

# Chapter 76

## Biology and Pathology of the Oral Cavity

Sook-Bin Woo

### REFERENCES

1. Bruch JM, Treister NS: *Clinical Oral Medicine and Pathology*, 1st edition. New York, Humana Press, 2009
2. Jurge S et al: Mucosal disease series. Number VI. Recurrent aphthous stomatitis. *Oral Dis* **12**(1):1-21, 2006
3. Albanidou-Farmaki E et al: HLA haplotypes in recurrent aphthous stomatitis: A mode of inheritance? *Int J Immunogenet* **35**(6):427-432, 2008
4. Mendes D et al: Behcet's disease—A contemporary review. *J Autoimmun* **32**(3-4):178-188, 2009
5. Feder HM, Salazar JC: A clinical review of 105 patients with PFAPA (a periodic fever syndrome). *Acta Paediatr* **99**(2):178-184, 2010
6. Gattorno M et al: Differentiating PFAPA syndrome from monogenic periodic fevers. *Pediatrics* **124**(4):e721-e728, 2009
7. Shakeri R et al: Gluten sensitivity enteropathy in patients with recurrent aphthous stomatitis. *BMC Gastroenterol* **9**:44, 2009
8. Daley TD, Armstrong JE: Oral manifestations of gastrointestinal diseases. *Can J Gastroenterol* **21**(4):241-244, 2007
9. Harty S et al: A prospective study of the oral manifestations of Crohn's disease. *Clin Gastroenterol Hepatol* **3**(9):886-891, 2005
10. Plauth M, Jenss H, Meyle J: Oral manifestations of Crohn's disease. *J Clin Gastroenterol* **13**:29-37, 1991
11. Gibson J, Wray D, Bagg J: Oral staphylococcal mucositis: A new clinical entity in orofacial granulomatosis and Crohn's disease. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* **89**(2):171-176, 2000
12. Chaudhry SI et al: Pyostomatitis vegetans associated with asymptomatic ulcerative colitis: A case report. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* **87**(3):327-330, 1999
13. Malahias T et al: The association between celiac disease, dental enamel defects, and aphthous ulcers in a United States Cohort. *J Clin Gastroenterol* **44**(3):191-194, 2010
14. Werchniak AE et al: Treatment of pyostomatitis vegetans with topical tacrolimus. *J Am Acad Dermatol* **52**(4):722-723, 2005
15. Sonis ST: Mucositis: The impact, biology and therapeutic opportunities of oral mucositis. *Oral Oncol* **45**(12):1015-1020, 2009
16. Woo SB et al: A longitudinal study of oral ulcerative mucositis in bone marrow transplant recipients. *Cancer* **72**(5):1612-1617, 1993
17. Trotti A et al: Mucositis incidence, severity and associated outcomes in patients with head and neck cancer receiving radiotherapy with or without chemotherapy: A systematic literature review. *Radiother Oncol* **66**(3):253-262, 2003
18. Fischer DJ, Epstein JB: Management of patients who have undergone head and neck cancer therapy. *Dent Clin North Am* **52**(1):39-60, viii, 2008
19. Lalla RV, Sonis ST, Peterson DE: Management of oral mucositis in patients who have cancer. *Dent Clin North Am* **52**(1):61-77, viii, 2008
20. El-Mofty SK, Wick MR, Miller AS: Eosinophilic ulcer of the oral mucosa. *Oral Surg Oral Med Oral Pathol* **75**:716-722, 1993
21. Neville BW et al: *Oral and Maxillofacial Pathology*, 5<sup>th</sup> edition. St. Louis, MO, Saunders/Elsevier, 2009
22. Alobeid B et al: Eosinophil-rich CD30+ lymphoproliferative disorder of the oral mucosa. A form of "traumatic eosinophilic granuloma". *Am J Clin Pathol* **121**(1):43-50, 2004
23. Hirshberg A et al: Traumatic ulcerative granuloma with stromal eosinophilia: A reactive lesion of the oral mucosa. *Am J Clin Pathol* **126**(4):522-529, 2006
24. Salisbury CL, Budnick SD, Li S: T-cell receptor gene rearrangement and CD30 immunoreactivity in traumatic ulcerative granuloma with stromal eosinophilia of the oral cavity. *Am J Clin Pathol* **132**(5):722-727, 2009
25. Segura S, Pujol RM: Eosinophilic ulcer of the oral mucosa: A distinct entity or a non-specific reactive pattern? *Oral Dis* **14**(4):287-295, 2008
26. Woo SG, MS. In: *Burket's Oral Medicine*, 11<sup>th</sup> edition, edited by M Greenberg, M Glick, JA Ship. Hamilton, ONT, BC Dekker Inc, 2008

27. Woo SB, Sonis ST, Sonis AL: The role of herpes simplex virus in the development of oral mucositis in bone marrow transplant recipients. *Cancer* **66**(11):2375-2379, 1990
28. Woo SB, Solomon DH: Bisphosphonate therapy for cancer and prevalence of inflammatory jaw conditions. *J Natl Cancer Inst* **99**(13):986-987, 2007
29. Bonifaz A et al: Palatal zygomycosis: Experience of 21 cases. *Oral Dis* **14**(6):569-574, 2008
30. Scully C, de Almeida OP, Spoto MR: The deep mycoses in HIV infection. *Oral Dis* **3**(Suppl. 1):S200-S207, 1997
31. Myoken Y et al: Invasive Aspergillus stomatitis in patients with acute leukemia: Report of 12 cases. *Clin Infect Dis* **33**(12):1975-1980, 2001
32. Ferreira OG et al: Oral histoplasmosis in Brazil. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* **93**(6):654-659, 2002
33. Almeida OP, Jacks J, Jr., Scully C: Paracoccidioidomycosis of the mouth: An emerging deep mycosis. *Crit Rev Oral Biol Med* **14**(5):377-383, 2003
