Disease/Medical Condition

LYMPHOMA

(The two main types are “Hodgkin lymphoma” [HL, also known as “Hodgkin’s disease”] and “non-Hodgkin lymphoma” [NHL], the latter including cancers that arise from, or involve, B-lymphocytes, T-lymphocytes, natural killer cells, large proteins [such as Waldenstrom macroglobulinemia], and the lymphatic system of the skin [i.e., cutaneous lymphoma]).

Is the initiation of non-invasive dental hygiene procedures* contra-indicated? Unlikely, but depends on severity and type of lymphoma, severity of complications arising from treatment, and procedure being contemplated.

- Is medical consult advised?
  - Yes, if the patient/client is undergoing chemotherapy and has, or is suspected to have, certain oral conditions or systemic manifestations.
  - Yes, if the patient/client is about to undergo, or is undergoing, radiation therapy.
  - Yes, if the patient/client appears debilitated.
  - Yes, if undiagnosed lymphoma is suspected.

Is the initiation of invasive dental hygiene procedures contra-indicated?** Yes. This is a blood disorder as per Ontario Regulation 501/07 pursuant to the Dental Hygiene Act, 1991.

Lymphoma may affect appropriateness or safety, and scaling and root planing, including curetting of surrounding tissue, are contraindicated until the patient/client is medically cleared. Other possible contra-indications include active chemotherapy and/or radiation therapy, as well as significant immunosuppression and/or bleeding disorder (e.g., thrombocytopenia) resulting from the disease itself and/or its treatment.

- Is medical consult advised? ………………………………… See above.
  Additionally, pre- and post-radiation/chemotherapy medical and/or dental consultation is often warranted.

- Is medical clearance required?
  - Yes, if lymphoma has been diagnosed or is suspected.
  - Yes, if the patient/client is undergoing radiation therapy and/or chemotherapy.
  - Yes, if patient/client is being treated with medications (such as corticosteroids) associated with immunosuppression +/- increased risk of infection (e.g., prednisone is often given concurrently with chemotherapeutic agents in the treatment of lymphoma).
  - Yes, if thrombocytopenia or severe anemia exists or is suspected (whether from the disease itself and/or its treatment).

- Is antibiotic prophylaxis required? ………………………………Possibly, for some patients/clients according to [1] blood indices (e.g., low neutrophil count) that indicate immunosuppression resulting from the disease itself and/or from chemotherapy and/or radiotherapy and/or [2] according to delivery mechanism (e.g., in-dwelling central venous catheters or ports).

- Is postponing treatment advised? ………………………………Possibly, depending on blood indices (which indicate degree of immunosuppression and/or thrombocytopenia and/or anemia) in patients/clients undergoing chemotherapy or radiotherapy. Elective invasive procedures should be deferred until after chemo- or radiation-induced immunosuppression ceases.
  - In the case of bone marrow transplantation and blood stem cell transplantation, elective oral procedures, including scaling and polishing, should be delayed until the patient/client’s immune system returns to normal; typically this takes 6 to 12 months post-transplantation.

Oral management implications

- Refer to Chemotherapy, Radiation Therapy, Bone Marrow Transplantation and Blood Stem Cell Transplantation, and Xerostomia Fact Sheets, as applicable.

1 “Burkitt lymphoma” (BL) is an aggressive B-lymphocyte type of NHL, which occurs most often in children and adolescents. The endemic form is most commonly seen in equatorial Africa.

2 particularly total body irradiation for bone marrow / stem cell transplantation purposes.
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Oral management implications (cont’d)

- Misdiagnosis of oral manifestations of lymphoma can lead to ineffective treatment with antibiotics and inappropriate supragingival scaling.

