Disease/Medical Condition

**LICHEN PLANUS**
(also known as “LP”; includes or resembles “lichenoid reaction”)

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**Is the initiation of non-invasive dental hygiene procedures* contra-indicated?**  
No

- **Is medical consult advised?**  
  — No, assuming patient/client is already under medical care for lichen planus and mucous membrane and cutaneous manifestations are well managed.
  — Yes, if suspect oral lesions have not yet been diagnosed (either as lichen planus or other cause, including oral cancer). Biopsy is necessary for a definitive diagnosis\(^1\) of lichen planus.

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**Is the initiation of invasive dental hygiene procedures contra-indicated?**  
Possibly, but not typically, depending on type of LP, disease control and treatment regimen.

- **Is medical consult advised?** ................................................................. See above.
- **Is medical clearance required?** ....................................................... Yes, if patient/client is being treated with medications associated with immunosuppression +/- increased risk of infection (e.g., systemic calcineurin inhibitors\(^1\), methotrexate, azathioprine, mycophenolate mofetil, cyclophosphamide, or systemic corticosteroids [i.e., intravenous formulations or oral prednisone, which may be used for management of severe disease, especially for erosive LP].
- **Is antibiotic prophylaxis required?** ..................................................... No, not typically (although extended use of systemic corticosteroids may warrant consideration of antibiotic prophylaxis).\(^3\)
- **Is postponing treatment advised?** .................................................... Possibly, but not typically (depends on severity and level of control of the disease, as well as medical clearance for patients/clients on medications associated with immunosuppression).

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**Oral management implications**

- Most cases of oral lichen planus are asymptomatic, being first discovered on routine oral examination.
- Although oral LP does not directly increase the risk of caries or gingival disease, painful oral lesions can limit the patient/ client’s ability to maintain good oral hygiene. Therefore, patients/clients with oral lichen planus should be advised about appropriate methods of oral hygiene and should receive frequent dental and dental hygiene care.
- Gingival LP lesions may improve with meticulous oral hygiene.
- Erosive lesions and other inflammation related to oral LP usually respond well to topical corticosteroid application (e.g., mouthwash, ointment, paste, gel, spray, or lozenge). Local injection of steroids (such as triamcinolone) is also used to control disease. In severe cases of erosive LP, systemic steroids may be warranted. The addition of antifungal therapy to a corticosteroid regimen often improves clinical outcomes, and the dental hygienist should be alert to signs of oral candidiasis.\(^3\)

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\(^1\) Definitive diagnosis of lichen planus is made on the basis of distinctive clinical features in conjunction with characteristic microscopic tissue appearance obtained through biopsy. A dermatologist or specialist in oral pathology typically makes the primary diagnosis of oral lichen planus. Depending on relevant signs and symptoms, a variety of medical specialists may be involved in diagnosis, treatment, and review of lesions; these include dermatologist (for skin and/or oral involvement), otolaryngologist (for larynx and esophageal involvement), ophthalmologist (for conjunctival involvement), gynaecologist (for vulval and vaginal involvement), and urologist (for penile involvement).

\(^2\) Systemic administration of calcineurin inhibitors (i.e., cyclosporine, which is rarely used in this manner for LP) poses risk of immunosuppression. In contrast, topical administration of calcineurin inhibitors (such as tacrolimus ointment or pimecrolimus cream) is usually well tolerated, with no significant systemic adverse effects.

\(^3\) Unrelated to antibiotic prophylaxis for invasive procedures, oral metronidazole is effective therapy for some patients/clients with lichen planus.

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Oral management implications (cont’d)