34. Rodrigo JP et al: Idiopathic midline destructive disease: Fact or fiction. *Oral Oncol* **41**(4):340-348, 2005
35. Pagano L et al: ZYGOMYCOSIS: Current approaches to management of patients with haematological malignancies. *Br J Haematol* **146**(6):597-606, 2009
36. Abrams AM, Melrose RJ, Howell FV: Necrotizing sialometaplasia. *Cancer* **32**:130-135, 1973
37. Brannon RB, Fowler CB, Hartman KS: Necrotizing sialometaplasia. A clinicopathologic study of sixty-nine cases and review of the literature. *Oral Surg Oral Med Oral Pathol* **72**(3):317-325, 1991
38. Keogh PV et al: Necrotizing sialometaplasia: An unusual bilateral presentation associated with antecedent anaesthesia and lack of response to intralesional steroids. Case report and review of the literature. *Br Dent J* **196**(2):79-81, 2004
39. Schoning H, Emshoff R, Kreczy A: Necrotizing sialometaplasia in two patients with bulimia and chronic vomiting. *Int J Oral Maxillofac Surg* **27**(6):463-465, 1998
40. Hoffman GS et al: Wegener granulomatosis: An analysis of 158 patients. *Ann Intern Med* **116**(6):488-498, 1992
41. Chen M, Kallenberg CG: The environment, geoepidemiology and ANCA-associated vasculitides. *Autoimmun Rev* **9**(5):A293-A298, 2010
42. Ponniah I et al: Wegener's granulomatosis: The current understanding. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* **100**(3):265-270, 2005
43. Stewart C et al: Oral manifestations of Wegener's granulomatosis: A report of three cases and a literature review. *J Am Dent Assoc* **138**(3):338-348, 2007; quiz 396, 398
44. Hattar K et al: Wegener's granulomatosis: Antiproteinase 3 antibodies induce monocyte cytokine and prostanoid release—role of autocrine cell activation. *J Leukoc Biol* **71**(6):996-1004, 2002
45. Jayne D: Review article: Progress of treatment in ANCA-associated vasculitis. *Nephrology (Carlton)* **14**(1):42-48, 2009
46. Martinez Del Pero M et al: B-cell depletion with rituximab for refractory head and neck Wegener's granulomatosis: A cohort study. *Clin Otolaryngol* **34**(4):328-335, 2009
47. Marx RE et al: Bisphosphonate-induced exposed bone (osteonecrosis/osteopetrosis) of the jaws: Risk factors, recognition, prevention, and treatment. *J Oral Maxillofac Surg* **63**(11):1567-1575, 2005
48. Woo SB, Hande K, Richardson PG: Osteonecrosis of the jaw and bisphosphonates. *N Engl J Med* **353**(1):99-102, 2005; discussion 199-102
49. Almazrooa SA, Woo SB: Bisphosphonate and nonbisphosphonate-associated osteonecrosis of the jaw: A review. *J Am Dent Assoc* **140**(7):864-875, 2009
50. Reuther T et al: Osteoradionecrosis of the jaws as a side effect of radiotherapy of head and neck tumour patients—A report of a thirty year retrospective review. *Int J Oral Maxillofac Surg* **32**(3):289-295, 2003
51. Notani K et al: Management of mandibular osteoradionecrosis corresponding to the severity of osteoradionecrosis and the method of radiotherapy. *Head Neck* **25**(3):181-186, 2003
52. Ruggiero SL et al: American Association of Oral and Maxillofacial Surgeons position paper on bisphosphonate-related osteonecrosis of the jaws—2009 update. *J Oral Maxillofac Surg* **67**(5 Suppl):2-12, 2009
53. Rugg EL et al: A mutation in the mucosal keratin K4 is associated with oral white sponge nevus. *Nat Genet* **1995**;11:450-452
54. Woo S: Chapter 10: Diseases of the oral mucosa. In: *Pathology of the Skin*, vol 1, 3<sup>rd</sup> edition, edited by P McKee, E Calonje, S Granter. Philadelphia, Elsevier-Mosby, 2005, pp. 217-260
55. Witkop CJ et al: Hereditary benign intraepithelial dyskeratosis. II. Oral manifestations and hereditary transmission. *Arch Pathol* **70**:696-711, 1960

56. Allingham RR et al: A duplication in chromosome 4q35 is associated with hereditary benign intraepithelial dyskeratosis. *Am J Hum Genet* **68**(2):491-494, 2001
57. Jham BC et al: Hereditary benign intraepithelial dyskeratosis: A new case? *J Oral Pathol Med* **36**(1):55-57, 2007
58. Su WP et al: Pachyonychia congenita: A clinical study of 12 cases and review of the literature. *Pediatr Dermatol* **7**(1):33-38, 1990
59. Liao H et al: A spectrum of mutations in keratins K6a, K16 and K17 causing pachyonychia congenita. *J Dermatol Sci* **48**(3):199-205, 2007
60. Pradeep AR, Nagaraja C: Pachyonychia congenita with unusual dental findings: A case report. *Oral Surg Oral Med Oral Radiol Endod* **104**(1):89-93, 2007
61. Treister N et al: Dyskeratosis congenita vs. chronic graft versus host disease: Report of a case and a review of the literature. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* **98**(5):566-571, 2004
62. Atkinson JC et al: Oral and dental phenotype of dyskeratosis congenita. *Oral Dis* **14**(5):419-427, 2008
63. Otobe IF et al: White sponge naevus: Improvement with tetracycline mouth rinse: Report of four cases. *Clin Exp Dermatol* **32**(6):749-751, 2007
64. Durocher RT, Thalman R, Fiore-Donno G: Leukoedema of the oral mucosa. *J Am Dent Assoc* **85**(5):1105-1109, 1972
