

# LYME DISEASE

Date of Publication: Sept. 11, 2014

(also known as Lyme borreliosis; caused by the tick-borne spirochete bacterium *Borrelia burgdorferi*)

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

- **Is medical consult advised?** Yes. While a medical consult for oral health reasons is usually not required, a referral to a primary care provider (e.g., physician or nurse practitioner) or infectious diseases specialist is appropriate for definitive diagnosis (i.e., history/examination and laboratory blood test) and treatment (e.g., antibiotic) if there are signs/symptoms (e.g., erythema migrans rash) suggestive of undiagnosed and/or untreated Lyme disease. Prompt antibiotic treatment when early signs/symptoms are reported usually prevents progression to later stages of Lyme disease. Early tick removal (i.e., within 24-36 hours) usually prevents infection. As well, a medical consult for untreated [facial \(“Bell’s”\) palsy](#) is advisable to ensure appropriate management (e.g., oral steroids, lubricating eye-drops, etc.).

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

- **Is medical consult advised?**..... Yes; see above.
- **Is medical clearance required?** ..... No
- **Is antibiotic prophylaxis required?**..... No
- **Is postponing treatment advised?** ..... No, not typically, unless facial palsy significantly complicates procedures. (Most patients/clients with Bell’s palsy begin to get better within 2 weeks after the initial onset of symptoms, and most recover completely within 3 to 6 months.)

## Oral management implications

- **Mode of transmission** is tick-borne (and not person-to-person). Transmission by infected blacklegged ixodid ticks (*I. scapularis* [deer tick] and *I. pacificus*) does not usually occur until the tick has been attached for 24 hours or more. Ticks range in size from a poppy seed to a pea, and bites are usually painless. Bites affecting humans are most common during the spring and summer months when tick nymphs feed and when people engage in outdoor activities, including walking through forests and the overgrown spaces between the woods and open spaces. Pets can bring infected ticks into the home or yard.
- Persons should minimize exposure of skin to potentially tick-infested vegetation, use appropriate repellents, and conduct periodic “tick checks” if living in or visiting endemic areas.
- The major dental hygienist consideration in Lyme disease is the identification of unusual symptoms in the absence of a clear medical condition. Symptoms/signs such as fatigue, malaise, arthralgia, neuritis, or neuralgia (including facial palsy, or “Bell’s palsy”) may indicate the possibility of Lyme disease and the need for medical referral. Patients/clients reporting a tick bite should be encouraged to save the tick in a container following prompt removal, and bring it to their medical appointment to assist the physician with assessment of their illness.
- In patients/clients with Lyme-associated facial palsy, adaptations for impaired oral and facial musculature may be required in the context of dental hygiene care.

## Oral manifestations

- Cranial nerve palsy may occur in early disseminated disease. Bell’s palsy is a form of usually temporary facial neuropathy resulting from inflammation/damage to the seventh cranial nerve (i.e., facial nerve).
- Involvement of the parotid glands may manifest as acute parotitis.

# LYME DISEASE

(also known as Lyme borreliosis; caused by the tick-borne spirochete bacterium *Borrelia burgdorferi*)

