

Chapter 26

Lichen Planus

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REFERENCES

1. Pinkus H: Lichenoid tissue reactions. *Arch Dermatol* **107**:840, 1973
2. Boyd AS, Nelder KH: Lichen planus. *J Am Acad Dermatol* **25**:593, 1991
3. McCartan BE, Healy CM: The reported prevalence of oral lichen planus: A review and critique. *J Oral Pathol Med* **37**:447, 2008
4. Mahood JM: Familial lichen planus. *Arch Dermatol* **119**:292, 1983
5. LaNasa G et al: HLA antigen distribution in different clinical subgroups demonstrates genetic heterogeneity in lichen planus. *Br J Dermatol* **132**:897, 1995
6. Scheler M et al: Indoleamine 2, 3-dioxygenase (IDO): The antagonist of type I interferon-driven skin inflammation? *Am J Pathol* **171**:1936, 2007
7. Wenzel J, Tuting T: An IFN-associated cytotoxic cellular immune response against viral, self-, or tumor antigens is a common pathogenetic feature in "interface dermatitis." *J Invest Dermatol* **128**:2392, 2008
8. Asarch A et al: Lichen planus-like eruptions: An emerging side effect of tumor necrosis factor-alpha antagonists. *J Am Acad Derm* **61**:104, 2009
9. Yamamoto T et al: The mechanism of mononuclear cell infiltration in oral lichen planus: The role of cytokines released from keratinocytes. *J Clin Immunol* **20**:294, 2000
10. Pimentel VN et al: Perforin and granzyme B involvement in oral lesions of lichen planus and chronic GVHD. *J Oral Path Med* **39**:741, 2010
11. Abdel-Latif AM et al: Increased caspase-3 and altered expression of apoptosis-associated proteins, Bcl-2 and Bax in lichen planus. *Clin Exp Dermatol* **34**:390, 2009
12. Wenzel J et al: Gene expression profiling of lichen planus reflects CXCL9+-mediated inflammation and distinguishes this disease from atopic dermatitis and psoriasis. *J Invest Dermatol* **128**:67, 2008
13. Karnik P et al: Hair follicle stem cell-specific PPAR-gamma deletion causes scarring alopecia. *J Invest Dermatol* **129**:1243, 2009
14. Shi G et al: Brn2 is a transcription factor regulating keratinocyte differentiation with a possible role in the pathogenesis of lichen planus. *PLoS One* **5**:e13216, 2010
15. Balasubramaniam P, Ogboli M, Moss C: Lichen planus in children: Review of 26 cases. *Clin Exp Dermatol* **33**:457, 2008
16. Batra P et al: Linear lichen planus. *Dermatol Online J* **15**:14, 2008
17. Gencoglan G, Ceylan C, Kazandi AC: Linear lichenoid drug eruption induced by valsartan. *Clin Exp Dermatol* **34**:e334, 2009
18. Numata Y et al: Linear lichen planus distributed in the lines of Blaschko developing during intramuscular triamcinolone acetonide therapy for alopecia areata multiplex. *J Eur Acad Dermatol Venereol* **22**:1370, 2008
19. Lehman JS, Tollefson MM, Gibson LE: Lichen planus. *Int J Dermatol* **48**:682, 2009
20. Stinco G et al: Surgery and cyclosporine in the treatment of erosive lichen planus of the feet. *Eur J Dermatol* **8**:243, 1998
21. Gunduz K et al: Flexural follicular lichen planus. *Clin Exp Dermatol* **34**:e297, 2009
22. Kossard S: Postmenopausal frontal fibrosing alopecia: A frontal variant of lichen planopilaris. *J Am Acad Dermatol* **36**:59, 1997
23. Vega ME et al: Ashy dermatosis versus lichen planus pigmentosus: A controversial matter. *Int J Dermatol* **31**:87, 1992
24. Dammak A, Masmoudi A, Boudaya S et al: Childhood actinic lichen planus (6 cases). *Arch Pediatr* **15**:111, 2008
25. Ezzedine K et al: Facial actinic lichen planus following the Blaschko's lines: Successful treatment with topical 0.1% pimecrolimus cream. *J Eur Acad Dermatol Venereol* **23**:458, 2008