65. Bernstein ML: Oral mucosal white lesions associated with excessive use of Listerine mouthwash. Report of two cases. *Oral Surg Oral Med Oral Pathol* **46**(6):781-785, 1978
66. Bouquot JE, Gorlin RJ: Leukoplakia, lichen planus, and other oral keratoses in 23,616 white Americans over the age of 35 years. *Oral Surg Oral Med Oral Pathol* **61**:373-381, 1986
67. Woo SB, Lin D: Morsicatio mucosae oris—A chronic oral frictional keratosis, not a leukoplakia. *J Oral Maxillofac Surg* **67**(1):140-146, 2009
68. Chi AC et al: Is alveolar ridge keratosis a true leukoplakia?: A clinicopathologic comparison of 2,153 lesions. *J Am Dent Assoc* **138**(5):641-651, 2007
69. Natarajan E, Woo SB: Benign alveolar ridge keratosis (oral lichen simplex chronicus): A distinct clinicopathologic entity. *J Am Acad Dermatol* **58**(1):151-157, 2008
70. Nilsson R: De minimus non curat lex—virtual thresholds for cancer initiation by tobacco specific nitrosamines—prospects for harm reduction by smokeless tobacco. *Int J Occup Med Environ Health* **19**(1):6-35, 2006
71. Idris AM et al: Toombak-associated oral mucosal lesions in Sudanese show a low prevalence of epithelial dysplasia. *J Oral Pathol Med* **25**(5):239-244, 1996
72. Warnakulasuriya S, Trivedy C, Peters TJ: Areca nut use: An independent risk factor for oral cancer. *BMJ* **324**(7341):799-800, 2002
73. Vigneswaran N et al: Influence of GC and AT specific DNA minor groove binding drugs on intermolecular triplex formation in the human c-Ki-ras promoter. *Biochemistry* **35**(4):1106-1114, 1996
74. Lee PN, Hamling J: Systematic review of the relation between smokeless tobacco and cancer in Europe and North America. *BMC Med* **7**:36, 2009
75. Webb BC et al: Candida-associated denture stomatitis. Aetiology and management: A review. Part 1. Factors influencing distribution of Candida species in the oral cavity. *Aust Dent J* **43**(1):45-50, 1998
76. Coco BJ et al: Mixed Candida albicans and Candida glabrata populations associated with the pathogenesis of denture stomatitis. *Oral Microbiol Immunol* **23**(5):377-383, 2008
77. Shiboski CH et al: The Oral HIV/AIDS Research Alliance: Updated case definitions of oral disease endpoints. *J Oral Pathol Med* **38**(6):481-488, 2009
78. Casiglia J, Woo SB: Oral hairy leukoplakia as an early indicator of Epstein-Barr virus-associated post-transplant lymphoproliferative disorder. *J Oral Maxillofac Surg* **60**(8):948-950, 2002
79. Eisenberg E, Krutchkoff D: Incidental oral hairy leukoplakia in immunocompetent persons. *Oral Surg Oral Med Oral Pathol* **74**:322-323, 1992
80. Carrozzo M, Thorpe R: Oral lichen planus: A review. *Minerva Stomatol* **58**(10):519-537, 2009
81. Thornhill MH: Oral lichenoid lesions and amalgam fillings. *Evid Based Dent* **7**(3):74-75, 2006
82. Moss AC et al: Clinical challenges and images in GI. Oral lichenoid reaction in a patient with Crohn's disease receiving infliximab. *Gastroenterology* **132**(2):488, 829, 2007
83. Thornhill MH et al: The role of histopathological characteristics in distinguishing amalgam-associated oral lichenoid reactions and oral lichen planus. *J Oral Pathol Med* **35**(4):233-240, 2006

84. Carrozzo M. Oral diseases associated with hepatitis C virus infection. Part 1. Sialadenitis and salivary glands lymphoma. *Oral Dis* **14**(2):123-130, 2008
85. Carrozzo M et al: Increased frequency of HLA-DR6 allele in Italian patients with hepatitis C virus-associated oral lichen planus. *Br J Dermatol* **144**(4):803-808, 2001
86. Treister NS et al: Clinical evaluation of oral chronic graft-versus-host disease. *Biol Blood Marrow Transplant* **14**(1):110-115, 2008
87. Lopez-Labady J et al: Oral manifestations of systemic and cutaneous lupus erythematosus in a Venezuelan population. *J Oral Pathol Med* **36**(9):524-527, 2007
88. Casiglia J, Woo SB, Ahmed AR: Oral involvement in autoimmune blistering diseases. *Clin Dermatol* **19**(6):737-741, 2001
89. Rogers RS, 3rd, Eisen D: Erosive oral lichen planus with genital lesions: The vulvovaginal-gingival syndrome and the peno-gingival syndrome. *Dermatol Clin* **21**(1):91-98, vi-vii, 2003
90. Piboonninyom SO et al: Scoring system for monitoring oral lichenoid lesions: A preliminary study. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* **99**(6):696-703, 2005
91. Thongprasom K et al: A randomized-controlled trial to compare topical cyclosporin with triamcinolone acetonide for the treatment of oral lichen planus. *J Oral Pathol Med* **36**(3):142-146, 2007
92. Escudier M et al: A scoring system for mucosal disease severity with special reference to oral lichen planus. *Br J Dermatol* **157**(4):765-770, 2007
93. Solomon LW: Chronic ulcerative stomatitis. *Oral Dis* **14**(5):383-389, 2008
94. Solomon LW et al: ELISA test for p63 antibodies in chronic ulcerative stomatitis. *Oral Dis* **16**(2):151-155, 2010
95. Eisen D et al: Number V Oral lichen planus: Clinical features and management. *Oral Dis* **11**(6):338-349, 2005
