Neuroborreliosis is a rare complication of Borrelia burgdorferi (Bb) infection, more commonly known as Lyme disease. Bb is a spirochete that is typically transmitted by the ixodes tick. Typical manifestations include erythema chronicum migrans, radiculopathy, arthritis and cranial neuropathies. Encephalomyelitis is rare. A travel history to an endemic area and history of tick bite is key to the diagnosis.

We describe the case of a 68-yrs man who came to our attention for progressive loss of strength to the limbs from about two weeks associated with headache and diffuse joint pain. Neurological examination showed a severe peripheral paresis, prevalent in the upper limbs (MRC 3) and in the axial muscles. A restrictive ventilatory syndrome was also observed.

The electromyography showed absence of the soleus H-reflex and F wave and the impairment of the conduction velocities of the posterior tibial nerve.

The cerebrospinal fluid (CSF) appeared opalescent and showed high increased of protein levels and of mononuclear cells too and absence of oligoclonal bands. Cytological analysis was negative for malignant cells. CSF gram stain and bacterial cultures were all negative.

He became confused and rapidly he presented an acute confusional state

He performed brain and cervical/dorsal spine MRI that resulted normal

The patient was treated with ceftriaxone and plasmapheresis... but the neurological conditions remained unchanged... on the fourth day of treatment, he developed swelling and pain in the left knee... and ECG revealed an AV block (previous not reported)

Up to 50% of cases no EM is observed in the early stage of Lyme borreliosis, in the absence of EM, the diagnosis is based on the following criteria:

• circumstances of the illness: time spent in one's own garden and in the countryside, tick bite.
• thorough physical examination with inspection of the skin in the search for EM, including those possibly with diameters less than 5 cm and lymphocytomas.

First manifestations of Lyme borreliosis (Steere AC, 1989):

- transient migratory arthritis, arthralgia and myalgia; bursitis and enthesitis;
- headaches; radicular pain syndromes (known as Bannwarth’s syndrome); cranial nerve symptoms (especially facial nerve paresis); sensitivity disturbance; cardiac dysrhythmias, stimulus formation and stimulus conduction disorders; ocular symptoms (e. g. double vision).

The diagnosis of neuro-Borreliosis with involvement of central and peripheral nervous system was performed. Treatment with ceftriaxone was prolonged and a progressive clinical improvement was observed. At one month follow-up the patient showed a full recovery of the strength to the limbs and both the electromyography examination and the respiratory function tests became normal.

Reccomendations

Adult patients with definite or possible NB with peripheral neuropathy should be treated with oral doxycycline (200 mg daily) or IV ceftriaxone (2 g daily) for 3 weeks.

Adult patients with definite or possible NB with CNS manifestations (myelitis, encephalitis, vasculitis) should be treated with IV ceftriaxone (2 g daily) for 3 weeks.

Suggested case definitions for Lyme neuroborreliosis (NB)

Definite neuroborreliosis: all three criteria fulfilled
- Possible neuroborreliosis: two criteria fulfilled
1. Neurological symptoms suggestive of NB without other obvious reasons
2. Cerebrospinal fluid pleocytosis
3. Intrathecal Bb antibody production

EPNS guidelines on the diagnosis and management of European Lyme neuroborreliosis