Oral manifestations

- Refer also to Chemotherapy, Radiation Therapy, Bone Marrow Transplantation and Blood Stem Cell Transplantation, and Xerostomia Fact Sheets for details regarding cancer treatment-related dry mouth, caries, mouth sores, gingival bleeding, dysgeusia (unpleasant taste), infections, periodontitis, and osteonecrosis.
- The manifestations of oral lymphoma are often difficult to diagnose, because their clinical features mimic other diseases such as periodontal disease, osteomyelitis, and other cancers.
- Uncommonly, a lymphoma may present as a primary lesion in the oral soft tissues or bone. More frequently, lymphomas involve either lymph nodes or aggregates of lymphoid tissue that are located in the digestive tract from the oral cavity to the anus. Intraorally, lymphoid tissue is located at the base of the tongue, soft palate, and pharynx (i.e., Waldeyer’s ring), with the tonsillar area being the most frequent location for lymphoma of the oral cavity.
- Non-Hodgkin lymphoma (NHL) has a relatively high occurrence (11% to 33%) in extranodal sites in the head and neck region, whereas Hodgkin lymphoma (HL) has a very low incidence in extranodal sites (1% to 4%). HL rarely involves the oral cavity.
- Intraoral lymphoma’s first signs may be infection in up to 50% of cases. Other oral manifestations are asymptomatic soft tissue swelling—with or without ulceration—that affects the tonsils, palate, buccal mucosa, gingiva, tongue, floor of mouth, salivary glands, and retromolar area. Other signs/symptoms are pain, edema, and tooth mobility resulting from alveolar bone loss.
- In NHL, lymphomas of the mouth typically present as red or purple masses in middle-aged and elderly patients/clients.
- Extraoral manifestations include facial asymmetry, as well as cervical, submandibular, and submental lymphadenopathy.
- Lip paresthesia and pathologic fractures are common indicators of jaw involvement.
- In Burkitt lymphoma (a form of NHL), the endemic form shows a predilection for jaw involvement, with characteristic rapidly expanding facial swelling.
- In nasofacial natural killer/T-cell lymphoma (a form of NHL), ulcerative destruction of the palate accompanies destruction of the nose and paranasal structures.
- Radiographically, lymphoma-related findings include radiolucencies with poorly demarcated margins, bone resorption, and tooth displacements.
- Overall, lymphomas tend to respond well to chemotherapy, and oral manifestations typically start regressing from the seventh day of treatment.
- Radiotherapy is sometimes used to treat gingival and other oral lesions. Such treatment can damage taste buds, cause trismus of the masticatory muscles, and stunt craniomandibular development.
- Burning mouth symptoms sometimes occur in patients/clients who have received treatment for their disease. This may be related to drug toxicity, xerostomia, candidiasis, or anemia.

Related signs and symptoms

- Lymphoma refers to a malignant tumour of the lymphoid organs and tissues (i.e., cancer of the lymphatic system, which involves production of malignant lymphocytes, a type of white blood cell).

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3 The normal lymphatic system plays a key role in mounting immune responses against disease and infections.
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Related signs and symptoms (cont’d)