96. van der Meij EH, Mast H, van der Waal I: The possible premalignant character of oral lichen planus and oral lichenoid lesions: A prospective five-year follow-up study of 192 patients. *Oral Oncol* **43**(8):742-748, 2007
97. Warnakulasuriya S, Johnson NW, van der Waal I: Nomenclature and classification of potentially malignant disorders of the oral mucosa. *J Oral Pathol Med* **36**(10):575-580, 2007
98. Petti S: Pooled estimate of world leukoplakia prevalence: A systematic review. *Oral Oncol* **39**(8):770-780, 2003
99. Waldron CA, Shafer WG: Leukoplakia revisited: A clinicopathologic study of 3265 oral leukoplakias. *Cancer* **36**:1386-1392, 1975
100. Lee JJ et al: Carcinoma and dysplasia in oral leukoplakias in Taiwan: Prevalence and risk factors. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* **101**(4):472-480, 2006
101. Jaber MA et al: Oral epithelial dysplasia: Clinical characteristics of western European residents. *Oral Oncol* **39**(6):589-596, 2003
102. Napier SS, Speight PM: Natural history of potentially malignant oral lesions and conditions: An overview of the literature. *J Oral Pathol Med* **37**(1):1-10, 2008
103. Silverman S, Jr., Gorsky M: Proliferative verrucous leukoplakia: A follow-up study of 54 cases. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* **84**(2):154-157, 1997
104. van der Waal I, Reichart PA: Oral proliferative verrucous leukoplakia revisited. *Oral Oncol* **44**(8):719-721, 2008
105. Zakrzewska JM et al: Proliferative verrucous leukoplakia: A report of ten cases. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* **82**(4):396-401, 1996
106. Shafer WG, Waldron CA: Erythroplakia of the oral cavity. *Cancer* **36**:1021-1028, 1975
107. Reichart PA, Philipsen HP: Oral erythroplakia—A review. *Oral Oncol* **41**(6):551-561, 2005
108. Silverman S, Gorsky M, Lozada F: Oral leukoplakia and malignant transformation. *Cancer* **53**:563-568, 1984
109. Brennan M et al: Management of oral epithelial dysplasia: A review. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* **103**(Suppl):S19, e11-12, 2007
110. van der Waal I: Potentially malignant disorders of the oral and oropharyngeal mucosa; terminology, classification and present concepts of management. *Oral Oncol* **45**(4-5):317-323, 2009
111. [http://seer.cancer.gov/csr/1975\\_2006/browse\\_csr.php?section=1&page=sect\\_01\\_table.01.html](http://seer.cancer.gov/csr/1975_2006/browse_csr.php?section=1&page=sect_01_table.01.html)
112. Scully C, Bagan J: Oral squamous cell carcinoma: Overview of current understanding of aetio-pathogenesis and clinical implications. *Oral Dis* **15**(6):388-399, 2009
113. Vidal L, Gillison ML: Human papillomavirus in HNSCC: Recognition of a distinct disease type. *Hematol Oncol Clin North Am* **22**(6):1125-1142, vii, 2008

114. Haddad R, Annino D, Tishler RB: Multidisciplinary approach to cancer treatment: Focus on head and neck cancer. *Dent Clin North Am* 52(1):1-17, vii, 2008
115. Burns P et al: Sentinel lymph node biopsy in node-negative squamous cell carcinoma of the oral cavity and oropharynx. *J Laryngol Otol* 123(4):439-443, 2009
116. Pattani KM, Califano J: Positive sentinel lymph nodes are a negative prognostic factor for survival in T1—2 oral/oropharyngeal cancer: A long-term study on 103 patients. *Ann Surg Oncol* 16(2):231-232, 2009
117. Ang KK: Multidisciplinary management of locally advanced SCCHN: Optimizing treatment outcomes. *Oncologist* 13(8):899-910, 2008
118. Shah N, Sharma PP: Role of chewing and smoking habits in the etiology of oral submucous fibrosis (OSF): A case-control study. *J Oral Pathol Med* 27(10):475-479, 1998
119. Tilakaratne WM et al: Oral submucous fibrosis: Review on aetiology and pathogenesis. *Oral Oncol* 42(6):561-568, 2006
120. Hazarey VK et al: Oral submucous fibrosis: Study of 1000 cases from central India. *J Oral Pathol Med* 36(1):12-17, 2007
121. Chan LS et al: The first international consensus on mucous membrane pemphigoid: Definition, diagnostic criteria, pathogenic factors, medical treatment, and prognostic indicators. *Arch Dermatol* 138(3):370-379, 2002
122. Leao JC et al: Desquamative gingivitis: Retrospective analysis of disease associations of a large cohort. *Oral Dis* 14(6):556-560, 2008
123. Lo Russo L et al: Epidemiology of desquamative gingivitis: Evaluation of 125 patients and review of the literature. *Int J Dermatol* 48(10):1049-1052, 2009
124. Gurcan HM, Ahmed AR: Efficacy of dapsone in the treatment of pemphigus and pemphigoid: Analysis of current data. *Am J Clin Dermatol* 10(6):383-396, 2009
125. Canizares MJ et al: Successful treatment of mucous membrane pemphigoid with etanercept in 3 patients. *Arch Dermatol* 142(11):1457-1461, 2006
126. Scully C, Mignogna M: Oral mucosal disease: Pemphigus. *Br J Oral Maxillofac Surg* 46(4):272-277, 2008
127. Sehgal VN, Srivastava G: Paraneoplastic pemphigus/paraneoplastic autoimmune multiorgan syndrome. *Int J Dermatol* 48(2):162-169, 2009
