

Lyme disease in Canada?

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Lyme disease, or Lyme arthritis, an epidemic inflammatory disorder caused by the spirochete *Borrelia burgdorferi*,¹ was first recognized in 1975, in Lyme, Connecticut.² It is best identified clinically by an early skin lesion, erythema chronicum migrans (ECM).¹ Over the past 10 years major outbreaks of Lyme disease have occurred in the eastern, midwestern and western United States, and occasional cases have been reported from Australia and some western European countries.³⁻²³ The following reports describe two cases of Lyme disease that were recently diagnosed in Canada.

Case reports

Case 1

An 8-year-old boy presented in August 1983 with a skin lesion on the inner aspect of his thigh. The lesion had begun as an asymptomatic erythematous macule 1 week after his return from a vacation at Pigeon Lake, a wooded resort area approximately 80 km southwest of Edmonton. The child could not recall any precipitating event. Subsequently the lesion became a patch that expanded centrifugally.

Two weeks after the lesion's appearance the patch had grown to 5 × 6 cm. The outer edge was slightly raised and bright red, while the central area was flat and pale. The lesion was mildly pruritic. The patient was lethargic but otherwise well. Potassium hydroxide staining and fungal culture of a scraping yielded negative results. The lesion was identified as ECM, and the patient was treated with phenoxymethyl penicillin, 250 mg orally four times a day. Two weeks later the lesion had cleared. The boy did not experience any of the sequelae of Lyme disease.

Case 2

A 12-year-old girl presented to the same dermatologist during the summer of 1984. She had

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recently vacationed in a wooded area of Wisconsin, a known endemic focus for Lyme disease. However, the child did not recall being bitten by insects while there.

One week before presentation a skin lesion developed on her thigh. The lesion resembled the one seen in case 1; it was 5 × 5 cm and had an erythematous margin and a central clearing area. Except for some malaise the patient felt well. She was treated with phenoxymethyl penicillin, 300 mg orally four times a day. The lesion cleared within 2 weeks, and at follow-up, 6 months after treatment, she had experienced no further symptoms.

Discussion

Both of the patients presented with ECM, the early pathognomonic skin lesion of Lyme disease. The lesion usually begins as a well defined macule or papule, which expands centrifugally and leaves a zone of central pallor with a red border.²⁰ Although the lesion can be anywhere on the body the thighs, groin and axillae are particularly common sites.¹

Subsequent neurologic, cardiac and arthritic abnormalities have been widely reported.^{20,21} They tend to occur within weeks to months after the resolution of ECM but can be prevented if antibiotics are administered early in the disease.²¹

Ticks associated with ECM have invariably been from the Ixodidae (hard tick) superfamily.²³ Characteristically these parasites cause little discomfort to their human hosts: once attached they can go undetected for a long time. It is therefore not uncommon for patients, such as the two I have described, to be unaware of tick bites that may have preceded the development of Lyme disease. In

Table 1—Geographic distribution of ticks capable of transmitting Lyme disease

| Tick | Location |
|-----------------------------|---------------------------------------------------------------------|
| <i>Amblyomma americanum</i> | New Jersey, southern United States ¹⁰ |
| <i>Ixodes dammini</i> | Northeastern and midwestern United States, Ontario ^{7,19} |
| <i>I. pacificus</i> | West coast of United States, Utah, British Columbia ^{7,19} |
| <i>I. scapularis</i> | East coast and southeastern United States, Texas ⁷ |
| <i>I. ricinus</i> | Western Europe ⁹ |

one study, only 25% of patients recalled receiving a tick bite before the onset of Lyme disease.²⁰

The ticks thought to transmit Lyme disease are listed in Table I. Only *Ixodes dammini* and *I. pacificus* have been found in Canada,⁷ but neither inhabits the area of Alberta where my first patient contracted his disease. If ECM can only be transmitted by a tick bite, there must be a tick in northern Alberta that is capable of transmitting the disease. Although *I. sculptus* and *I. angustatus* are prevalent in this area, it remains to be established whether these ticks are in fact vectors of *B. burgdorferi*,¹ the spirochete that is thought to cause Lyme disease. By contrast, *I. dammini* is known to be endemic to the part of Wisconsin that my second patient visited.³

Although the first patient's presentation suggests a new geographic location for Lyme disease, northern Alberta, the diagnosis of Lyme disease in both patients emphasizes that physicians across the country should be aware of the manifestations and treatment of this disease.

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