were reported in 1993 by Cribier et al [19] as the peno-gingival (PG) syndrome. An additional eight men with the PG variant of OLP were recently described, four with the erosive form of the disease [9].

Eisen [3] points out that Wilson [20], in the first reported series of patients with cutaneous LP, described 3 of 50 patients with oral involvement. Lewis [12] notes that one of Wilson's original 50 patients with cutaneous LP also suffered from "pruritus vaginae." Although LP affecting the male genitalia was recognized early as a common disorder, vulvar LP was considered to be rare until the end of the last century. The recognition of erosive vulvovaginal disease as a form of LP evolved in the latter part of the twentieth century. Vaginal disease with atrophic vaginal mucosa was reported as "desquamative inflammatory vaginitis" by Gardner [21] in 1968. Lynch [22] reported a patient with desquamative inflammatory vaginitis and erosive OLP in 1975. Edwards [23,24] reported erosive vulvar LP and desquamative vaginitis in association with erosive OLP in 1989 and commented on the similarities to the patients reported by Pelisse et al [13] in 1982.

In this article the authors describe patients with the unique chronic orogenital variant of erosive OLP in both men and women. Although treatment of genital LP is quite challenging [12,15,17,23–25], therapeutic benefit in this painful, protracted condition can be obtained.

VVG syndrome of erosive OLP

Patient profiles of the VVG syndrome of erosive OLP

The distinctive subset of female patients with erosive OLP who also have erosive genital disease is called the VVG syndrome of erosive OLP. Pelisse [15] described 19 patients in 1989, Bermejo et al [16] described 3 patients in 1990, Eisen [17] described 22 patients in 1995, and Rogers [18] described 25 patients in 1997. An additional 38 patients from Eisen and 15 patients from Rogers are added to this group to yield a total of 122 patients (Table 1).

These patients are probably underreported or not recognized. Eisen [9] has carefully studied 584 patients with OLP, each of whom had histologic confirmation of the diagnosis. All patients were monitored for periods from 6 months to 10 years with a mean of 4 years. Extraoral LP was found in many of these patients (Table 2). It is clear that many patients with the VVG syndrome of erosive OLP are not questioned about genital lesions by their dentist [9].

Edwards [23–25], Lewis et al [12,26], and Eisen [9] have emphasized that gynecologists are often not familiar with vulvar LP. The authors' experience

Table 2

Extraoral manifestations of oral lichen planus

	Number	Percent
Number of patients	584	100
Cutaneous	93	16
Scalp	6	1
Nails	11	2
Vulvovaginal	77/399	19
Male genitalia	8/174	5
Esophagus	4	< 1
Ocular	1	< 1
Multiple sites simultaneously	33	6

shows that the full extent of many patients' disease is unrecognized until a careful history and physical examination are performed.

Oral lesions of the VVG syndrome of erosive OLP

All patients have oral LP. The characteristic lesion is gingival LP. The labial-buccal aspect of the maxillary gingivae is almost invariably involved. Clinically, the gingivae are erythematous and swollen (Fig. 1) Overlying the color changes is a white reticulated pattern similar to the patches of reticulation seen in typical buccal OLP. Occasionally, the epithelium peels away (desquamates) leaving an eroded base; 25% of patients present with desquamative gingivitis. Gingival LP is painful and most patients complain of pain, burning, or discomfort.

Involvement of the buccal, labial, and tongue mucosae is seen in many of the patients (Fig. 2). These lesions are symptomatic when erosive. Some reticular lesions are relatively asymptomatic. Scarring was not seen in OLP associated with erosive genital lesions in these four large series. Oral lesions preceded the development of genital lesions in 33.6% of the combined series and occurred simultaneously with the genital lesions in 43.7% (see Table 1).

Vulvovaginal manifestations of the VVG syndrome of erosive OLP

Most patients have an erosive vulvitis with the remaining women displaying asymptomatic or erythematous lesions. The characteristic lesion is a tender, painful, erythematous atrophic or eroded introitus of the vulvovaginal area (Fig. 3) The erythema is de-



Fig. 1. Oral lichen planus. Gingival involvement is typical of the vulvovaginal-gingival variant of erosive oral lichen planus. Note the erythema, edema, and desquamation of the maxillary attached gingivae. The white reticulated pattern is seen above the left central and lateral incisor teeth.



Fig. 2. Oral lichen planus. Note involvement of buccal mucosa with an erosion surrounded by hyperkeratosis and the typical reticulated pattern anterior and inferior to the erosion.

scribed by Pelisse et al [13,15] as “erythroplakic” and by Eisen [9,17] as varying degrees of erythema and erosions often accompanied by white reticulated lesions. These reticulated areas are very helpful in establishing a clinical diagnosis of LP.