128. AlSaleh J et al: Clinical and immunological manifestations in 151 SLE patients living in Dubai. *Lupus* 17(1):62-66, 2008
129. Anil S: Plasma cell gingivitis among herbal toothpaste users: A report of three cases. *J Contemp Dent Pract* 8(4):60-66, 2007
130. Henley JD, Summerlin DJ, Tomich CE: Condyloma acuminatum and condyloma-like lesions of the oral cavity: A study of 11 cases with an intra-ductal component. *Histopathology* 44(3):216-221, 2004
131. Anderson KM et al: The histologic differentiation of oral condyloma acuminatum from its mimics. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 96(4):420-428, 2003
132. Cuberos V et al: Molecular and serological evidence of the epidemiological association of HPV 13 with focal epithelial hyperplasia: A case-control study. *J Clin Virol* 37(1):21-26, 2006
133. Abbey LM, Page DG, Sawyer DR: The clinical and histopathologic features of a series of 464 oral squamous papillomas. *Oral Surgery Oral Medicine Oral Pathology* 49:419-428, 1980
134. Premoli-de-Percoco G et al: Detection of human papillomavirus-related oral verruca vulgaris among Venezuelans. *J Oral Pathol Med* 22(3):113-116, 1993
135. Kui LL, Xiu HZ, Ning LY: Condyloma acuminatum and human papilloma virus infection in the oral mucosa of children. *Pediatr Dent* 25(2):149-153, 2003
136. Sparling JD et al: Oral findings in 58 adults with tuberous sclerosis complex. *J Am Acad Dermatol* 56(5):786-790, 2007
137. Leao JC et al: Cowden's syndrome affecting the mouth, gastrointestinal, and central nervous system: A case report and review of the literature. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 99(5):569-572, 2005
138. Raue F, Frank-Raue K: Update multiple endocrine neoplasia type 2. *Fam Cancer* 9(3):449-457, 2010
139. Calista D: Resolution of recalcitrant human papillomavirus gingival infection with topical cidofovir. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 90(6):713-715, 2000
140. Yasar S et al: Treatment of focal epithelial hyperplasia with topical imiquimod: Report of three cases. *Pediatr Dermatol* 26(4):465-468, 2009
141. Hughes PS, Hughes AP: Absence of human papillomavirus DNA in the plume of erbium: YAG laser-treated warts. *J Am Acad Dermatol* 38(3):426-428, 1998

142. Sawchuk WS et al: Infectious papillomavirus in the vapor of warts treated with carbon dioxide laser or electrocoagulation: Detection and protection. *J Am Acad Dermatol* **21**(1):41-49, 1989
143. Steinhoff M et al: Successful topical treatment of focal epithelial hyperplasia (Heck's disease) with interferon-beta. *Br J Dermatol* **144**(5):1067-1069, 2001
144. Zegarelli DJ, Zegarelli-Schmidt EC, Zegarelli EV: Verruciform xanthoma. Further light and electron microscopic studies with the addition of a third case. *Oral Surg Oral Med Oral Pathol* **40**:246-256, 1975
145. Mohsin SK et al: Cutaneous verruciform xanthoma: A report of five cases investigating the etiology and nature of xanthomatous cells. *Am J Surg Pathol* **22**(4):479-487, 1998
146. Philipsen HP et al: Verruciform xanthoma—biological profile of 282 oral lesions based on a literature survey with nine new cases from Japan. *Oral Oncol* **39**(4):325-336, 2003
147. Allen CM, Kapoor N: Verruciform xanthoma in a bone marrow transplant recipient. *Oral Surg Oral Med Oral Pathol* **75**(5):591-594, 1993
148. Miyamoto Y, Nagayama M, Hayashi Y: Verruciform xanthoma occurring within oral lichen planus. *J Oral Pathol Med* **25**(4):188-191, 1996
149. Canger EM, Celenk P, Kayipmaz S: Denture-related hyperplasia: A clinical study of a Turkish population group. *Braz Dent J* **20**(3):243-248, 2009
150. Kuo RC et al: Clinicopathological study of oral giant cell fibromas. *J Formos Med Assoc* **108**(9):725-729, 2009
151. Granholm C et al: Oral mucoceles; extravasation cysts and retention cysts. A study of 298 cases. *Swed Dent J* **33**(3):125-130, 2009
152. Yague-Garcia J et al: Treatment of oral mucocele-scalpel versus CO2 laser. *Med Oral Patol Oral Cir Bucal* **14**(9):e469-474, 2009
153. Treister NS et al: Oral chronic graft-versus-host disease in pediatric patients after hematopoietic stem cell transplantation. *Biol Blood Marrow Transplant* **11**(9):721-731, 2005
154. Zhang W et al: Reactive gingival lesions: A retrospective study of 2,439 cases. *Quintessence Int* **38**(2):103-110, 2007
155. Correa PH et al: Prevalence of oral hemangioma, vascular malformation and varix in a Brazilian population. *Braz Oral Res* **21**(1):40-45, 2007
156. Piccione MA, Manganaro CO, Almony CO: Caliber-Persistent Labial Artery: Diagnosis and Treatment-Case Report. *J Oral Maxillofac Surg* **68**(8):1987-1989, 2010
157. FitzGerald K, Barry S, Fleming P: Alveolar lymphangioma in infants: Report of two cases. *J Ir Dent Assoc* **55**(3):144-145, 2009
158. Wang D et al: Intraoral minor salivary gland tumors in a Chinese population: A retrospective study on 737 cases. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* **104**(1):94-100, 2007
