Case Report

Isolated Lichen Planus of the Lower Lip: Report of a Rare Case with an Updated Literature Review

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ABSTRACT: Lichen planus (LP) is a chronic inflammatory, autoimmune entity typically affecting the skin, oral and genital mucosa, and skin appendages, with an underlying malignant potential. Oral lichen planus (OLP) represents the mucosal counterpart of the cutaneous LP and exhibits episodes of exacerbation and remissions. OLP typically manifests as bilateral symmetrical lesions on the buccal mucosa, followed by tongue, and gingiva. However, the occurrence of LP lesions solely on the lip is rarely reported in the literature. The altered clinical appearance of the lip lesions poses a diagnostic threat and raises the possibility of a misdiagnosis. Our aim was to report an unusual case of isolated lower lip LP, and also to carry out a literature review about isolated lip LP lesions, thus, emphasizing the demographic, clinicopathologic attributes, and therapeutic regimen. We report an uncommon occurrence of an isolated lichen planus on the lower lip in a 53-year-old male patient. Clinical evaluation revealed a diffuse erosive crusted lesion bordered by peripheral lacy radiating streaks on the lower lip. After a confirmed OLP histopathology, the patient was treated with low potency topical steroids and Vaseline therapy, with almost completely resolved lesions after 2 months of therapy. We report a rare case of isolated lip LP, and our detailed review revealed 44 reported cases of lip LP till date. The majority of the cases were seen on the lower lip and exhibited an age and gender affinity (mostly in middle-aged males). Significant healing was observed after topical steroid therapy.

KEYWORDS: *Histopathology, isolated lip lichen planus, lower lip, malignant potential.*

Introduction

The term lichen planus (LP) was initially described by Erasmus Wilson (1869) as a chronic inflammatory, autoimmune ailment, primarily affecting the skin, oral and genital mucosa, and with a potential for undergoing malignant alterations.

LP may also affect the hair follicles (lichen planopilaris, causing scarring alopecia), nail appendages (nail ridging and pterygium formation), with an infrequent affiliation for the ocular, nasal, and laryngeal mucosa [1].

Oral lichen planus (OLP) represents the mucosal counterpart of the cutaneous LP [2], and typically presents with episodes of exacerbation and remissions [3].

Generally, the cutaneous LP lesions are self-limiting and occasionally pruritic, in contrast to the long-standing, and non-responsive oral lesions [3,4].

The malignant potential of oral lesions frequently attributes for the associated morbidity.

Oral involvement is a common occurrence, and in some cases, maybe the only affected site of the disease.

OLP lesions characteristically manifest as bilaterally symmetrical reticular lesions on the buccal mucosa, tongue, and gingiva, although, involvement of the palatal mucosa and the lips is infrequently seen [5].

LP occurring exclusively on the lip is extremely rare and generally presents with other accompanying oral lesions.

Isolated LP of the lips is a rarity with only a few reported cases to date [6].

The anatomic localization predisposes the lips to numerous insults (factitial lip biting, use of cosmetics, and excessive sunlight exposure), thus, altering their clinical appearance.

The isolated lip lesions may simulate lesions of varied nature, thus, raising the possibility of misdiagnosis.

Lip lesions in OLP usually display malignant potential.

Hence, an early and accurate diagnosis coupled with a meticulous treatment strategy is mandatory to combat the associated complications [1,4,6,7,8].

Case Report

A 53-year-old male patient was referred by a private practitioner to our Outpatient Department for tenderness and burning sensations in the lower lip for the last 8 months.

History elicited that the patient was asymptomatic 8 months back when he

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developed mild tingling accompanied by minute ulcerations (without vesicle formation) in the lower lip.

However, the patient experienced burning sensations (particularly by hot and spicy food) and mild tenderness in the lower lip region for the last 3-4 months.

The medical and dental anamnesis was non-contributory, and there was a negative history of factitial lip biting and excessive sunlight exposure.

Extra-oral examination revealed a diffuse erosive crusted lesion measuring 3x1cm (in greatest dimensions) with irregular margins on the lower lip.

The erosive lesion was bordered by peripheral lacy greyish-white striae.

The lesion extended roughly 1.5cm away from the mucocutaneous junction anteriorly, and till the inner aspect of lower labial mucosa posteriorly, and mesiodistally extended from right canine to the left lateral incisor.