26. Kang H et al: Lichen planopilaris. *Dermatol Ther* **21**:249, 2008
27. Cevasco NC et al: A case-series of 29 patients with lichen planopilaris: The Cleveland Clinic Foundation experience on evaluation, diagnosis, and treatment. *J Am Acad Dermatol* **57**:47, 2007

28. Assouly P et al: Lichen planopilaris: Update on diagnosis and treatment. *Semin Cutan Med Surg* **28**:3, 2009
29. Mehregan DA et al: Lichen planopilaris: Clinical and pathologic study of forty-five patients. *J Am Acad Dermatol* **27**:935, 1992
30. Spencer LA, Hawryluk EB, English JC III: Lichen planopilaris: Retrospective study and stepwise therapeutic approach. *Arch Dermatol* **145**:333, 2009
31. Tan KT, Messenger AG: Frontal fibrosing alopecia: Clinical presentations and prognosis. *Br J Dermatol* **160**:75, 2009
32. Ingafou M et al: Oral lichen planus: A retrospective study of 690 British patients. *Oral Dis* **12**:463, 2006
33. Silverman S, Bahl S: Oral lichen planus update: Clinical characteristics, treatment responses, and malignant transformation. *Am J Dent* **10**:259, 1997
34. Lo Russo L et al: Epidemiology of desquamative gingivitis: Evaluation of 125 patients and review of the literature. *Int J Dermatol* **48**:1049, 2009
35. Cobos-Fuentes MJ et al: Oral lichenoid lesions related to contact with dental materials: A literature review. *Med Oral Pathol Oral Cir Bucal* **14**:e514, 2009
36. Do Prado RF, Marocchio LS, Felipini RC: Oral lichen planus versus oral lichenoid reaction: Difficulties in the diagnosis. *Indian J Dent Res* **20**:361, 2009
37. Rogers RS III et al: Lichenoid contact stomatitis: Is inorganic mercury the culprit? *Arch Dermatol* **140**:1524, 2004
38. Scalf LA et al: Dental metal allergy in patients with oral, cutaneous, and genital lichenoid reactions. *Am J Contact Dermatol* **12**:146, 2001
39. Chandan VS, Murray JA, Abraham SC: Esophageal lichen planus. *Arch Pathol Lab Med* **132**:1026, 2008
40. Bombeccari GP et al: Lichen planus esophagitis: Diagnostic implications. *Am J Dermatopathol* **31**:509, 2009
41. Belfiore P et al: Prevalence of vulval lichen planus in a cohort of women with oral lichen planus. *Br J Dermatol* **155**:994, 2006
42. Kennedy CM, Galask RP: Erosive vulvar lichen planus: Retrospective review of characteristics and outcomes in 113 patients seen in a vulvar specialty clinic. *J Reprod Med* **52**:43, 2007
43. Eisen D: The vulvovaginal-gingival syndrome of lichen planus. The clinical characteristics of 22 patients. *Arch Dermatol* **130**:1379, 1994
44. Tosti A et al: Nail lichen planus: Clinical and pathologic study of twenty-four patients. *J Am Acad Dermatol* **28**:724, 1993
45. Sanchez-Perez J et al: Lichen planus with lesions on the palms and/or soles: Prevalence and clinicopathological study of 36 patients. *Br J Dermatol* **142**:310, 2000
46. Ellgehausen P et al: Drug-induced lichen planus. *Clin Dermatol* **16**:325, 1998
47. Romero RW et al: Unusual variant of lupus erythematosus or lichen planus. Clinical, histopathologic, and immunofluorescence studies. *Arch Dermatol* **113**:741, 1977
48. Ben Salem C, Chenguel L, Ghariani N: Captopril-induced lichen planus pemphigoides. *Pharmacoepidemiol Drug Saf* **17**:722, 2008
49. Solomon LW et al: Clinical and immunopathologic findings in oral lichen planus pemphigoides. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* **103**:808, 2007
50. Zillikens D et al: Autoantibodies in lichen planus pemphigoides reacts with a novel epitope within the C-terminal NC16A domain of BP180. *J Invest Dermatol* **113**:117, 1999