159. Buchner A, Merrell PW, Carpenter WM: Relative frequency of intra-oral minor salivary gland tumors: A study of 380 cases from northern California and comparison to reports from other parts of the world. *J Oral Pathol Med* **36**(4):207-214, 2007
160. Buchner A, Merrell PW, Carpenter WM: Relative frequency of peripheral odontogenic tumors: A study of 45 new cases and comparison with studies from the literature. *J Oral Pathol Med* **35**(7):385-391, 2006
161. Chrysomali E et al: Benign neural tumors of the oral cavity: A comparative immunohistochemical study. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* **84**(4):381-390, 1997
162. Murovic JA, Kim DH, Kline DG: Neurofibromatosis-associated nerve sheath tumors. Case report and review of the literature. *Neurosurg Focus* **20**(1):E1, 2006
163. Kemp S et al: Oral non-Hodgkin's lymphoma: Review of the literature and World Health Organization classification with reference to 40 cases. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* **105**(2):194-201, 2008
164. Mawardi H, Cutler C, Treister N: Medical management update: Non-Hodgkin lymphoma. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* **107**(1):e19-e33, 2009
165. Eley BM, Garrett JR: Tissue reactions to the separate implantation of individual constituent phases of dental amalgam, including assessment by energy dispersive X-ray microanalysis. *Biomaterials* **4**(2):73-80, 1983
166. Woo S: Chapter 11: Oral pigmented lesions. In: *Diagnostic Atlas of Melanocytic Pathology*, edited by PH McKee, E Calonje. Philadelphia, Elsevier, 2008
167. Buchner A, Hansen LS: Amalgam pigmentation (amalgam tattoo) of the oral mucosa. A clinicopathologic study of 268 cases. *Oral Surg Oral Med Oral Pathol* **49**:139-147, 1980

168. Buchner A: Amalgam tattoo (amalgam pigmentation) of the oral mucosa: Clinical manifestations, diagnosis and treatment. *Refuat Hapeh Vehashinayim* 21(3):25-28, 92, 2004
169. Gupta G, Williams RE, Mackie RM: The labial melanotic macule: A review of 79 cases. *Br J Dermatol* 136(5):772-775, 1997
170. Buchner A, Merrell PW, Carpenter WM: Relative frequency of solitary melanocytic lesions of the oral mucosa. *J Oral Pathol Med* 33(9):550-557, 2004
171. Mignogna MD et al: Oral manifestations of idiopathic lenticular mucocutaneous pigmentation (Laugier-Hunziker syndrome): A clinical, histopathological and ultrastructural review of 12 cases. *Oral Dis* 5(1):80-86, 1999
172. Ozawa T et al: Q-switched alexandrite laser therapy for pigmentation of the lips owing to Laugier-Hunziker syndrome. *Dermatol Surg* 31(6):709-712, 2005
173. Axell T, Hedin CA: Epidemiologic study of excessive oral melanin pigmentation with special reference to the influence of tobacco habits. *Scand J Dent Res* 90(6):434-442, 1982
174. Nwhator SO et al: Smokers' melanosis in a Nigerian population: A preliminary study. *J Contemp Dent Pract* 8(5):68-75, 2007
175. Hedin CA, Pindborg JJ, Axell T: Disappearance of smoker's melanosis after reducing smoking. *J Oral Pathol Med* 22(5):228-230, 1993
176. Lerman MA et al: Pigmentation of the hard palate. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 107(1):8-12, 2009
177. Treister NS, Magalnick D, Woo SB: Oral mucosal pigmentation secondary to minocycline therapy: Report of two cases and a review of the literature. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 97(6):718-725, 2004
178. Willems M et al: Hyperpigmentation during interferon-alpha therapy for chronic hepatitis C virus infection. *Br J Dermatol* 149(2):390-394, 2003
179. de Moraes PC et al: Tongue hyperpigmentation resulting from peginterferon alfa and ribavirin combination therapy: A case report. *J Am Dent Assoc* 140(11):1377-1379, 2009
180. Pearce JM: Burton's line in lead poisoning. *Eur Neurol* 57(2):118-119, 2007
181. Ruiz-Maldonado R et al: Black granules on the skin after bismuth subsalicylate ingestion. *J Am Acad Dermatol* 37(3 Pt 1):489-490, 1997
182. Cohen PR: Black tongue secondary to bismuth subsalicylate: Case report and review of exogenous causes of macular lingual pigmentation. *J Drugs Dermatol* 8(12):1132-1135, 2009
183. Tomich CE, Zunt SL: Melanoacanthosis (melanoacanthoma) of the oral mucosa. *J Dermatol Surg Oncol* 16:231-236, 1990
184. Fornatora ML et al: Oral melanoacanthoma: A report of 10 cases, review of the literature, and immunohistochemical analysis for HMB-45 reactivity. *Am J Dermatopathol* 25(1):12-15, 2003
185. Buchner A et al: Melanocytic nevi of the oral mucosa: A clinicopathologic study of 130 cases from northern California. *J Oral Pathol Med* 19(5):197-201, 1990
186. Chang AE, Karnell LH, Menck HR: The National Cancer Data Base report on cutaneous and noncutaneous melanoma: A summary of 84,836 cases from the past decade. The American College of Surgeons Commission on Cancer and the American Cancer Society. *Cancer* 83(8):1664-1678, 1998
187. Manolidis S, Donald PJ: Malignant mucosal melanoma of the head and neck: Review of the literature and report of 14 patients. *Cancer* 80(8):1373-1386, 1997