Palpatory findings revealed that the lesion was mildly tender, non-indurated, and did not exhibit a positive Nikolsky's sign on gentle manipulation. (Figure 1A&1B).

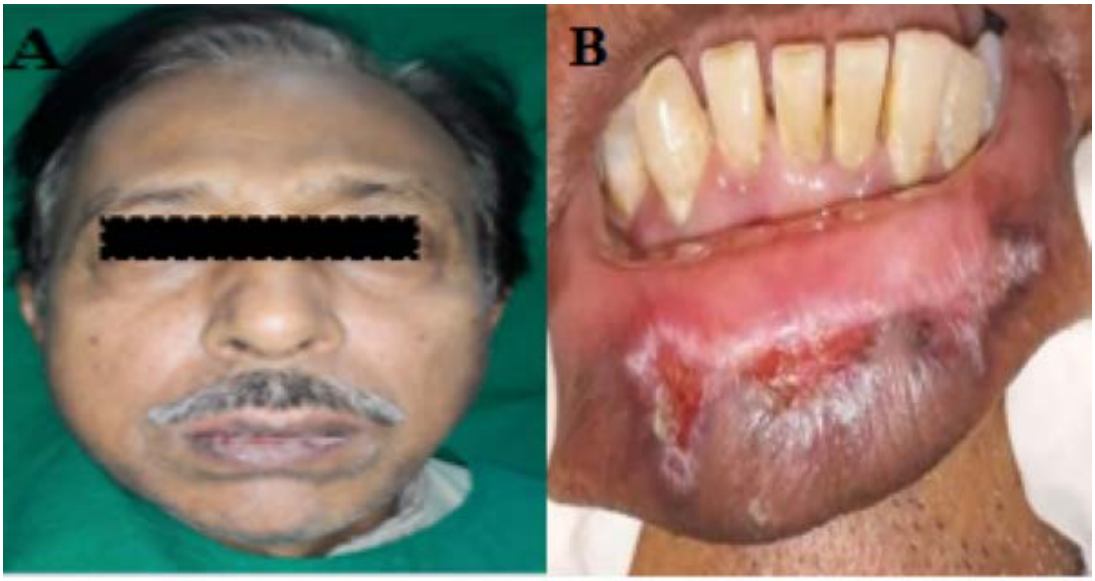

Figure 1. (A&B) Diffuse erosive lesion bordered by peripheral lacy white striae.

Examination of other oral, cutaneous, ocular, scalp, and genital region was non-contributory.

Isolated lichen planus of the lower lip was considered as a provisional diagnosis, owing to the chronic nature (9 months) without vesicle formation and typical clinical appearance (diffuse erosive lesion with peripheral lacy grey-white streaks, and a negative Nikolsky's sign).

Erythema multiforme, discoid lupus erythematosus (DLE), actinic cheilitis, Pemphigus Vulgaris, and Oral lichenoid lesion were given a place in the clinical differential diagnosis.

The lesion's chronic nature, together with the clinical absence of typical target skin lesions negated the probability of erythema multiforme.

Negative history of drug intake and lack of amalgam restoration in the patient's anterior teeth negated the possibility of Oral lichenoid reactions.

Pemphigus Vulgaris was ruled out because of the lack of accompanying skin lesions and vesicle/bullae, and a negative Nikolsky's sign.

The erosive lesion typically remained within the confines of the vermilion border without obscuring its sharp outline, and the radiating white striae lacked the typical brush border.

These features helped us to rule out the diagnosis of discoid lupus erythematosus.

After an unremarkable hematologic evaluation and a written patient's consent, a punch biopsy was taken from the perilesional tissue.

Histopathology showed hydropic degeneration of the basal epithelium and the underlying connective tissue stroma showed lymphocytic infiltrate distributed in the form of a band underneath the basement membrane.

Irregular saw-tooth rete pegs, with no evidence of atypia/dysplasia, were also evident histologically (Figure 2).