- In steroid-resistant cases, topical application (including mouthwash) of calcineurin inhibitors (e.g., tacrolimus and pimecrolimus)⁴ may be helpful. However, there is an unclear association of such agents with cancer.
- Systemic and topical vitamin A analogues (i.e., retinoids) are sometimes used in the management of LP, because of their immunomodulating and antikeratinizing effects. However, reversal of white striae may only be temporary.
- Systemic hydroxychloroquine (an antimalarial) improves some cases of oral lichen planus.
- Mouthwash containing an anaesthetic can be used to temporarily numb the mouth in severe cases of erosive or atrophic LP. Topical chamomile gel may also reduce symptoms.
- Because there is increased risk of oral cancer with lichen planus (especially the erosive form), regular oral soft tissue examination is important. An appropriate specialist should follow up with the patient/client every 6 to 12 months. Biopsy of any lesions not consistent with “benign” lichen planus is indicated. Oral brush biopsy can be used to limit the number of scalpelp biopsies, but if the clinical features of the lesions change, scalpelp biopsy is indicated. Patients/clients should be educated about the small risk of malignant transformation.
- Local oral exacerbating factors should be eliminated, including sharp teeth, broken restorations, and prostheses that are likely to cause physical trauma. Scaling of teeth is important to remove calculus deposits and reduce sharp edges. If the patient/client has an isolated oral LP lesion on the buccal or labial mucosa adjacent to a dental restoration (and if an allergy is detected by means of skin patch testing), the lesion may heal if the offending material is removed or replaced⁵.
- In addition to education about practising good oral hygiene, the dental hygienist should advise patients/clients to cut out spicy, salty, or acidic (including citrus) foods if they seem to trigger or worsen symptoms. Avoidance of irritants (including tobacco and alcohol) is prudent, as is avoidance of habits that can cause mouth injury, such as chewing on one’s cheek or lip. Sharp food, such as crusty bread, should also be avoided.
- Soft toothbrushes are often helpful, along with mild toothpaste with a minimum of flavouring (such as spearmint). If standard toothpaste irritates, products that do not contain sodium lauryl sulphate (a foaming agent) may be helpful.
- Emotional stress management can be helpful, especially for erosive LP. Referral to a mental health professional can aid the patient/client in identifying, and dealing with, stressors, as well as other mental health concerns that may be linked to lichen planus.

Oral manifestations

- The mouth is affected in about 50% of all cases of lichen planus, and oral LP tends to be persistent. White lines and/or patches, erythema, ulcers, and, more rarely, blisters are signs associated with oral lichen planus. Symptoms may include dryness, pain, and/or a metallic, burning taste.
- Lichen planus can present with desquamative gingivitis, resembling mucous membrane pemphigoid.
- In reticular LP, the most common form of oral lichen planus, a lacy pattern of interconnecting keratotic white lines and circles (“Wickham striae”) can be seen on the oral mucosa. The raised lines of Wickham striae are comprised of 2- to 4-mm papules. The most common location of the minute papules and striae is the buccal mucosa; however, lesions also occur on the tongue, lips, gingiva and floor of the mouth. The lesions are typically asymptomatic and symmetrically distributed.
- In the plaque form of LP, lesions tend to resemble leukoplakia (i.e., many are whitish), but are usually multifocal in distribution. The plaques range from slightly elevated to smooth and flat. These asymptomatic lesions do not rub off, and they are most commonly seen on the dorsum of the tongue and the buccal mucosa. This form of LP is usually found in persons who smoke.

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⁴ The newer topical calcineurin inhibitors have largely replaced topical cyclosporine in the treatment of lichen planus.
⁵ Most lichenoid lesions adjacent to dental restorations are asymptomatic.
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### Oral manifestations (cont’d)

- **In erosive LP**, the epithelium separates from connective tissue, resulting in erosions and ulcers. A fibrinous plaque or pseudomembrane may cover the ulcer. This type of lichen planus tends to be dynamic, with changing patterns of involvement noted from week to week. Keratotic striae can usually be detected peripheral to the site of erosion, along with erythema. The erosive lesions tend to worsen with emotional stress, and they are often associated with pain and bleeding. Scarring may occur. Erosive or atrophic lichen planus affecting the attached gingiva must be distinguished from mucous membrane pemphigoid, pemphigus vulgaris, lupus erythematosus, and chronic candidiasis.

- **In the erythematous or atrophic form of LP**, red patches occur along with very fine, white striae. This form may be seen concurrently with reticular or erosive variants. The proportion of keratinized areas to atrophic areas varies in the oral cavity. The attached gingiva, often affected in this form of LP, exhibits a patchy distribution, frequently in all four quadrants. Patients/clients may complain of sensitivity, burning, and generalized discomfort. Bleeding is common, especially with tooth brushing.

- **In bullous LP**, a rare form, the epithelium separates from connective tissue, resulting in bullae from a few millimetres to centimetres in diameter. The blisters are generally short-lived and leave a painful ulcer after rupturing. Lesions are generally seen on the buccal mucosa (especially in the posterior and inferior regions adjacent to the second and third molars), and less commonly on the gingiva, tongue, and inner lips. Reticular or striated keratotic areas should also be present with this variant of lichen planus, which helps distinguish it from mucous membrane pemphigoid and bullous pemphigoid.

- In most patients/clients with lichen planus, oral changes are relatively persistent over time.

- Oral candidiasis may occur secondary to topical corticosteroid use.

- **Cheilitis** may result from use of systemic retinoids.