188. Prasad ML et al: Clinicopathologic differences in malignant melanoma arising in oral squamous and sinonasal respiratory mucosa of the upper aerodigestive tract. *Arch Pathol Lab Med* 127(8):997-1002, 2003
189. Lourenco SV et al: Primary oral mucosal melanoma: A series of 35 new cases from South America. *Am J Dermatopathol* 31(4):323-330, 2009
190. Mendenhall WM et al: Head and neck mucosal melanoma. *Am J Clin Oncol* 28(6):626-630, 2005
191. Temam S et al: Postoperative radiotherapy for primary mucosal melanoma of the head and neck. *Cancer* 103(2):313-319, 2005
192. Prasad ML et al: Primary mucosal melanoma of the head and neck: A proposal for microstaging localized, Stage I (lymph node-negative) tumors. *Cancer* 100(8):1657-1664, 2004
193. Meleti M et al: Head and neck mucosal melanoma: Experience with 42 patients, with emphasis on the role of postoperative radiotherapy. *Head Neck* 30(12):1543-1551, 2008
194. Kaugars GE et al: Actinic cheilitis: A review of 152 cases. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 88(2):181-186, 1999
195. Markopoulos A, Albanidou-Farmaki E, Kayavis I: Actinic cheilitis: Clinical and pathologic characteristics in 65 cases. *Oral Dis* 10(4):212-216, 2004

196. Castineiras I et al: Actinic cheilitis: Evolution to squamous cell carcinoma after carbon dioxide laser vaporization. A study of 43 cases. *J Dermatol Treat* 21(1):49-53, 2010
197. Smith KJ et al: Topical 5% imiquimod for the therapy of actinic cheilitis. *J Am Acad Dermatol* 47(4):497-501, 2002
198. McDonald C et al: Treatment of actinic cheilitis with imiquimod 5% and a retractor on the lower lip: Clinical and histological outcomes in 5 patients. *Br J Oral Maxillofac Surg* 48(6):473-476, 2010
199. Sotiriou E et al: Actinic cheilitis treated with one cycle of 5-aminolaevulinic acid-based photodynamic therapy: Report of 10 cases. *Br J Dermatol* 159(1):261-262, 2008
200. Grave B, McCullough M, Wiesenfeld D: Orofacial granulomatosis—A 20-year review. *Oral Dis* 15(1):46-51, 2009
201. Freysdottir J et al: Oral biopsies from patients with orofacial granulomatosis with histology resembling Crohn's disease have a prominent Th1 environment. *Inflamm Bowel Dis* 13(4):439-445, 2007
202. Tilakaratne WM, Freysdottir J, Fortune F: Orofacial granulomatosis: Review on aetiology and pathogenesis. *J Oral Pathol Med* 37(4):191-195, 2008
203. Mignogna MD et al: The multiform and variable patterns of onset of orofacial granulomatosis. *J Oral Pathol Med* 32(4):200-205, 2003
204. Al Johani KA et al: Orofacial granulomatosis: Clinical features and long-term outcome of therapy. *J Am Acad Dermatol* 62(4):611-620, 2010
205. Mignogna MD et al: Effectiveness of small-volume, intralesional, delayed-release triamcinolone injections in orofacial granulomatosis: A pilot study. *J Am Acad Dermatol* 51(2):265-268, 2004
206. Hegarty A, Hodgson T, Porter S: Thalidomide for the treatment of recalcitrant oral Crohn's disease and orofacial granulomatosis. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 95(5):576-585, 2003
207. Peitsch WK et al: Infliximab: A novel treatment option for refractory orofacial granulomatosis. *Acta Derm Venereol* 87(3):265-266, 2007
208. Nico MM, Nakano de Melo J, Lourenco SV: Cheilitis glandularis: A clinicopathological study in 22 patients. *J Am Acad Dermatol* 62(2):233-238, 2010
209. Lourenco SV et al: Cheilitis glandularis in albinos: A report of two cases and review of histopathological findings after therapeutic vermilionectomy. *J Eur Acad Dermatol Venereol* 21(9):1265-1267, 2007
210. Leao JC et al: Cheilitis glandularis: An unusual presentation in a patient with HIV infection. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 95(2):142-144, 2003
211. Shulman JD, Beach MM, Rivera-Hidalgo F: The prevalence of oral mucosal lesions in U.S. adults: Data from the Third National Health and Nutrition Examination Survey, 1988–1994. *J Am Dent Assoc* 135(9):1279-1286, 2004
212. Peltola P, Vehkalahti MM, Wuolijoki-Saaristo K: Oral health and treatment needs of the long-term hospitalised elderly. *Gerodontology* 21(2):93-99, 2004
213. Lu SY, Wu HC: Initial diagnosis of anemia from sore mouth and improved classification of anemias by MCV and RDW in 30 patients. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 98(6):679-685, 2004
214. Fotos PG, Ray TL: Oral and perioral candidosis. *Semin Dermatol* 13(2):118-124, 1994
215. Terai H, Shimahara M: Cheilitis as a variation of Candida-associated lesions. *Oral Dis* 12(3):349-352, 2006
216. Skinner N et al: Clinical inquiries. What is angular cheilitis and how is it treated? *J Fam Pract* 54(5):470-471, 2005
217. Dias AP, Samaranayake LP: Clinical, microbiological and ultrastructural features of angular cheilitis lesions in Southern Chinese. *Oral Dis* 1(1):43-48, 1995
218. Smith AJ et al: Staphylococcus aureus in the oral cavity: A three-year retrospective analysis of clinical laboratory data. *Br Dent J* 195(12):701-703, 2003; discussion 694.