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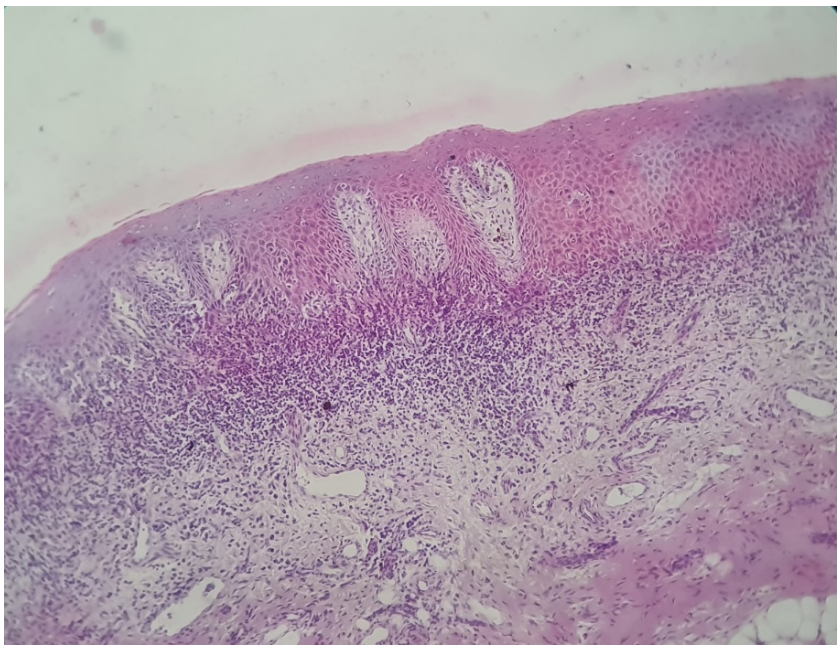

Figure 2. Histopathology (100X) revealing liquefactive degeneration of basal epithelial cells, lymphocytic inflammatory infiltrates with saw tooth rete pegs. No evidence of atypia.

The predominant lymphocytic inflammatory infiltrates in the connective tissue ruled out Oral lichenoid reaction where the plasma cells, neutrophils, and eosinophils predominate in the inflammatory infiltrate.

Histological absence of atypia/dysplasia negated the diagnosis of carcinoma in situ and leukoplakia.

Discoid lupus erythematosus was excluded due to the absence of parakeratosis, keratin plugging, and perivascular infiltrates.

Thus, a clinicopathologic diagnosis of isolated lichen planus of the lower lip was arrived at.

The patient was subjected to oral prophylaxis, and prescribed topical application of low potency steroids (Turbocort 0.1% paste 3-4 times daily), Vaseline lip balm, and chewable vitamin C tablets (tab. Celine twice daily) for one month.

The lesion exhibited significant improvement with topical steroid and vaseline therapy after a month follow-up, and almost complete recovery was observed after 2 months of therapy (Figure 3).

The patient has not reported any recurrence in the 1-year follow-up.

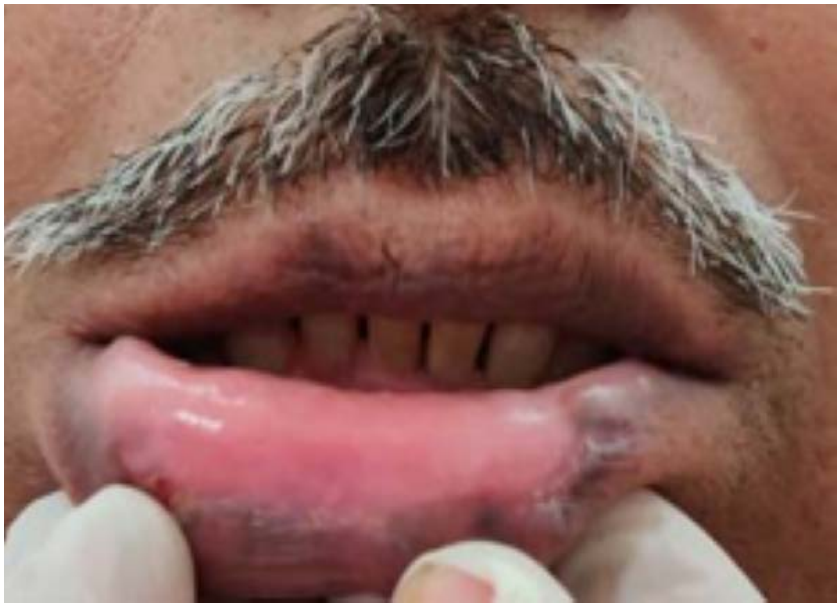

Figure 3. Almost completely resolved lesions post treatment.

