

Case Study

A School-Age Child With Lyme Disease

Tess is an 8-year-old, 3rd-grade student who was escorted by her teacher to the school nurse. Tess tearfully complained that her right knee was “hurting a lot.” She had difficulty walking down the stairs to the lunchroom and could not join her schoolmates in schoolyard activities.

Assessment

Tess was limping when she entered the health office. The nurse observed she had a pained facial expression and appeared to have been crying. She was pale and looked tired. Tess said that her leg was aching on and off for a few days but now, “it felt worse.” She told the nurse that she wanted to be in school because she was worried about missing work but admitted that she did not really feel well. Tess had a fever of 100.2° F but other vital signs were normal. The nurse noted that she had marked swelling of her right knee, which was hot and tender to touch. Tess said that her mother knew that her leg had been hurting and added, “I told my mother that I had to come to school today.” From her log, the school nurse noted that Tess had been absent from school several days over the past 2 weeks. There had been a doctor’s note submitted after her second absence with a medical diagnosis of viral syndrome.

Nursing Diagnosis

Pain related to swollen knee was the initial nursing diagnosis.

Interventions

Because of the degree of pain, swelling, and difficulty ambulating, the nurse called Tess’s mother (Ms. L.) and requested that Tess be taken home. The school nurse was concerned about the etiology of the pain, the child’s apparent fatigue, the dark circles under her eyes, and safety because of her impaired walking. When Ms. L. arrived at school, the nurse asked about outdoor recreation activities that are normally routine for the family and the community setting in which they resided. The school nurse was aware of the increase in Lyme disease cases in the community this year. With a family history of recent weekend camping trips in an endemic area, she requested that Ms. L. return to the physician for an evaluation of Tess’s pain complaint and the cause of the swelling.

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Referral, Diagnosis, and Treatment

A subsequent medical assessment supported the diagnosis of Lyme disease. There had been no history of a rash characteristic of Lyme disease's onset. Because intermittent swollen joints are indicative of later stage disseminated Lyme disease, serologic testing was done, which supported the diagnosis. The enzyme-linked immunosorbent assay (ELISA) was positive. This was followed by the Western immunoblot (WB) test, which supported the positive ELISA findings (Sikand, Halsey, & Krause, 2001).

Ms. L. relayed the positive findings to the school nurse by phone. The physician treating Tess prescribed the antibiotic amoxicillin for 3–4 weeks (Klempner, Hu, & Evans, 2001). Ms. L. was reassured by the physician that Tess would be followed closely and that Lyme disease responded well to the prescribed therapy although Tess might have been undiagnosed for awhile (Abramowicz, 2000). Tess would rest at home for a few days and return to school when the fatigue and the intermittent joint pain and swelling in her knee subsided. During the conversation, Ms. L. asked the school nurse to tell her more about Lyme disease.

Health Promotion Education

The school nurse explained that Lyme disease, or Lyme Borreliosis, is a multisystem inflammatory disease caused by the helical-shaped bacterium, *Borrelia burgdorferi* (*B.burgdorferi*). In the community where they reside, these bacteria are transmitted by the bite of infected deer ticks (Steere, 2001). Ticks are blood suckers, parasites that sustain their life from other creatures. When an infected tick bites, the bacterium is transferred to the blood of the host. The disease often presents with a characteristic rash at the bite site that has been described as a more or less circular, painless, macular dermatitis that takes the form of a bull's-eye, called erythema migrans (EM). The EM lesion typically increases in circumference as it clears centrally (Goddard, 2001). Subsequently, three major systems may be involved: neurologic, musculoskeletal, and cardiac. However, the vague flu-like symptoms that Tess experienced previously, such as headache, myalgia, low-grade fever, and fatigue, are frequently reported (Wormeser, Nadelman, & Dattwyler, 2000).

The disease is not contagious, and therefore Lyme disease cannot be transmitted to other members of the family or students at school. Ms. L. needed to understand the precautions to be taken by all family members to prevent tick bites in the future. A subsequent tick bite can result in reinfection for Tess or a new infection in other family members. Even their

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