51. Grunwald MH et al: Keratosis lichenoides chronica: Response to topical calcipotriol. *J Am Acad Dermatol* **37**:263, 1997
52. Mattsson T et al: A comparative immunological analysis of the oral mucosa in chronic graft-versus-host disease and oral lichen planus. *Arch Oral Biol* **37**:539, 1992
53. Glaun RS et al: A proposed new classification system for lichenified keratosis. *J Am Acad Dermatol* **35**:772, 1996
54. Oliver GF et al: Lichenoid dermatitis: A clinicopathologic and immunopathologic review of sixty-two cases. *J Am Acad Dermatol* **21**:284, 1989
55. Palekar NA et al: Extrahepatic manifestations of hepatitis C. *South Med J* **98**:1019, 2005
56. Mignogna MD et al: Oral lichen planus and HCV infection: A clinical evaluation of 263 cases. *Int J Dermatol* **37**:575, 1998
57. Imhof M et al: Prevalence of hepatitis C virus antibodies and evaluation of hepatitis C virus genotypes in patients with lichen planus. *Dermatology* **195**:1, 1997
58. Van Der Meij EH, Van Der Waal I: Hepatitis C virus infection and oral lichen planus: A report from the Netherlands. *J Oral Pathol Med* **29**:255, 2000
59. Ingafou M et al: No evidence of HCV infection or liver disease in British patients with oral lichen planus. *Int J Oral Maxillofac Surg* **27**:65, 1998

60. Mahboob A et al: Prevalence of hepatitis B surface antigen carrier state in patients with lichen planus—report of 200 cases from Lahore, Pakistan. *J Ayub Med Coll Abbottabad* 19:68, 2007
61. Mignogna MD et al: Clinical guidelines in early detection of oral squamous cell carcinoma arising in oral lichen planus: A 5-year experience. *Oral Oncol* 37:262, 2001
62. Eisen D: The clinical features, malignant potential, and systemic associations of oral lichen planus: A study of 723 patients. *J Am Acad Dermatol* 46:207, 2002
63. Lomaga MA et al: Results of patch testing in patients diagnosed with oral lichen planus. *J Cutan Med Surg* 13:88, 2009
64. Dreiher J, Shapiro J, Cohen AD: Lichen planus and dyslipidaemia: A case-control study. *Br J Dermatol* 161:626, 2009
65. Kulthanan K et al: Direct immunofluorescence study in patients with lichen planus. *Int J Dermatol* 46:1237, 2007
66. Carbone M et al: Course of oral lichen planus: A retrospective study of 808 northern Italian patients. *Oral Dis* 15:235, 2009
67. Zakrzewska JM et al: A systematic review of placebo-controlled randomized clinical trials of treatments used in oral lichen planus. *Br J Dermatol* 153:336, 2005
68. Popovsky JL, Camisa C: New and emerging therapies for diseases of the oral cavity. *Dermatol Clin* 18:113, 2000
69. Lozada-Nur F, Miranda C: Oral lichen planus: Topical and systemic therapy. *Semin Cutan Med Surg* 16:295, 1997
70. Carbone M et al: Topical clobetasol in the treatment of atrophic-erosive oral lichen planus: A randomized controlled trial to compare two preparations with different concentrations. *J Oral Pathol Med* 38:227, 2009
71. Lodi G et al: Miconazole as adjuvant therapy for oral lichen planus: A double-blind randomized controlled trial. *Br J Dermatol* 156:1336, 2007
72. Xia J et al: Short term clinical evaluation of intralesional triamcinolone acetonide injection for ulcerative oral lichen planus. *J Oral Pathol Med* 35:327, 2006
73. Cooper SM, Wojnarowska F: Influence of treatment of erosive lichen planus of the vulva on its prognosis. *Arch Dermatol* 142:289, 2006
74. Malhotra AK et al: Betamethasone oral mini-pulse therapy compared with topical triamcinolone acetonide (0.1%) paste in oral lichen planus: A randomized comparative study. *J Am Acad Dermatol* 58:596, 2008