- **Squamous cell carcinoma** may occur at elevated rates in patients/clients with longstanding oral lichen planus, particularly LP of an erosive or atrophic nature. Risk is low, being estimated at 1% at 5 years.

### Related signs and symptoms

- Lichen planus is a chronic mucocutaneous disease thought to be immunologically mediated. It is not infectious. Skin, nails, and/or any lining mucosa can be affected. Severity of, and subsequent disability caused by, LP ranges from inconsequential to severe. Treatment is only indicated when the lesions are symptomatic. No specific cure is available.

- While the cause of LP is unknown in most cases, in a minority of patients/clients possible initiators include contact with certain dental materials (such as amalgam); various drugs (e.g., gold injections, penicillamine, beta-blockers, NSAIDs, and certain antimalarials); mouth injury; emotional stress; and infectious agents. Many authorities differentiate between true lichen planus and lichenoid reaction, the latter being disease that resembles LP both clinically and microscopically, but is due to an allergic response (related to medications, oral hygiene products [especially spearmint flavouring], and, occasionally, metallic dental restoration materials such as mercury). In lichenoid reaction, identification and removal of the underlying cause (such as the offending drug or contact allergen) leads to lesion resolution. Lichenoid drug reaction more commonly occurs in the skin, with the mouth being less often affected. Many authorities classify lichen planus as an autoimmune disease.

- LP is relatively common, with global prevalence of about 1% to 2% in the adult population. The disease most commonly occurs in middle age (30 to 60 years), with a slight female predilection. Children are rarely affected.

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6 Many authorities classify lichen planus as an autoimmune disease.
7 Penicillamine is a chelating agent used to treat Wilson’s disease (a condition characterized by high levels of copper). It is also used in the treatment of rheumatoid arthritis and cystinuria (a condition in which the amino acid cystine causes kidney stones).
8 NSAIDs = non-steroidal anti-inflammatory drugs (e.g., ibuprofen, naproxen, etc.)
Related signs and symptoms (cont'd)

- Cutaneous lesions occur in 20% to 60% of patients/clients with oral lichen planus. Skin lesions tend to wax and wane and, unlike oral lesions, are relatively short-lived (six months to 2 years), tending to resolve on their own.
- Skin lesions often present as small, purplish, polygonal, flat-topped papules, and/or as hypertrophic, scaly skin patches. While such lesions can occur anywhere on the skin, the most common sites are the flexor surfaces of the wrist and elbow, the anterior surfaces of the tibia and ankle, and the lumbar region. Affected skin may be itchy, and discoloration may remain after papules have cleared.
- Other cutaneous variants include hypertrophic, bullous, atrophic, linear, and follicular forms.
- Lesions on the scalp, while rare, can cause temporary or permanent hair loss.
- LP of the ears can contribute to hearing loss.
- LP of the fingernails or toenails may result in ridges, thinning or splitting of nails, and temporary or permanent nail loss.
- The vulva, vagina, or penis may be affected. Lesions on the female genitalia can cause burning and pain with intercourse; such lesions are usually red and eroded, but occasionally appear as white areas. Purple or white annular patches, or flat-topped shiny papules, occur on the glans penis (bulbous tip of the penis).
- Long-term erosive lichen planus of the genitalia can lead to vulvar or penile cancer.
- Lichen planus of the mucous membranes of the eyes, while rare, can cause scarring and blindness.
- LP of the esophagus, while rare, may result in narrowing or the formation of tight, ring-like band that can make swallowing difficult.
- Weight loss and/or nutritional deficiency may result from severe oral lichen planus or from esophageal LP.
- Depression may be a sequela of severe LP.
- Lichen planus has been linked to chronic hepatitis C infection and, more controversially, hypothyroidism. It may also be found with other diseases of altered immunity, including ulcerative colitis, vitiligo, alopecia areata, dermatomyositis, lichen sclerosus, and scleroderma.
- Severity of disease often parallels a patient/client’s level of stress.

References and sources of more detailed information

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References and sources of more detailed information (cont’d)

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- DermNet New Zealand
  http://www.dermnetnz.org/topics/oral-lichen-planus/
  http://www.dermnetnz.org/topics/lichen-sclerosus/
- British Association of Dermatology
- Canadian Cancer Society

* Includes oral hygiene instruction, fitting a mouth guard, taking an impression, etc.
** Ontario Regulation 501/07 made under Dental Hygiene Act, 1991. Invasive dental hygiene procedures are scaling teeth and root planing, including curetting surrounding tissue.

Date: March 7, 2017