- Lymphoma is the most common type of cancer in adolescents (15 to 19 years of age). Most lymphomas, however, occur in adults, with men being affected more than women.
- Abnormal, uncontrolled lymphocyte reproduction may form masses in the lymph nodes (hence lymphadenopathy), spleen, liver, and/or other parts of the body. A characteristic presentation is gradual enlargement of the involved lymph nodes.
- Hodgkin lymphoma (HL) occurs mainly in the lymph nodes (> 90%), whereas non-hodgkin lymphoma (NHL) occurs in extranodal sites about 40% of the time (particularly the gastrointestinal tract).
- While the cause of HL is unknown, Epstein Barr virus (EBV) is frequently present in malignant lymphocytes. Increased risk is associated with human immunodeficiency virus (HIV)-seropositive status, as well as the presence of the disease in first-degree relatives.
- Risk factors for NHL include genetic factors, oncogenic viruses (including EBV and retroviruses), radiation, certain herbicides, and some forms of chemotherapy. Persistent gastric inflammation secondary to Helicobacter pylori infection of the stomach may elevate risk of gastric lymphoma. Patients/clients with some autoimmune diseases (such as Sjögren’s syndrome and rheumatoid arthritis) or immunodeficiency states (including acquired immunodeficiency syndrome [AIDS]) are at increased risk for NHL, either from the disease itself and/or its treatment. AIDS-related lymphomas have a rapid progression, poor response to treatment, and overall bad prognosis.
- Diagnosis of lymphoma is established by nodal/tissue biopsy or bone marrow aspirate, with staging of the cancer requiring blood work (complete blood cell count, chemistry, etc.) and imaging (radiographs, CT scan, etc.).
- HL commonly presents as a painless mass or group of firm, nontender, enlarged lymph nodes, often affecting the nodes of the neck or mediastinum. Enlarged nodes in the groin or axilla are also common presentations, and palpation reveals a rubbery consistency. The spleen may also be enlarged. Other signs/symptoms include fever without obvious cause, persistent cough, weight loss, night sweats, and lack of energy. Pruritus and fatigue may precede the appearance of enlarging lymph nodes. Consumption of alcohol sometimes induces lymph node pain.
- In contrast to HL (which often presents with a single locus of tumour), NHL is usually multifocal when detected. NHL often presents with enlarged lymph nodes (particularly painless lymph node[s] swelling of longer than 2 weeks duration), persistent fever, and weight loss. Other signs/symptoms include malaise, sweating, tender lymphadenopathy, chest or abdominal pain, and, less commonly, extranodal tumours. Manifestations of gastrointestinal or abdominal involvement include constipation, decreased appetite, nausea, and vomiting. Skin lesions or pruritus may occur. Less commonly, NHL occurs in the brain, resulting in headaches and/or seizures.
- Due to compromise of the body’s immune system, patients/clients with lymphoma are prone to infections, including herpes zoster.
- Superior vena cava syndrome (SVCS) can occur when lymphoma (particularly NHL) occurs in the chest near the superior vena cava or surrounding lymph nodes.
- The main treatment options for Hodgkin lymphoma are chemotherapy (with or without subsequent stem cell transplant, radiation therapy to shrink masses of lymphoma cells), and immunotherapy. The treatment options for non-Hodgkin lymphoma are similar, but they also may include targeted drug therapy or, in rare cases, surgery to remove a mass.
- After successful treatment of the nodular sclerosis form of Hodgkin lymphoma (most common form), residual fibrotic scar tissue can persist.

4 Symptoms of SVCS may develop gradually or suddenly, depending on how quickly the superior vena cava is squeezed or blocked. Signs/symptoms include shortness of breath; difficulty breathing; swelling of face, neck, upper body, and arms; chest pain; difficulty swallowing; paralyzed vocal cord; and Horner’s syndrome (which is characterized by small pupil, drooping eyelid, and reduced sweating on one side of face).
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Related signs and symptoms (cont’d)

- Long-term complications of chemotherapy and radiation therapy used to treat patients/clients with lymphoma can occur in the heart (including myocarditis, arrhythmias, pericarditis, valvular heart disease, coronary heart disease, heart failure, and myocardial infarction); lungs (such cancer, as well as radiation pneumonitis in persons having received radiation to mediastinal lymph nodes); thyroid (cancer, hypothyroidism, and hyperthyroidism); breast (cancer; and gonads (infertility). Acute leukemia may also occur secondary to treatment of lymphoma.

References and sources of more detailed information

- College of Dental Hygienists of Ontario
  http://www.cdho.org/Advisories/CDHO_Advisory_Lymphoma.pdf
  https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4990057/
- Leukemia and Lymphoma Society of Canada
  http://www.llscanada.org/lymphoma?gclid=CNaU2t-StUCFU-2wAodDR4LEA
  http://www.llscanada.org/treatment/managing-side-effects/dental-issues
  http://www.llscanada.org/lymphoma/non-hodgkin-lymphoma?src1=27336&src2=20045#
- Leukemia and Lymphoma Society (USA)
- Lymphoma Association (UK)
- 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: August 17, 2017