Fig. 3. Vulvar lichen planus. Vulvar involvement is typical of the vulvovaginal-gingival variant of erosive oral lichen planus. Note the erythema, edema, and desquamation of the introitus.



Fig. 4. Oral lichen planus. Note the hyperkeratotic plaques of the buccal mucosa with the reticulated pattern adjacent to the plaques.

More severe involvement is characterized by a diffuse vulvitis. Pelisse [15] states that all patients with an erosive vulvitis develop, at some time, an erosive vaginitis. The erosive vaginitis is similar to the desquamative inflammatory vaginitis described by Gardner [21]. The vulvovaginal lesions are often exquisitely painful. Most patients experience dyspareunia or cannot tolerate coitus at all. Postcoital bleeding is typical.

Some patients develop synechiae of the vagina leading to a stenotic, fibrosed vaginal vault. The involvement may be so severe as to preclude obtaining cervical cells for a Papanicolaou smear. Patients may undergo one or more surgical reconstructive procedures for the scarring sequelae before the complete nature of the disease is recognized. Almost invariably, the scarring recurs in the postoperative period, probably reflecting a Koebner phenomenon.

Other involvement of the VVG syndrome of erosive OLP

Cutaneous involvement occurred in 18.5% of the 122 patients (see Table 1). The temporal association of the cutaneous LP was quite variable. Some patients gave a history of cutaneous LP in the distant past, whereas others had active cutaneous manifestations simultaneously with their VVG disease. This is similar to the 16% reported by Eisen [9] in his series of 584 patients with histologically confirmed OLP (see Table 2).

Scalp involvement in the form of lichen planopilaris was present in 12.9% of 62 patients with the VVG syndrome. This is considerably higher than the 1% reported by Eisen [9] in his series of 584 patients with OLP. Similarly, nail involvement was much more common in patients with the VVG syndrome. Nail

involvement occurred in 14% of 62 patients with the VVG syndrome compared with 2% of patients with OLP (see Table 2).

Even more striking is the involvement of the unusual sites, such as esophagus, conjunctiva, and ear canals, although the number of patients with the VVG syndrome who are affected with extraorogential disease is unknown. Scarring of the scalp, nail beds, ear canals, conjunctivae, esophagus, and the vulvovaginal tissues represent a major source of morbidity and disability. The oral manifestations of the VVG syndrome do not scar.

Diagnosis of the VVG syndrome of erosive OLP

The VVG syndrome of erosive OLP is a dramatic clinical presentation when all three elements are present and recognized. The presence of the white reticulated pattern at the edge of the erythematous or hyperkeratotic patches (Figs. 3 and 4) or overlying the patches (Fig. 5) is quite helpful.

Hyperkeratotic or hypertrophic lesions of the vulva may be mistaken for lichen sclerosus et atrophicus (LSA). Histologically, a lymphocyte infiltrate high in the dermis can obfuscate the hyalinization typically seen in LSA. Clinical features may overlap also. The VVG syndrome of erosive OLP, however, does not typically involve the perineum or perianal tissues, whereas these sites are typically involved in LSA. Oral lesions of LSA have been reported. Marren et al [27] reported seven patients with a mucosal lichen sclerosus–LP overlap syndrome with both oral and genital lesions. Small erosions can develop in LSA but they are not as extensive as seen in the VVG syndrome or erosive OLP. Finally, architectural loss and fusion may be an end-stage phenomenon in both conditions but LSA does not affect the vagina [12,26].

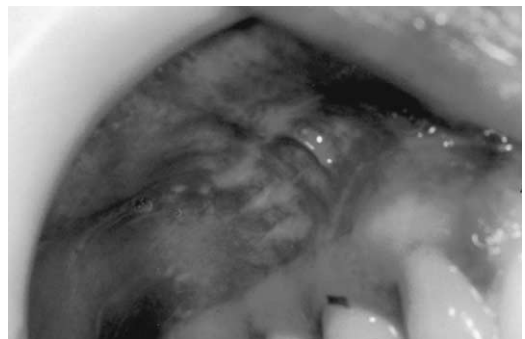


Fig. 5. Oral lichen planus. Note the reticulated hyperkeratotic pattern overlying an erythematous plaque of the sulcular gingival mucosa.