Discussion

A detailed hand & electronic literature search was carried out on the Google Scholar and PubMed search engines using the combination of controlled vocabulary and free text terms between 1939 to 2021.

The literature research deduced 44 case reports about lichen planus of the lips from 27 articles.

The search strategy revealed the following characteristics (Table 1), related to age, gender, site affected, presenting manifestations, clinical variant, cutaneous / other mucosal / skin appendage involvement, systemic connotations, period of evolution, therapeutic regimen, and outcomes.

Table 1. Summary of the reported Isolated lichen planus lip cases.

Author & Year	Case (S)	Age / Gender	Affected Site	Sign & Symptom	Clinical Variants	Skin/Other Mucosal/Nail/ Genital Involvement	Period of Evolution	Systemic Connotations	Therapeutic Regimen	Outcome
Whittle CH (1939)	01	69/ M	lower lip	Soreness	Plaque like lesion	Genital mucosa	-	-	Mercury, Arsenic, X-rays	stable
Harland CC (1992)	01	23/ M	Lower lip +buccal mucosa	NA	Nodular	Skin	-	H/O smoking 10 years back	Topical Steroid	Relapse as SCC, treated by vermilionectemy and radiotherapy
Itin PH. (1995)	01	44/ M	lower lip	Swollen lip with Erosions and crusting	Erosive	No	3 years	-	Acitretin+ steroids+ sunscreen	healing in 10 months
Allan SJ (1996)	01	51/ M	Lower lip	Soreness and scales	Reticular	No	9 months	No	Steroids	Healing in 3 months
Isogai Z (1997)	01	54/ M	Lower lip	Pain	Erythematous	Skin+ appendages (nails)	-	-	-	-
De Argila (1997)	01	51/ M	Lower lip	-	Erosive	No	11 years	-	Chloroquine phosphate	Healing in 6 months
Demitsu T (2000)	01	62/ F	Lower lip	-	Erosive	-	-	-	Steroid recalcitrant cases treated with cyclosporine	Healing in a month
Cecchi R (2002)	01	43/ M	Lower lip	Oedematous lip with burning	Reticular	No	7 months	No	steroid	Healed lesion, papular eruptions 4 months later
Chiang CT (2002)	01	36/ F	Lower lip	Tender ulcers	Erosive	No	-	No	Unfavorable outcome with ketoconazole Griesofulvin +steroids	Healing in 3 weeks, relapse a week later
Yu TC (2003)	01	44/ M	Lower lip	Oedematous lip with pain and burning	Erosive	No	-	Hypertensi on	Steroids	Healing in 6 weeks
Donovan JC (2005)	01	51/ M	Lower lip	pain	Erosive	NA	-	Hep. C positive	Steroid recalcitrant cases treated with 0.1% tacrolimus	Healing within 2-week therapy, no recurrence after a year follow up
Schichinohe R (2006)	02	64/ M	Lower lip+ buccal mucosa	pain	Erosive	No	-	-	Tacrolimus	Healed lesions, no recurrences noted
		68/ M	Upper lip+ buccal mucosa	pain	Erosive	No	-	-	Tacrolimus	Healed lesions with no relapse
Van Tuyll SAM (2007)	01	74/ F	Lower lip+ buccal mucosa	Burning +bleeding	Bullous	Cutaneous involvement		No	Steroids & retinoids	Healed lesions
Petruzzi M (2007)	10	52/ F	Lower Lip	-	Hypertrophic	-	6 months	No	Steroids+ tocopherols	Complete Healing
		54/ M	Lower Lip	-	Erosive/ atrophic	-	10 months	No	Steroids+ tocopherols	Complete resolution
		73/ M	Lower Lip	-	Erosive/ atrophic	-	8 months	HCV positive	Steroids+ tocopherols	Complete resolution
		49/ M	Lower Lip	-	Erosive/ atrophic	-	4 months	No	Steroids+ tocopherols	Complete resolution
		52/ M	Lower Lip	-	Hypertrophic	-	2 months	No	Steroids+ tocopherols	Complete resolution
		62/ M	Lower Lip	-	Atrophic/ erosive	-	8 months	Diabetes	Steroids+ tocopherols	Complete resolution
		74/ F	Upper+ lower lip	-	Atrophic/ erosive	-	10 months	HCV positive	Steroids+ tocopherols	Complete resolution
		60/ M	Lower Lip	-	Atrophic/ erosive	-	3 months	HCV positive	Steroids+ tocopherols	Complete resolution
		71/ M	Upper+ lower lip	-	Hypertrophic	-	4 months	HCV positive	Steroids+ tocopherols	Complete resolution

