

**IN THIS ISSUE:**

- **Lyme Disease**

**FROM**

David L. Mowat, MBChB MPH FRCPC  
Medical Officer of Health

- In 2008, 18 Peel residents contracted Lyme disease
- In 2009, 1 confirmed case has been reported in Peel

**Introduction**

Lyme disease is **reportable**; therefore, Peel Public Health staff investigate potential and confirmed cases among residents in Peel. To date, there has not been a confirmed human case that has acquired the disease locally despite the discovery and reporting of spirochete infected ticks in Mississauga and Brampton in 2000.<sup>1</sup>

**Etiology**

Lyme disease is a tick-borne spirochetal infection caused by *Borrelia burgdorferi*, which is transmitted by the bite of certain ticks of the genus *Ixodes*. The infection has been reported throughout the world with different ticks and bacteria predominating in different areas. Because the clinical manifestations vary by species, a careful travel history can assist in making the diagnosis.

In Ontario, the infection is spread by the blacklegged tick (*Ixodes scapularis*), a small tick about the size of a sesame seed. Blacklegged ticks are commonly found in areas along the north shores of Lake Erie, Lake Ontario, and the St. Lawrence River. Locations with established blacklegged tick populations infected with the Lyme disease agent include: Long Point Provincial Park, Turkey Point Provincial Park, Rondeau Provincial Park, Point Pelee National Park, Prince Edward Point National Wildlife Area, and in the St. Lawrence Islands National Park area. It is thought that climate change is contributing to increasing geographic distribution of *I. scapularis* in Canada.

**Clinical manifestations**

There are three stages of Lyme disease; early localized, early disseminated and late disease.

**Early localized disease**

- Characterized by a distinctive rash, *erythema migrans* (EM), at the site of the tick bite 3 to 30 days after the bite
- Rash occurs in up to 85% of patients and is frequently located around the knees, axilla and the groin
- Rash usually begins as a red macule or papule which expands over days or weeks
- If untreated it may grow to a large, erythematous lesion more than 20 cm in diameter *or* as a target lesion with variable degrees of central clearing.
- Associated symptoms: fever, malaise, headache, mild neck stiffness, myalgia, and arthralgia

**Early disseminated disease**

- Demonstrated by *multiple* EM occurring 3 to 5 weeks after an infective bite
- Lesions reflect spirochetemia with cutaneous dissemination
- Other common signs are palsies of the cranial nerves (especially cranial nerve VII), meningitis, and conjunctivitis
- Systemic symptoms such as arthralgia, myalgia, headache, and fatigue are common. Carditis occurs less frequently, and is usually characterized by arterioventricular block.

**Late disease**

- Characterized most commonly by recurrent arthritis that is usually pauciarticular and affects the large joints, particularly the knees
- CNS manifestations may also occur

### Diagnosis

The diagnosis of Lyme disease can be made clinically or in conjunction with laboratory tests. When the skin rash (EM) is typical and the patient has travelled to an area where blacklegged ticks are established, the diagnosis can be made on clinical and epidemiological grounds alone.

Blood tests to support a diagnosis of Lyme disease are performed at the Ontario Public Health Laboratory.

If patients find ticks on their body, they can submit the ticks to Peel Public Health. The ticks will be sent to the Central Public Health Laboratory for speciation. Blacklegged ticks are forwarded to the National Microbiology Laboratory for PCR testing for confirmation of *B. burgdorferi* infection.

### Treatment

For early localized Lyme disease, a 14 day course of antibiotics is effective in preventing progression. Treatment is accomplished with doxycycline or amoxicillin; cefuroxime can be used as an alternative. Note that cephalexin is ineffective.

Treatment of disseminated Lyme disease patients is best conducted by or in consultation with an infectious disease specialist.<sup>2</sup>

**Lyme disease is a reportable disease** in Ontario. Physicians should report Lyme disease cases directly to Peel Public Health at **905-799-7700**.

### References

1. Banerjee, S.N. *et al*, Presence of spirochete causing Lyme disease, *Borrelia burgdorferi*, in the blacklegged tick, *Ixodes scapularis*, in southern Ontario, *CMAJ*, 2000; 162(11): 1567-9  
<http://www.cmaj.ca/cgi/content/full/162/11/1567>
2. Odgen, N.H. *et al*, Lyme disease – A zoonotic disease of increasing importance to Canadians, *Canadian Family Physician*, Vol 54, October 2008:1381-1384  
<http://www.cfp.ca/cgi/reprint/54/10/1381>
3. Ontario Case definition:  
[http://www.health.gov.on.ca/english/providers/program/pubhealth/oph\\_standards/ophs/progstds/idprotocol/appendixb/lyme\\_disease\\_cd.pdf](http://www.health.gov.on.ca/english/providers/program/pubhealth/oph_standards/ophs/progstds/idprotocol/appendixb/lyme_disease_cd.pdf)

### Internet Resources and Links

1. MOHLTC (Ontario):  
<http://www.health.gov.on.ca/en/public/publications/disease/lyme.aspx>
2. Health Canada: [www.hc-sc.gc.ca](http://www.hc-sc.gc.ca)
3. Centers for Disease Control and Prevention (US): [www.cdc.gov/ncidod/dvbid/lyme](http://www.cdc.gov/ncidod/dvbid/lyme)
4. American Lyme Disease Foundation (US):  
[www.aldf.com](http://www.aldf.com)
5. American College of Physicians  
Online resources for Lyme disease (US):  
[www.acponline.org/lyme](http://www.acponline.org/lyme)