Erosive oral or vulvovaginal lesions may be seen in immunobullous diseases, such as mucous membrane pemphigoid, pemphigus, paraneoplastic pemphigus, and linear IgA bullous disease. The white reticulated pattern is usually absent in these conditions. It may be necessary to obtain a biopsy of the oral or genital lesions to exclude the immunobullous diseases and to establish the diagnosis of the VVG syndrome. Study by routine histopathology and direct immunofluorescence (IF) testing permits a definitive diagnosis in most circumstances [28]. Serum studies by indirect IF testing may be helpful to exclude mucous membrane pemphigoid, pemphigus, paraneoplastic pemphigus, or linear IgA bullous disease [28].

Pelisse [15] obtained 30 mucosal biopsy specimens of 19 patients. All five from the gingivae revealed LP. Of 20 vulvar biopsy specimens, 13 showed unequivocal LP and 7 were nonspecific. The vaginal biopsy specimens revealed LP in two of four specimens. Direct IF testing revealed “no significant deposits” in six patients.

Eisen [9,17] obtained 60 oral biopsy specimens with 17 from the gingivae. All but four showed unequivocal changes of OLP. Vulvar biopsy specimens were performed in 18 patients with 16 showing characteristic changes of LP. Twelve oral specimens studied by direct IF methods showed cytotoid bodies and fibrinogen in a shaggy deposition, a pattern typical of LP [28].

Rogers [18] studied oral biopsy specimens in 22 of 25 Mayo patients previously reported. Changes typical for OLP were identified in 18 of 22 patients. Genital biopsies were positive in 12 of 13 patients. Direct IF testing was positive for a lichenoid tissue reaction in 14 of 15 oral biopsy specimens and 5 of 5 genital biopsy specimens.

Natural history of the VVG syndrome of erosive OLP

The initial presentation of the VVG syndrome of erosive OLP occurs in middle-aged women. The age range was 18 to 78 years of age, and the median age was 50 years (see Table 1). Oral lesions preceded genital lesions in 33.6% or occurred simultaneously with genital lesions in another 43.7%. Genital lesions were first in 22.7%. The constellation of signs and symptoms usually came together within a few years. Rarely a decade would pass between components of the VVG syndrome.

The prognosis for spontaneous remission of the VVG syndrome of erosive OLP is poor. Most patients continue to suffer from the disease for years. The development of squamous cell carcinoma in LP is an accepted but rare complication of LP [29]. Two of the

122 patients with the VVG variant of erosive OLP have developed oral squamous cell carcinoma to date, and fortunately both were detected in early and curable stages [3].

Treatment of the VVG syndrome of erosive OLP

Treatment of this distressing and chronic condition is challenging. Pelisse [15] reported benefit from topical corticosteroids in only 5 of 19 patients but no benefit for the vulvovaginal adhesions and scarring. Systemic administration of corticosteroids was effective but patients relapsed when the corticosteroids were discontinued. Retinoids were administered systemically to three patients with one showing transient improvement. Dapsone was a failure in two patients and griseofulvin failed in one patient.

Eisen [9,17] treated all his patients with topical corticosteroids (either fluocinonide 0.05% or halcinonide 0.1%). About 50% of patients improved with 12 weeks of therapy. Some patients developed oral or genital candidiasis as a side effect of therapy. Other effective topical therapy included topical tretinoin and corticosteroids for oral lesions. Nine of 14 patients with OLP responded. Topical cyclosporine and corticosteroids were effective in oral lesions of 10 of 15 patients and genital lesions of 7 of 12 patients.

Systemic therapy with etretinate (50 mg) or acitretin (25 mg) daily plus topical corticosteroids benefited 12 of 19 oral LP and 6 of 12 genital LP manifestations. Failures occurred with dapsone (0 of 4); griseofulvin (0 of 4); and doxycycline (0 of 3). Systemic cyclosporine was effective in seven patients, and recently mycophenolate mofetil was found to be beneficial in seven of nine patients.

Eisen [3,9,17] comments that no therapy or combination of therapies results in a long-term remission. The disease relapses when treatment is discontinued reflecting an ongoing inflammatory process.

Among the first 25 patients treated by Rogers [18], systemic therapy with corticosteroids (11 of 11), hydroxychloroquine (8 of 10), cyclosporine (1 of 1), and cyclophosphamide (1 of 1) was effective. The disease flared when therapy was discontinued. Failures were also recorded with griseofulvin (0 of 8); dapsone (1 of 2); metronidazole (0 of 1); and tetracycline plus niacinamide (0 of 1).

Recently, one of the authors [30] have noted benefit from topical tacrolimus therapy. Tacrolimus, an immunosuppressive agent used in organ transplantation, has been effective topically. Initially, the medication was suspended in Aquaphor in 0.03% or 0.1% concentration. Later, the authors used Protopic ointment 0.03% or 0.1% with good results.