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		80/ F	Upper+ lower lip	-	Atrophic/ erosive	-	6 months	HCV positive	Steroids+ tocopherols	Complete resolution
Johnson H (2008)	01	42/ F	Lower lip	Dryness+ peeling	Erosive	No	-	No	tacrolimus	Stable
Gencoglan G (2011)	04	56/ M	Lower lip	-	Erosive	No	2 months	H/O smoking	Imiquimod cream 5%; 2/day	Complete Healing; no relapse in 8 months
		61/ M	Lower lip	-	Erosive	No	6 years	No	Imiquimod cream 5%; 2/day	Improvement in 2weeks; relapse within 6 months
		65/ M	Lower lip	-	Reticular	No	11 years	No	Imiquimod cream 5%; 2/day	Healing in 15 days
		22/ M	Lower lip	-	Reticular	No	4 years	No	Imiquimod cream 5%; 2/day	Healing in 15 days; no relapse in 5 months
Sugashima Y (2012)	01	32/ F	Lower+ upper lip	Asymptomatic macular lesion	Annular	No	-	Zinc allergy	tacrolimus	Healed lesion
Holmukhe S (2012)	01	40/ M	Lower lip	Asymptomatic annular lesion	Annular	No	-	No	Tacrolimus	No Follow up
Domingues E (2012)	01	44/ M	Lower lip	Tender haemorrhagic crusting	Erosive	No	-	Allergy to Imiquimod cream	Steroid	Healed lesion
Samal DK (2015)	01	52/ M	Lower lip	Asymptomatic	Plaque	No	1 year	NA	Surgically excised	No Relapse
Nuzzolo P (2016)	02	72/ M	Upper lip	Burning & tenderness	Erosive	No	-	Hepatic insufficiency/ HCV infection	Surgically excised	Complete Healing
		74/ M	Upper/ lower lip		Erosive	No	-	No	Steroid	Stable
Choi E (2017)	01	62/ F	Lower lip	Recurrent ulcers	Reticular	Cutaneous lesions	1 year	Triggered by sunlight	Topical tacrolimus+ steroids+ vaseline lip balm	No Relapse
Hasan S (2017)	01	50/ M	Lower lip	Burning in the ulcerative lesion	Erosive	No	6-8 months	H/O smoking	Steroids+ vaseline lip balm	Healed lesion: relapse seen
Fei Yan Yu (2018)	01	38/ F	Lower lip	-	Erosive	No	10 years	No	TCM: "Qingwen Jiedu Kouyankang granules," glucosides, antiinflammatory hormones	Improvement in 1 month, relapse in 5months
Mathur M (2019)	03	44/ M	Lower lip	-	-	No	4 months	No	Steroids	Improvement in 15 days
		34/ M	Lower lip	-	Erosive	No	3 months	Diabetes	Steroids	Complete Healing in 5 months
		33/ F	Lower lip	-	Erosive	No	8 years	No	Steroids	Healing in 7 months
Garma M (2020)	02	34/ M	Lower lip	3 cm crusted ulcer with peripheral lacy white streaks	Erosive	No	3 months	No	Steroids	Complete healing in 5 months; desirable outcome
		33/ M	Lower lip	Swollen crusted lip with hemorrhagic fissures	Erosive	No	8 years	No	Steroids	Relapse after 3 months, healed lesions within 3 months after using sunscreens & topical steroids
Dutra (2021)	01	18/ M	Lower lip	Multiple erythematous areas bordered by faint whitish streaks	Erosive	No	10 years	No	Steroids+ vitamin D therapy	Complete healing in 15 days with no relapse

OLP has an age and gender predilection, and generally, middle-aged and elderly females are affected (F: M ratio of 2:1).

The overall prevalence of OLP in the general population is 0.5%-2% [2].

This is contrary to the isolated lip LP lesions, which typically affect middle-aged males [7,8,9].

Our findings are in coherence with the published literature. 33 males and 11 females were affected and 34 patients were above the age of 40 years.

