

# A Case of International Meningitis?

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**Objective:** In the following clinical case we focused on the differential diagnosis in case of fever and neurological symptoms after a trip to the tropics. **Methods:** The diagnosis was made through clinical and laboratory tests. **Results:** A healthy 25-year-old woman comes to her family doctor with a fever that appeared 3 days after returning from a trip to Brazil that sends her to hospital for suspected meningitis. Serologies reveal a positivity for Dengue (Dengue IgG rapid test negativ, Dengue IgM rapid test positiv, Dengue rapid test NS1 Antigen positiv). **Conclusion:** Treatment of Dengue is in most cases symptomatic. Cases of severe dengue are rare. The vaccine is recommended for people aged 9 to 45 who have already been infected with dengue in the past and who live in areas where Dengue is endemic.

**Keywords:** Fever, Neurological Symptoms, Dengue

## Introduction

Before the current pandemic, the number of annual international travelers was estimated at around 900 million [1]. Fever accompanied by neurological symptoms in returning travelers deserves careful and timely medical evaluation to avoid complications and death [2]. Dengue is an arbovirus that belongs to the Flaviviridae family and to the Flavivirus genus. There are 4 serotypes: DEN-1, DEN-2, DEN-3, DEN-4. The areas of the world particularly affected by frequent and continuous outbreaks are central-eastern Africa (Sudan, Kenya, Tanzania), Yemen, India and Southeast Asia and Latin America. The vectors

of this virus are two insects: *Aedes aegypti* and *Aedes albopictus*. Classic Dengue occurs from 2 to 7 days of incubation with fever, headaches, nausea, vomiting, arthralgia and myalgia as well as a rash that resembles that of measles. Furthermore, symptoms can intensify with conjunctival hemorrhages, bruising and epistaxis. Remission begins after 3 - 4 days. Hemorrhagic Dengue affects 1 % of cases and is extremely severe. In fact, it presents with gastrointestinal, cutaneous and cerebral hemorrhages. In children it can result in hypovolemic shock. The second infection is a risk factor for severe dengue. Although dengue is a disease of other latitudes, it is part of the differential diagnosis in the case of fever and neurological symptoms if the history speaks of

a stay in endemic areas. This case is an example of how an initial suspicion of meningitis turns out to be a disease from distant countries.

## Case Report

A healthy 25-year-old woman of Iranian origin comes to her family doctor with a fever that appeared 3 days after returning from a trip to Brazil that sends her to hospital for suspected meningitis. She has a fever of 38.8 °C accompanied by occipital headaches, myalgia and arthralgia (Table 1).

**Table 1.** Dengue classical clinical and laboratory findings in our patient.

Classical findings	Our patient
<b>Clinical</b>	
- Fever	✓
- Headache	✓
- Rigors	✓
- Eye pain	✓
- Generalized weakness	✓
- Muscle and bone pain	✓
- Nausea/vomiting	✓
- Joint pain	✓
- Rash	✓
- Lymphadenopathy, splenomegaly	✓
<b>Laboratory</b>	
- Leukopenia	✓
- Thrombocytopenia	✓

She tells her anamnesis that she was in Brazil for 2 months (Bahia, Brasilia, Rio, San Paolo). She has stayed on a farm and bathed in several lakes, and she has also been bitten several times by insects. She did not have unsafe sexual intercourse. On physical examination, she appears sleepy with slight neck rigidity without focal neurologic deficits. There are no heart murmurs or pathological lung sounds. Palpation of the abdomen reveals painful hepatosplenomegaly.

**Table 2.** Treatment in mild Dengue.

Treatment	Our treatment
Rest/no sport	✓
Acetaminophen (avoid aspirin and ibuprofen)	✓
Hydration	✓

The examination of the skin is without particularity. ECG shows a sinus rhythm without atrioventricular or bundle branch blocks. Chest x-ray reveals no foci. Ultrasound of the abdomen shows hepatosplenomegaly. Laboratory tests reveal thrombocytopenia (Platelets  $108 \times 10^9 / L$ ), leukopenia ( $2.5 \times 10^9 / L$ , Neutrophils  $1.31 \times 10^9 / L$ , Eosinophils  $0.04 \times 10^9 / L$ , Basophils  $0.01 \times 10^9 / L$ , Monocytes  $0.25 \times 10^9 / L$ , Lymphocytes  $0.85 \times 10^9 / L$ ). Liver tests show normal transaminases, bilirubin, alkaline phosphatase and LDH. Blood cultures, urinary stix and lumbar puncture are negative. Serologies reveal a positivity for Dengue (Dengue IgG rapid test negative, Dengue IgM rapid test positive, Dengue rapid test NS1 Antigen positive). The patient was treated with rest, hydration and was discharged after diagnosis (Tables 2, 3).

**Table 3.** Outcome of our treatment.

Treatment	Improvement
Rest/no sport	Resolution of splenomegaly with no spleen rupture.
Acetaminophen (avoid aspirin and ibuprofen)	Lowering of fever/no hemorrhagic complications.
Hydration	Prevent dehydration following reduced water intake due to nausea.

## Discussion

The main means of combating Dengue are vector control (Aedes) and individual protection against stings. Aspirin and Ibuprofen should be avoided because of hemorrhagic risk can increase. A single (live attenuated) vaccine was developed by Sanofi Pasteur and approved in more than 20 countries [3]. Dengvaxia protects against the four serotypes 1, 2, 3 and 4. This vaccine is recommended for people aged 9 to 45 who have already been infected with dengue in the past and who live in areas where Dengue is endemic [4]. However, this vaccine has led to controversy following the massive vaccination campaign carried out in the Philippines, which attributed at least 622 deaths to the vaccine in 2019 [5].

The risk of hospitalization and severe dengue was increased especially in the youngest vaccine recipients between 2 and 5 years. Other vaccines are being tested as well as the search for the profile of ideal candidates for these vaccines [6].

## Conflict of Interest

The authors state no conflict of interest.

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