# A Case of Acute Febrile Illness accompanied by 7th and 12th Cranial Nerve Palsy due to Lyme **Disease following Travel to Rural Ecuador**

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### INTRODUCTION **CASE TIMELINE**

Lyme disease is caused by the bacteria, Borrelia burgdorferi



The vector (*Ixodes* tick) is mostly found in Canada, northern USA, & temperate Europe

Due to distribution of *Ixodes* tick, Lyme disease is rarely travel-related

#### Persistent fatigue, malaise, attributed to altitude Prescribed doxycycline x 14d **Day 1:** Day 12: Day 18: Arrival in Presents to hospital Return to Ecuador Canada with persistent **Day 7:** myalgias, fever, & Three isolated, erythema migrans rash erythematous lesions on chin, back, and buttock following local "bites". **Infectious workup:**

Blood cultures, Malaria screen, Rickettsia serology  $\rightarrow$  Negative Lyme serology -

# Day 28: Presents to clinic nerve palsy

Day 25:

Develops

new facial

#### out stroke

## **Infectious work up:**

Urgent CT head to rule

- Serologies for Arbovirus, Bartonella, Leptospira, Rickettsia, Borrelia & Trypanosoma
- Babesia detection
- Malaria films

**Notable findings:** Right-sided CNVII palsy & mild CNXII palsy with leftward tongue deviation

Reported POSITIVE on day of clinic appointment

# **CLINICAL OUTCOME**

# **LEARNING POINTS**

Herein, we describe a case of a 65-year-old Canadian man who was referred to our clinic for evaluation of rash, fever, & unilateral facial palsy following a 12-day trip to Ecuador including the Galapagos islands four weeks prior to clinic visit.

## Investigations

Remaining infectious work up negative. No evidence of stroke or intracranial process on CT head.

## Management

Patient prescribed an additional 2-weeks of doxycycline due to involvement of multiple cranial nerves.

## Investigations

Improved CN VII palsy & resolved CN XII palsy at 2-week follow-up. Complete symptom resolution at 6-week follow-up.

Lower cranial nerve deficits are rare, but reported, in cases of neuroborreliosis<sup>1-3</sup>.



Symptoms that are atypical for a proposed infectious process should prompt investigation of non-infectious etiologies.

Consider peri-travel activities & expanding vector ranges when evaluating febrile travelers<sup>2</sup>.



1. Velázquez JM, Montero RG, Garrido JA, Tejerina AA. [Lower cranial nerve involvement as the initial manifestation of Lyme borreliosis]. Neurol (Barc, Spain). 1999;14(1):36–7. 2. Sangrador CO, Curto PG, Delgado AFB, González NH. Probable neuroborreliosis con parálisis de los nervios hipogloso y vago. An Pediatría. 2014;81(4):267–9. 3. Gustaw K, Mirecka U. Dysarthria as the isolated clinical symptom of borreliosis--a case report. Ann Agric Environ Med : AAEM. 2001;8(1):95–7. 4. Crandall KE, Millien V, Kerr JT. Historical associations and spatiotemporal changes of pathogen presence in ticks in Canada: A systematic review. Zoonoses Public Heal. 2024;71(1):18–33. Images used in "Introduction" and "Learning Points" were generated using Servier Medical Art, licensed under a Creative Commons Attribution 4.0 unported license. https://smart.servier.com