

A CASE OF NEUROBORRELIOSIS IN PORTUGAL: THE IMPORTANCE OF LABORATORY TESTS IN THE DIAGNOSIS

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BACKGROUND:

Lyme *borreliosis* (LB) is a common tick borne infection in Europe, produced by spirochetes of *Borrelia burgdorferi sensu lato complex*. It is a multi-systemic disease, presenting several manifestations; endemic to regions of North America and North of Europe. In Portugal is considered as a notifiable disease, but only few cases are reported each year (incidence rate is 0.04 per 100 000 inhabitants).

The appearance of *Neuroborreliosis* outlined in Europe is approximately 15% of patients suffering from LB.

The diagnosis is essentially clinical, confirmed by laboratory serology, relied on detection of serum anti-*Borrelia burgdorferi* antibodies (Anti- Bb) and the intrathecal IgG antibody production measured by the index - IAP.

In this context, the authors present a female patient, 27 years, native of Bangladesh, emigrant in Norway for 5 years, resident in Portugal, hospitalized due to right eye pain, double vision and pulsatile headache without relief periods for four weeks. Physical examination and blood tests were normal. Cerebral MRI revealed focal stenosis of the right lateral sinus. Laboratory investigation followed a strict protocol.

METHODS:

Laboratorial investigation of the CSF showed lymphocytosis with spinal leucocyte count on 170cells/ mm³, 100% mononuclear.

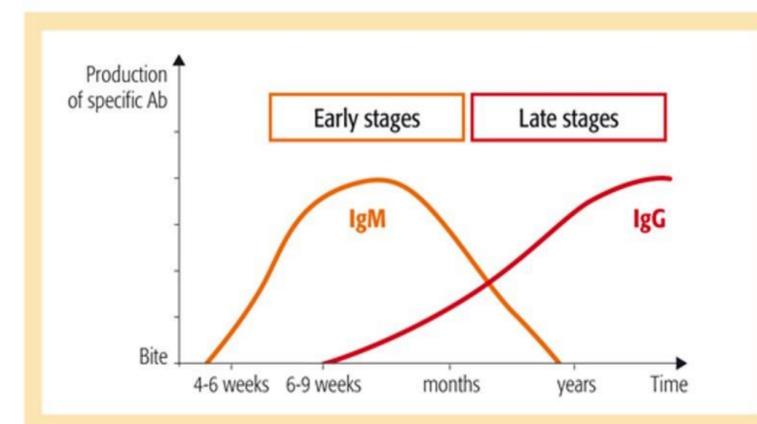
We measured the serum Anti- Bb by Indirect ELISA immuno- enzymatic (*BIORAD*®) IgG index (5,12) and IgM index (3,51), both reactive. Serum assays were confirmed by Enzyme Linked Fluorescent Assay (*ELFA-Vidas BioMerieux*®) IgG index (4,69) reactive, but did not confirmed IgM index (0,12, negative). We used Western Blot (*Anti-Borrelia EUROLINE-WB*®) that showed non-reactivity of IgM.

Anti-Bb IgG in CSF sample was assayed by *ELFA-Vidas*, and resulted in an index IgG (16,73).

RESULTS:

The detection of IgG Anti- Bb in CSF (by *ELFA*) complemented by the specific serum Anti- Bb IgG, and the determination of respective albumin concentration allows us to perform the IAP index calculation. With this index it is possible to reveal the specific Anti-Bb IgG in the CSF - the in situ intrathecal antibody synthesis. For that, we used the Tibbling approach to calculate the IAP which resulted in an IAP of 18,5 (Positive >2), in favor of Anti-Bb IgG intrathecal production, related with a central nervous system contact with LB.

IAP index= $\frac{\text{index VIDAS IgG CSF} / \text{index VIDAS IgG serum} / 9}{\text{albumina concentration in CSF} / \text{albumina concentration in serum}}$



<http://www.biomerieux-diagnostics.com/vidasr-lyme-panel>

CONCLUSIONS:

Portugal is not an endemic country for LB, this patient must had caught it in Norway. Nevertheless, because of multi-systemic presentation of LB, in our Hospital, Lyme serology is almost a routinely demand in serologic infection diagnostic including in CSF. We intend to value the importance of using a complete serologic laboratory protocol that permits establishing *Neuroborreliosis* diagnosis in patients with specific or nonspecific symptoms of LB, even in a non-endemic country.