The youngest and oldest patients in our review were 18 and 80 years old respectively.

The prevalence of isolated lip LP was assessed in only two studies and varied from 0.51 to 8.9% [10,11].

Isolated lip LP cases showed a marked preponderance for the lower lip (lower: upper lip ratio of 6: 5) [7,8].

Exposure to risk factors (excessive sunlight exposure, alcohol and tobacco intake, factitial lip biting, and makeup application) may elucidate a higher prevalence of lower lip LP lesions [7,12,13].

Our review findings were incoherence with the previously published literature.

Isolated lower lip involvement was observed in 34 cases, followed by both upper and lower lip lesions (05 cases), lower lip and buccal mucosal lesions (03 cases), and upper lip was involved in only one case (Table 1).

OLP may manifest a plethora of clinical forms, and range from reticular, erosive, atrophic, plaque-like, popular and bullous lesions [1,3,4,8].

A simpler and concise classification aimed at ameliorating the clinical histopathological correlation classifies these lesions into 2 groups: (A) those presenting with an exclusive reticular pattern and (B) those presenting with atrophic-erosive lesions with/without accompanying reticular lesions [14].

Generally, reticular lesions are the commonest, and the bullous/papular forms are the rarest oral presentations [1,3].

Isolated lip LP manifests as a reticular, erosive, or mixed pattern with associated ulceration, crusting, and occasional blistering of the vermilion border of either both or one of the lips [7,8].

In our review, the erosive lesions were the commonest presentation (27 cases), followed by reticular and plaque-like hypertrophic lesions (05 each), 02 cases of annular lesions, and 01 case of bullous form (Table 1).

Lip LP lesions are subtle and may go unnoticed as a majority of these lesions are asymptomatic (except for scarring/erosive lesions).

Erosive LP lip lesions may cause severe pain and tenderness, lip atrophy (due to scarring lesions), and, in long-standing cases may result in microstomia [9,15].

Psycho-somatic distress (stress, anxiety, and depression) have also been documented due to the unaesthetic lip lesions of LP [12].

LP lip lesions invariably remain limited to the vermilion border and do not extend to involve the labial skin by not obscuring the distinct vermilion outline.

This characteristic manifestation is a salient feature of lip LP lesions and distinguishes it from other types of cheilitis, particularly lupus erythematosus [4,15].

In our review, accompanying skin lesions were observed in 03 patients, and in one case each presented with cutaneous & nail involvement and genital mucosa involvement (Table 1).

The etiopathogenesis of OLP is still unclear, however, a dysregulated immune system and a multitude of predisposing risk factors may have a role in the disease etiology [4,16,17].

The dysregulated immune mechanisms induce apoptosis causing cellular damage, hence, the presence of typical histological alterations [16,18].

A plethora of predisposing factors, ranging from a hypersensitivity response to dental restorative materials (amalgam, cobalt, gold), and drug allergies (non-steroidal anti-inflammatory drugs, angiotensin-converting enzyme inhibitors), persistent trauma due to sharp tooth cusp and faulty prosthesis (Koebner's phenomenon), hepatitis C virus (HCV) infection, psychological factors (anxiety, stress, depression), and genetic predisposition may also serve as etiologic agents [4,5,9].

OLP should be considered as a systemic disorder [16], as a multitude of systemic ailments ranging from hypertension, diabetes mellitus, thyroid disorders (particularly hypothyroidism), chronic liver disease (HCV infection), metabolic syndrome, psychosomatic ailments and gastrointestinal disorders may co-exist with these lesions [8,19].

Thus, necessitating laboratory investigations (blood sugar estimation, HCV serology, and thyroid function tests) to exclude the associated comorbidity [7].

In our study, ten patients had associated comorbidities.

The majority of the patients presented with HCV hepatitis (07 patients), followed by diabetes (02 patients), and hypertension (01 patient) (Table 1).

An accurate diagnosis of OLP usually necessitates a detailed medical history, meticulous clinical and oral evaluation, coupled with histopathological examination.

However, a provisional clinical diagnosis is sufficient in cases of characteristic bilaterally symmetrical, reticular oral lesions [3,4].

A biopsy not only corroborates the provisional clinical diagnosis but is also entitled to obviate cellular atypia and malignant alterations [2,3,19].

