

# Lyme disease presenting as Tourette's syndrome

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Lyme borreliosis is often misdiagnosed, both in adults and children.<sup>1</sup> Central-nervous-system manifestations of Lyme disease include neurological and psychiatric symptoms.<sup>2</sup> Although abnormal movements have been observed in Lyme disease,<sup>3</sup> a Tourette's syndrome has not been reported.

A boy at the age of 4 years developed a simple motor tic (blinking) that resolved within a year without treatment. At the age of 9 years, he developed multiple orofacial tics including shaking of the head, and several weeks later a vocal tic occurred. The tics became exacerbated under stress, as typically seen in Tourette's syndrome. Social disabilities such as loss of impulse control, social withdrawal, and worsened performance at school followed. He came to hospital 11 months after onset of symptoms.

Serum IgM antibody titres against *Borrelia burgdorferi* measured by ELISA were not increased, although IgG antibody titres (ELISA) were increased at 58 U/mL (normal  $\leq$  10 U/mL) and 100 U/mL at another examination 2 weeks later. Immunofluorescence absorption test (IFT) was also increased (1:128 [normal:  $\leq$  1:16]). IgG immunoblot<sup>4</sup> was positive. All results indicated an infection with *B burgdorferi*. Examination of the cerebral spinal fluid showed a slight lymphocytic pleocytosis. (16 cells per  $\mu$ L), which suggested an inflammatory reaction. The CSF:serum igG ratio for IgG antibodies was 2.0, indicating intrathecal production of *B burgdorferi*-specific IgG antibodies, as occurs in neuroborreliosis.<sup>4</sup>

The boy was treated with intravenous ceftriaxone 2 g daily for 14 days. The tics improved after the sixth dose, and after the tenth dose the tics resolved completely. His social skills returned to normal. Follow-up examinations showed no recurrence of tics or other neurological or psychiatric disorder. Serum IgG antibody titres and IFT tests against *B burgdorferi* were 11 U/mL and 1:32 after 1 year.

Rapid efficacy of antibiotic treatment followed by a decrease in *Borrelia*-specific antibody titres suggests that the multiple motor and vocal tics were at least partially caused by the tertiary stage of borreliosis.<sup>5</sup> Persistence of the tics and increasing severity of the social disabilities over several months suggest that the first signs of a Tourette-like syndrome 11 months previously were an expression of an early Lyme infection. Infection with *B burgdorferi* should be considered in cases of Tourette's syndrome in endemic areas.

<sup>1</sup> Shapiro ED, Selzter EG. Lyme disease in children. *Semin Neurol* 1997; **17**: 39-44.

<sup>2</sup> Kaplan RF, Jones-Woodward L. Lyme encephalopathy: a neuropsychological perspective. *Semin Neurol* 1997; **17**: 31-37

<sup>3</sup> Fallon BA, Nields JA, Parsons B, Liebowitz MR, Klein DF. Psychiatric manifestations of Lyme Borreliosis. *J Clin Psychiatry* 1997; **54**: 263-68.

<sup>4</sup> Wilske B, Fingerle V, Herzer P, et al. Recombinant immunoblot in the serodiagnosis of Lyme Borreliosis. *Med Mikrobiol Immunol* 1993; **182**: 255-70.

<sup>5</sup> Pfister HW, Wilske B, Weber K. Lyme borreliosis: basic science and clinical aspects. *Lancet* 1994; **363**: 1013-16.

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Publication by courtesy of Prof. Dr. Norbert Müller, Munich, Germany

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