## Related signs and symptoms

- Lyme disease has been reported in North America, Europe, and Asia. In Canada, Lyme disease is present or establishing in parts of southern and eastern Ontario; southern Quebec; southeastern and south-central Manitoba; southern British Columbia; southern New Brunswick; and parts of Nova Scotia. 315 new cases of Lyme disease were reported in Canada in 2012. (Note: Many tick bites encountered in Ontario are not blacklegged tick bites, and therefore do not pose a risk of Lyme disease.) In the USA, most cases have been reported in the New England and mid-Atlantic seaboard states, as well as the mid-western states of Wisconsin and Minnesota.
- Humans can contract Lyme disease without visiting an endemic area; it should not be excluded from consideration based on geographic location unless the location is sufficiently northern to preclude migratory birds from dropping ticks in the area. Expansion of the geographic range of the tick vector in Canada is leading to more endemic areas for Lyme disease.
- Lyme disease is a multisystemic inflammatory disease, and neurologic, articular, and cardiac manifestations may follow untreated early infection. While the *B. burgdorferi* bacterium does not make toxins or cause tissue damage directly, local inflammation results from host response mechanisms. Vasculitis is involved in some cases of peripheral neuropathy.
- Clinical manifestations are divided into three phases: early localized, early disseminated, and late disease.
- The classical **early localized** presentation of Lyme disease (3-30 days post-tick bite) is a characteristic macular, “bull’s eye” or “target” skin lesion (erythema migrans -- EM) that appears within a month after the tick bite in 50% to 80% of infected patients/clients. Only about 30% of patients/clients recall an associated tick bite. The erythema migrans rash commonly appears in or near the axilla, groin, or belt line, because ticks prefer warm, moist areas of the human body. Typically expanding and enlarging over several days from the site of the bite, the lesion is often warm to the touch but otherwise asymptomatic, although it may itch, burn, or hurt. Patients/clients may also have an acute viremia-like syndrome with fever, malaise, fatigue, nausea, myalgia, swollen lymph nodes, headache, and arthralgias.
- **Early disseminated** disease may occur within a few days to a few months after a tick bite. In the absence of treatment, about 8% of persons infected with Lyme disease develop some cardiac problems, including heart block (occasionally requiring a temporary pacemaker) and myopericarditis. Neurologic damage occurs in approximately 10% of untreated patients/clients, with primary manifestations including meningitis (manifesting as severe headaches and neck stiffness) and radiculoneuritis (manifesting as shooting/burning pains that radiate down a dermatomal distribution and that may interfere with sleep), in addition to cranial nerve palsy. EM lesions may occur on other areas of the body as the infection spreads from the site of the bite.
- In **late** disease (also known as Post-treatment Lyme disease syndrome – PTLDS), which may occur months to years after the infection (and in 10% to 20% of patients/clients despite receiving recommended early antibiotic treatment), musculoskeletal problems are the main manifestation. Intermittent, migratory episodes of polyarthritis occur in about 50% of patients/clients. Knee arthritis is particularly common, along with erosion of bone and cartilage. Chronic inflammatory joint disease may last for 5 to 8 years. Fibromyalgia is common. Late neurologic manifestations consist of peripheral neuropathy, encephalopathy, and neurocognitive dysfunction.
- Although very uncommon, fatalities from Lyme disease have been reported.
- Lyme disease acquired during pregnancy may lead to infection of the placenta and possible stillbirth.
- Currently there is no commercially available Lyme disease vaccine .

*cont'd on next page...*

## LYME DISEASE

(also known as Lyme borreliosis; caused by the tick-borne spirochete bacterium *Borrelia burgdorferi*)

### References and sources of more detailed information

- GM Heir and LA Fein. Lyme disease: considerations for dentistry. *J Orofac Pain* 1996; 10:1.  
[www.ncbi.nlm.nih.gov/pubmed/8995919](http://www.ncbi.nlm.nih.gov/pubmed/8995919)
- Public Health Agency of Canada [www.phac-aspc.gc.ca/id-mi/lyme-eng.php](http://www.phac-aspc.gc.ca/id-mi/lyme-eng.php)
- Ontario Ministry of Health and Long-Term Care <http://www.health.gov.on.ca/en/public/publications/disease/lyme.aspx>
- U.S. Centers for Disease Control and Prevention [www.cdc.gov/lyme](http://www.cdc.gov/lyme)
- National Institute of Neurological Disorders and Stroke [http://www.ninds.nih.gov/disorders/bells/detail\\_bells.htm](http://www.ninds.nih.gov/disorders/bells/detail_bells.htm)
- [www.uptodate.com/contents/lyme-disease-treatment-beyond-the-basics](http://www.uptodate.com/contents/lyme-disease-treatment-beyond-the-basics)
- D Heymann (ed.). *Control of Communicable Disease Manual* (18<sup>th</sup> edition). Baltimore: American Public Health Association; 2004.
- JW Little, DA Falace, CS Miller and NL Rhodus. *Dental Management of the Medically Compromised Patient* (8<sup>th</sup> edition). St. Louis: Elsevier; 2013.
- Anti-infective Review Panel. *Anti-infective Guidelines for Community-acquired Infections*. Toronto: MUMS Guideline Clearinghouse; 2013.
- ML Darby and MM Walsh. *Dental Hygiene – Theory and Practice* (3<sup>rd</sup> edition). St. Louis: Saunders Elsevier; 2010.

\* Includes oral hygiene instruction, fitting a mouth guard, taking an impression, etc.

\*\* Ontario Regulation 501/07 made under the *Dental Hygiene Act, 1991*. Invasive dental hygiene procedures are scaling teeth and root planing, including curetting surrounding tissue.

**Date:** August 26, 2014