The hallmark histopathological features of OLP include: hydropic degeneration of basal epithelium, inflammatory infiltrates in the

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connective tissue zone (predominantly lymphocytes) arranged in a peculiar band-like pattern, and absence of atypical/dysplastic features [3,4,16,18,19].

Acanthosis, Civatte/colloid bodies, and saw-tooth rete ridges constitute the additional histologic features [5,20].

The lack of parakeratosis in lichen planus may serve as a distinctive feature and may distinguish these lesions from lichenoid drug eruptions or lichen planus-like keratosis, although, mild focal parakeratosis with minimal to absent hypergranulosis may occasionally be seen in OLP. LP may also reveal overlapping histologic features with lupus erythematosus or chronic graft versus host disease (GVHD), however, the perivascular dermal infiltrate in lupus erythematosus, and periadnexal dermal infiltrate in GVHD may be the differentiating features.

The absence of atypical/dysplastic features may be sufficient to negate a diagnosis of squamous intraepithelial lesions and leukoplakia.

Thus, a clinical histological corroboration is essential to affirm the diagnosis of OLP [21].

Treatment strategies are focused on precluding the excruciating symptoms, hastening the remissions of erosive lesions, enhancing the asymptomatic periods, and diminishing the malignant transformation risk.

However, there is no conclusive therapeutic regimen in OLP [20,22].

Reticular OLP is usually asymptomatic and does not require any treatment.

Regular follow-up and assessment is generally preferred for these lesions [3].

Topical corticosteroids are the mainstay of treatment for erosive OLP [3,4,7,8,20,22], and systemic steroids are allocated for cases where topical therapies were ineffective, refractory erythematous/erosive lesions, or diffuse OLP lesions with accompanying cutaneous, scalp, and genital lesions [3].

Other therapeutic modalities used in the treatment of OLP include Immunosuppressants (tacrolimus, azathioprine, cyclosporin, and mycophenolate mofetil,), immunomodulatory drugs (levamisole and thalidomide), and retinoids [16].

Various non-pharmacological regimens, such as LASER therapy, photodynamic therapy, and PUVA therapy are also used in OLP treatment [17].

Plant-based therapies (topical aloe vera, oral curcuminoids, and lycopene) have also exhibited promising results in the management of OLP [3].

Isolated lip LP lesions exhibit good response to topical corticosteroid therapy, and, rarely, necessitates systemic and intralesional administration [12,23].

Orabase use should be limited to the moist intraoral locations, and one should avoid the use of topical steroids with Orabase vehicles for lip lesions [4,15].

In our literature review, corticosteroids (either alone or with retinoids/Vaseline/Vitamin D) were the commonly used modality (25 cases), followed by tacrolimus (05 cases), Imiquimod cream (04 cases) and surgical excision (02 cases).

One patient each was treated with cyclosporine, chloroquine phosphate, mercury, arsenic, and X-rays.

World Health Organization (WHO) considers OLP as an Oral Potentially Malignant Disorder, with a malignant change rate of 0.4 to 12.5% [1].

However, there is an increased risk of malignant potential in cases of erosive and/or atrophic lesions, tongue lesions, elderly females, greater intake of alcohol/tobacco, and an accompanying hepatitis C virus infection [3,4,9].

Regular and periodic recall visits of the patient are critical in view of the active surveillance of malignant transformation.

Alrashdan et al. suggested that a periodic follow-up ranging from every 2 months to once a year is essential for better patient care [3,20].

In our study, only one patient reported squamous cell carcinoma and was treated with vermilionectemy and radiotherapy.

Conclusions

Our study reveals that only a few cases of isolated LP of the lower lip have been reported in the literature to date.

These lesions exhibit an affinity for the lower lips in middle-aged males.

The majority of the reported cases revealed erosive lesions and a favorable response was observed in most cases with topical steroid therapy.

The lip lesions may pose a diagnostic threat due to the altered clinical appearance as they are prone to multiple injuries.

Also, they exhibit a malignant potential, hence, warranting an early diagnosis and treatment.

Elimination of predisposing factors and maintenance of meticulous oral hygiene is necessary to prevent recurrences.

Acknowledgements

The patient and the attendants were informed about the nature of disease and treatment protocol.

Written informed consent was obtained from the patient.

Conflict of interest

The authors confirm that there is no conflict of interest.

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