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Title: Bilateral diaphragmatic dysfunction due to borrelia burgdorferi

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Body: In this case report we describe a rare case of bilateral diaphragmatic dysfunction due to Lyme disease. A 62-years-old male presented to the hospital early October 2011 because of flu-like symptoms consisting of low-grade fever, arthralgia in the neck and shoulders and symptoms of nocturnal hypoventilation. These symptoms started months before the actual clinical presentation and led to deterioration in his general condition. During initial evaluation a bilateral diaphragmatic weakness with orthopnea and nocturnal hypoventilation was observed, without a known aetiology. Bilateral diaphragmatic paralysis was confirmed by fluoroscopy with a positive sniff test. This led to a referral to our centre for chronic non-invasive nocturnal ventilation (cNPPV). Subsequent investigations revealed evidence of anti-Borrelia seroactivity in EIA-IgG and IgG-blot, suggesting a recent infection with Lyme disease and resulted in a 4 week treatment with oral doxycycline 200 mg q.d. This is followed by a second short course of intravenous Ceftriaxon, which was later withdrawn due to allergic reaction. The symptoms of nocturnal hypoventilation were successfully improved with cNPPV, unfortunately diaphragmatic function is still impaired and our patient still fully dependent on the nocturnal ventilatory support. Conclusion: Lyme disease should be considered in the differential diagnosis of diaphragmatic dysfunction. A delay in recognizing the symptoms in time can negatively affect the success of treatment. Non-invasive mechanical ventilation (NIV) is considered a treatment option for patients with diaphragmatic paralysis.