219. Reichart PA et al: Exfoliative cheilitis (EC) in AIDS: Association with Candida infection. *J Oral Pathol Med* 26(6):290-293, 1997
220. Taniguchi S, Kono T: Exfoliative cheilitis: A case report and review of the literature. *Dermatology* 196(2):253-255, 1998
221. Mani SA, Shareef BT: Exfoliative cheilitis: Report of a case. *J Can Dent Assoc* 73(7):629-632, 2007
222. Connolly M, Kennedy C: Exfoliative cheilitis successfully treated with topical tacrolimus. *Br J Dermatol* 151(1):241-242, 2004
223. Rocha N et al: Plasma cell cheilitis. *J Eur Acad Dermatol Venereol* 18(1):96-98, 2004
224. Tseng JT et al: Plasma-cell cheilitis: Successful treatment with intralesional injections of corticosteroids. *Clin Exp Dermatol* 34(2):174-177, 2009



225. Leyland L, Field EA: Case report: Exfoliative cheilitis managed with antidepressant medication. *Dent Update* 31(9):524-526, 2004
226. Pastore L, Lo Muzio L, Serpico R: Atrophic glossitis leading to the diagnosis of celiac disease. *N Engl J Med* 356(24):2547, 2007
227. Miloglu O et al: The prevalence and risk factors associated with benign migratory glossitis lesions in 7619 Turkish dental outpatients. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 107(2):e29-33, 2009
228. Jainkittivong A, Langlais RP: Geographic tongue: Clinical characteristics of 188 cases. *J Contemp Dent Pract* 6(1):123-135, 2005
229. Hernandez-Perez F et al: Prevalence of oral lesions in patients with psoriasis. *Med Oral Patol Oral Cir Bucal* 13(11):E703-E708, 2008
230. Pogrel MA, Cram D: Intraoral findings in patients with psoriasis with a special reference to ectopic geographic tongue (erythema circinata). *Oral Surg Oral Med Oral Pathol* 66:184-194, 1988
231. Terai H, Shimahara M: Partial atrophic tongue other than median rhomboid glossitis. *Clin Exp Dermatol* 32(4):381-384, 2007
232. Whitaker SB, Krupa JJ, 3rd, Singh BB: Transient lingual papillitis. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 82(4):441-445, 1996
233. Brannon RB, Flaitz CM: Transient lingual papillitis: A papulokeratotic variant. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 96(2):187-191, 2003
234. Flaitz CM, Chavarria C: Painful tongue lesions associated with a food allergy. *Pediatr Dent* 23(6):506-507, 2001
235. Roux O, Lacour JP: Eruptive lingual papillitis with household transmission: A prospective clinical study. *Br J Dermatol* 150(2):299-303, 2004
236. Zimmermann BG, Wong DT: Salivary mRNA targets for cancer diagnostics. *Oral Oncol* 44(5):425-429, 2008
237. Fox PC, Busch KA, Baum BJ: Subjective reports of xerostomia and objective measures of salivary gland performance. *J Am Dent Assoc* 115(4):581-584, 1987
238. Atkinson JC, Grisius M, Massey W: Salivary hypofunction and xerostomia: Diagnosis and treatment. *Dent Clin North Am* 49(2):309-326, 2005
239. Vitali C et al: Classification criteria for Sjogren's syndrome: A revised version of the European criteria proposed by the American-European Consensus Group. *Ann Rheum Dis* 61(6):554-558, 2002
240. Busamia B et al: Assessing the determination of salivary electrolytes and anti-Ro and anti-La antibodies for the diagnosis of Sjogren's syndrome (SS). *Med Oral Patol Oral Cir Bucal* 15(3):e437-e440, 2010
241. Chen A et al: Using the modified Schirmer test to measure mouth dryness: A preliminary study. *J Am Dent Assoc* 136(2):164-170, 2005; quiz 229-130
242. Porter SR, Scully C, Hegarty AM: An update of the etiology and management of xerostomia. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 97(1):28-46, 2004
243. Weber J, Keating GM: Cevimeline. *Drugs* 68(12):1691-1698, 2008
244. Chambers MS et al: Open-label, long-term safety study of cevimeline in the treatment of postirradiation xerostomia. *Int J Radiat Oncol Biol Phys* 69(5):1369-1376, 2007
245. Jha N et al: Phase III randomized study: Oral pilocarpine versus submandibular salivary gland transfer protocol for the management of radiation-induced xerostomia. *Head Neck* 31(2):234-243, 2009
246. Baum BJ et al: Development of a gene transfer-based treatment for radiation-induced salivary hypofunction. *Oral Oncol* 46(1):4-8, 2010
247. Batsakis JG: Lymphoepithelial lesion and Sjogren's syndrome. *Ann Otol Rhinol Laryngol* 96(3 Pt 1):354-355, 1987
248. Lamey PJ et al: Vulnerability and presenting symptoms in burning mouth syndrome. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 99(1):48-54, 2005
249. Vucicevic-Boras V et al: Lack of association between burning mouth syndrome and hematinic deficiencies. *Eur J Med Res* 6(9):409-412, 2001
250. Marino R et al: Burning mouth syndrome: The role of contact hypersensitivity. *Oral Dis* 15(4):255-258, 2009
251. Brailo V et al: Salivary and serum levels of substance p, neurokinin A and calcitonin gene related peptide in burning mouth syndrome. *Med Oral Patol Oral Cir Bucal* 15(3):e427-431, 2010
252. Scala A et al: Update on burning mouth syndrome: Overview and patient management. *Crit Rev Oral Biol Med* 14(4):275-291, 2003
253. Lamey PJ, Lamb AB: Prospective study of aetiological factors in burning mouth syndrome. *Br Med J (Clin Res Ed)* 296(6631):1243-1246, 1988

254. Di Fede O et al: Oral manifestations in patients with gastro-oesophageal reflux disease: A single-center case-control study. *J Oral Pathol Med* **37**(6):336-340, 2008
255. Yamazaki Y et al: An open-label, noncomparative, dose escalation pilot study of the effect of paroxetine in treatment of burning mouth syndrome. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* **107**(1):e6-11, 2009
256. Heckmann SM et al: Gabapentin has little or no effect in the treatment of burning mouth syndrome - results of an open-label pilot study. *Eur J Neurol* **13**(7):e6-e7, 2006