75. Wedgeworth EK et al: Management of symptomatic esophageal involvement with lichen planus. *J Clin Gastroenterol* 43:915, 2009
76. Scardina GA et al: A randomized trial assessing the effectiveness of different concentrations of isotretinoin in the management of lichen planus. *Int J Oral Maxillofac Surg* 35:67, 2006
77. Gorsky M, Ravin M: Efficacy of etretinate (Tegison) in symptomatic oral lichen planus. *Oral Surg Oral Med Oral Pathol* 73:52, 1992
78. Laurberg G et al: Treatment of lichen planus with acitretin. A double-blind, placebo-controlled study in 65 patients. *J Am Acad Dermatol* 24:434, 1991
79. Piattelli A et al: Oral lichen planus treated with 13-cis-retinoic acid (isotretinoin): Effects on the apoptotic process. *Clin Oral Investig* 11:283, 2007
80. Byrd JA et al: Response of oral lichen planus to topical tacrolimus in 37 patients. *Arch Dermatol* 140:1508, 2004
81. Rozycki TW et al: Topical tacrolimus in the treatment of symptomatic oral lichen planus: A series of 13 patients. *J Am Acad Dermatol* 46:27, 2002
82. Corrocher G et al: Comparative effect of tacrolimus 0.1% ointment and clobetasol 0.05% ointment in patients with oral lichen planus. *J Clin Periodontol* 35:244, 2008
83. Radfar L, Wild RC, Suresh L: A comparative treatment study of topical tacrolimus and clobetasol in oral lichen planus. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 105:187, 2008
84. Laeijendecker R et al: A comparison of treatment of oral lichen planus with topical tacrolimus and triamcinolone acetonide ointment. *Acta Derm Venereol* 86:227, 2006
85. Gorouhi F et al: Randomized trial of pimecrolimus cream versus triamcinolone acetonide paste in the treatment of oral lichen planus. *J Am Acad Dermatol* 57:806, 2007
86. Volz T et al: Pimecrolimus cream 1% in erosive oral lichen planus—A prospective randomized double-blind vehicle-controlled study. *Br J Dermatol* 159:936, 2008
87. Lonsdale-Eccles AA et al: Topical pimecrolimus in the treatment of genital lichen planus: A prospective case series. *Br J Dermatol* 153:390, 2005

88. Eisen D et al: Effect of topical cyclosporine rinse on oral lichen planus. A double-blind analysis. *N Engl J Med* **323**:290, 1990
89. Jungell P, Malmstrom M: Cyclosporin A mouth-wash in the treatment of oral lichen planus. *Int J Oral Maxillofacial Surg* **25**:60, 1996
90. Yoke PC et al: A randomized controlled trial to compare steroid with cyclosporine for the topical treatment of oral lichen planus. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* **102**:47, 2006
91. Chaklader M et al: Cyclosporine in the management of esophageal lichen planus. *Can J Gastroenterol* **23**:686, 2009
92. Eisen D: Hydroxychloroquine sulfate (Plaquenil) improves oral lichen planus: An open trial. *J Am Acad Dermatol* **28**:609, 1993
93. Camisa C, Popovsky JL: Effective treatment of oral lichen planus with thalidomide. *Arch Dermatol* **136**:1442, 2000
94. Becherel PA et al: Extracorporeal photochemotherapy for chronic erosive lichen planus. *Lancet* **351**:805, 1998
95. Guyot AD et al: Treatment of refractory erosive oral lichen planus with extracorporeal photochemotherapy: 12 cases. *Br J Dermatol* **156**:553, 2007
96. Chang AL et al: Alefacept for erosive lichen planus: A case series. *J Drugs Dermatol* **7**:379, 2008
97. Heffernan MP, Smith DI, Bentley D: A single-center, open-label, prospective pilot study of subcutaneous efalizumab for oral erosive lichen planus. *J Drugs Dermatol* **6**:310, 2007