Topical tacrolimus was massaged into involved tissues three times daily. Patients were asked not to eat or drink for 30 minutes after applying the medication. Benefit was seen in oral and vulvar disease in 4 weeks. Maintenance therapy with less frequent dosing is required or the disease flares. Similar results have been reported with OLP [31].

The vaginal manifestations of the VVG syndrome of erosive OLP present a challenge. Topical therapy is difficult to apply. Walsh et al [32] describe a vaginal prosthetic device for use with topical therapy. Topical therapy with cyclosporine has also been reported to be effective [9,17].

PG syndrome of erosive OLP

Patient profiles of the PG syndrome of erosive OLP

Penile or male genital lesions are reported to be common in cutaneous LP [2]. These lesions are described as annular, papulosquamous lesions characteristically affecting the glans penis (Fig. 6). Male genital lesions were noted in 8 of 174 male OLP patients reported by Eisen [9]. Of these, four of eight had asymptomatic reticular or erythematous lesions rather than erosive genital lesions. Recognition of male genital lesions is important because squamous cell carcinoma can develop at penile sites of LP [33].

Cribier et al [19] described the male equivalent of the VVG syndrome of erosive oral LP in 1993. Eisen [9] has reported eight patients with OLP and LP lesions of the male genitalia, of whom four had erosive gingival and genital lesions. Since that report,



Fig. 6. Penile lichen planus. Note the annular, papulosquamous plaque on the glans penis. The lesion is often a violet to purple color.

Table 3

Peno-gingival syndrome of erosive oral lichen planus in men

	Cribier			Total
	et al [16]	Eisen	Rogers	
Number	1	7	4	12%
Age range	52	28–72	35–60	28–72%
Median age	52	47	52	49%
Oral before genital	1	2	0	25%
Genital = oral	0	10	4	75%
Genital before oral	0	0	0	0%
Cutaneous lesions	1	3	0	25%
Desquamative gingivitis	1	2	2	42%
Nail involvement	0	0	0	0%

Eisen has seen three additional patients. Rogers has seen six patients with oral LP and male genital lesions, four of who had erosive gingival and genital disease (Table 3).

Oral lesions of the PG syndrome of erosive OLP

All patients have oral LP. The characteristic lesion is gingival LP; 42% of patients have desquamative gingivitis caused by OLP. Involvement of other sites is common. Reticular, erythematous, and erosive lesions are typically present. Patients are often symptomatic.

Penile lesions of the PG syndrome of erosive OLP

All patients have penile LP. Lesions are usually erosive and involve the glans penis. Some patients also have reticular and erythematous lesions of the glans penis and occasionally of the shaft of the penis. Patients are often symptomatic. Scarring is not typical.

Other involvement of the PG syndrome of erosive OLP

Although female patients with the VVG syndrome of erosive OLP have extraorogential involvement of cutaneous, scalp, and nail sites and unusual mucosal sites, such as otic, ocular, and esophageal mucosae, the 12 male patients with the PG syndrome of erosive OLP do not exhibit involvement of other sites except skin in 25% of patients.

Diagnosis of the PG syndrome of erosive OLP

The differential diagnosis includes LSA and immunobullous diseases, such as mucous membrane pemphigoid, pemphigus, paraneoplastic pemphigus, and linear IgA bullous disease. Study of biopsy specimens by both routine histopathology stains and by the

direct immunofluorescence technique is helpful in excluding LSA and the immunobullous diseases and confirming the diagnosis of the PG syndrome of erosive OLP [28].

Natural history of the PG syndrome of erosive OLP

The initial presentation of the PG syndrome of erosive OLP occurs in middle-aged men. The age range was 28 to 72 years of age, and the median age was 47 (see Table 3). Oral lesions preceded genital lesions in 25% or occurred simultaneously with genital lesions in 75%. The constellation of signs and symptoms usually came together within a few years.

The prognosis for a spontaneous remission of the PG syndrome of erosive OLP is poor. Most patients continue to suffer from the disease for years. The development of squamous cell carcinoma in oral and genital LP is an accepted but rare complication of LP [33,34]. None of the 12 patients with the PG syndrome of erosive OLP have developed squamous cell carcinoma to date.

Treatment of the PG syndrome of erosive OLP

Treatment of this distressing and chronic condition is challenging. Systemic administration of corticosteroids, hydroxychloroquine, and azathioprine has been beneficial. One patient achieved remission with systemic griseofulvin and topical corticosteroid therapy.

Topical corticosteroid, cyclosporine, and tacrolimus treatment has been beneficial, controlling the inflammatory elements of the disease. Male genital lesions respond to topical therapy better than female genital lesions.

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