98. Cheng A et al: Oral erosive lichen planus treated with efalizumab. *Arch Dermatol* **142**:680, 2006
99. Nolan A et al: The efficacy of topical hyaluronic acid in the management of oral lichen planus. *J Oral Pathol Med* **38**:299, 2009
100. Choonhakarn C et al: The efficacy of aloe vera gel in the treatment of oral lichen planus: A randomized controlled trial. *Br J Dermatol* **158**:573, 2008
101. Soria A et al: Treatment of refractory oral erosive lichen planus with topical rapamycin: 7 cases. *Dermatology* **218**:22, 2009
102. Jang N, Fischer G: Treatment of erosive vulvovaginal lichen planus with methotrexate. *Australas J Dermatol* **49**:216, 2008
103. Ott F et al: Efficacy of oral low-dose tretinoin (all-trans-retinoic acid) in lichen planus. *Dermatology* **192**:334, 1996
104. Hersle K et al: Severe oral lichen planus: Treatment with an aromatic retinoid (etretinate). *Br J Dermatol* **106**:77, 1982
105. Wackernagel A et al: Psoralen plus UVA vs. UVB-311 nm for the treatment of lichen planus. *Photodermatol Photoimmunol Photomed* **23**:15, 2007
106. Karvonen J, Hannuksela M: Long term results of topical trioxsalen PUVA in lichen planus and nodular prurigo. *Acta Derm Venereol Suppl (Stockh)* **120**:53, 1985
107. Pavlotsky F et al: Ultraviolet-B treatment for cutaneous lichen planus: Our experience with 50 patients. *Photodermatol Photoimmunol Photomed* **24**:83, 2008
108. Gamil H et al: Narrow-band ultraviolet B phototherapy in lichen planus. *J Eur Acad Dermatol Venereol* **23**:589, 2009
109. Habib F et al: Narrow band UVB phototherapy in the treatment of widespread lichen planus. *Ann Dermatol Venereol* **132**:17, 2005
110. Pigatto PD et al: Cyclosporin A for the treatment of severe lichen planus. *Br J Dermatol* **122**:121, 1990
111. Lim KK et al: Cyclosporine in the treatment of dermatologic disease: An update. *Mayo Clin Proc* **71**:1182, 1996
112. Verma KK et al: Generalized severe lichen planus treated with azathioprine. *Acta Derm Venereol* **79**:493, 1999
113. Turan H et al: Methotrexate for the treatment of generalized lichen planus. *J Am Acad Dermatol* **60**:164, 2009
114. Cho BK et al: Efficacy and safety of mycophenolate mofetil for lichen planopilaris. *J Am Acad Dermatol* **62**:393, 2010
115. Frieling U et al: Treatment of severe lichen planus with mycophenolate mofetil. *J Am Acad Dermatol* **49**:1063, 2003
116. Chiang C et al: Hydroxychloroquine and lichen planopilaris: Efficacy and introduction of Lichen Planopilaris Activity Index scoring system. *Am Acad Dermatol* **62**:387, 2010
117. Moura AK, Moure ER, Romiti R: Treatment of cutaneous lichen planus with thalidomide. *Clin Exp Dermatol* **34**:101, 2009
118. Dereure O et al: Erosive lichen planus: Dramatic response to thalidomide. *Arch Dermatol* **132**:1392, 1996
119. Buyuk AY, Kavala M: Oral metronidazole treatment of lichen planus. *J Am Acad Dermatol* **43**:260, 2000
120. Fivenson DP, Kimbrough TL: Lichen planus pemphigoides: Combination therapy with tetracycline and nicotinamide. *J Am Acad Dermatol* **36**:638, 1997

121. Chao TJ: Adalimumab in the management of cutaneous and oral lichen planus. *Cutis* **84**:325, 2009
122. Fivenson DP et al: Treatment of generalized lichen planus with alefacept. *Arch Dermatol* **142**:151, 2006
123. Stefanidou MP et al: Low molecular weight heparin: A novel alternative therapeutic approach for lichen planus. *Br J Dermatol* **141**:1002, 1999
124. Akdeniz S et al: The management of lichen planus with low-molecular-weight heparin (enoxaparin). *Int J Clin Pract* **59**:1268, 2005