

A case of concurrent dengue and *Plasmodium vivax* malaria in a returned traveler to India

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INTRODUCTION

Dengue and malaria are common vector-borne tropical diseases



They are associated with high morbidity and mortality

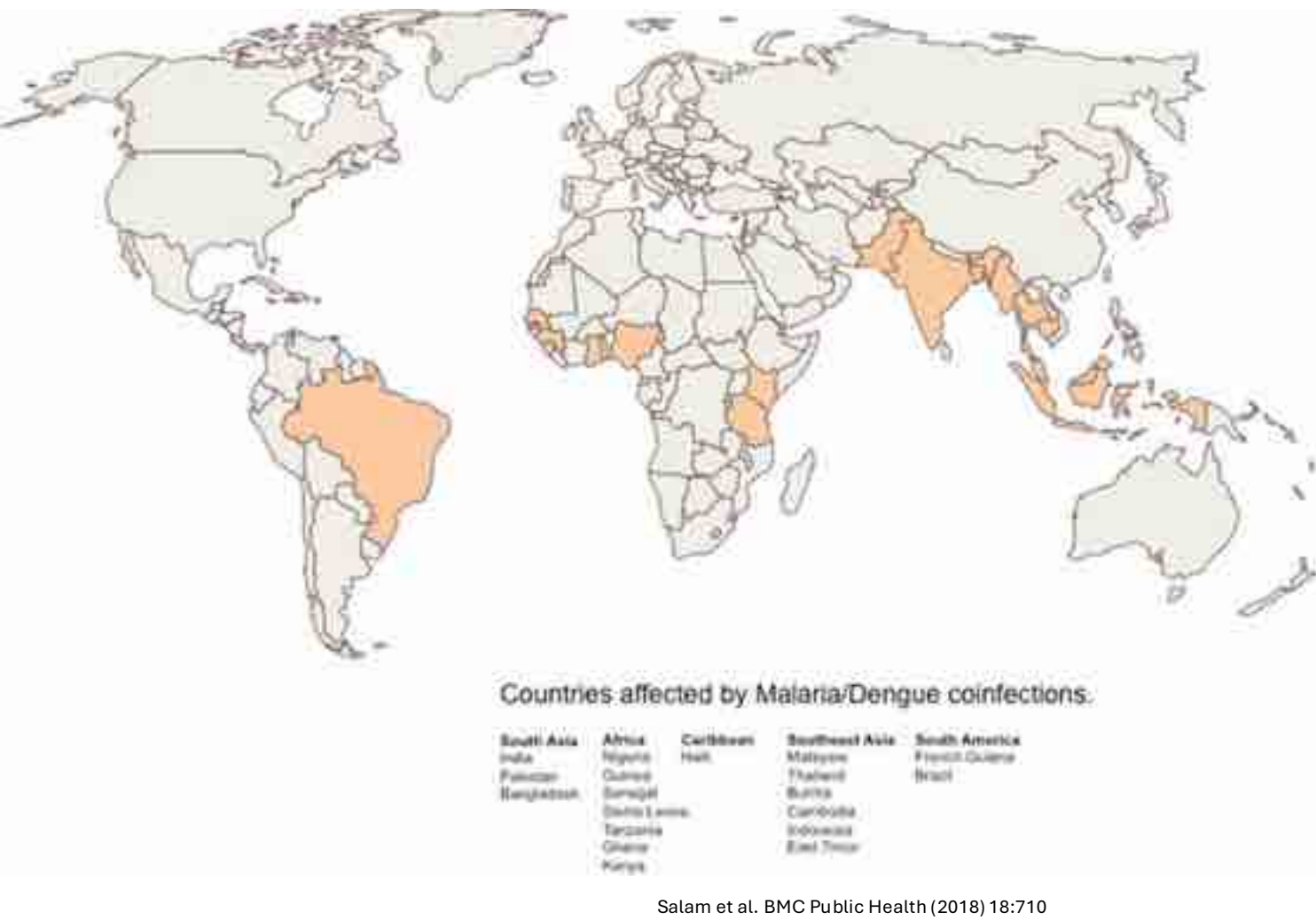


Co-infection of malaria and dengue is underestimated due to parsimonious approach once the diagnosis of either is made



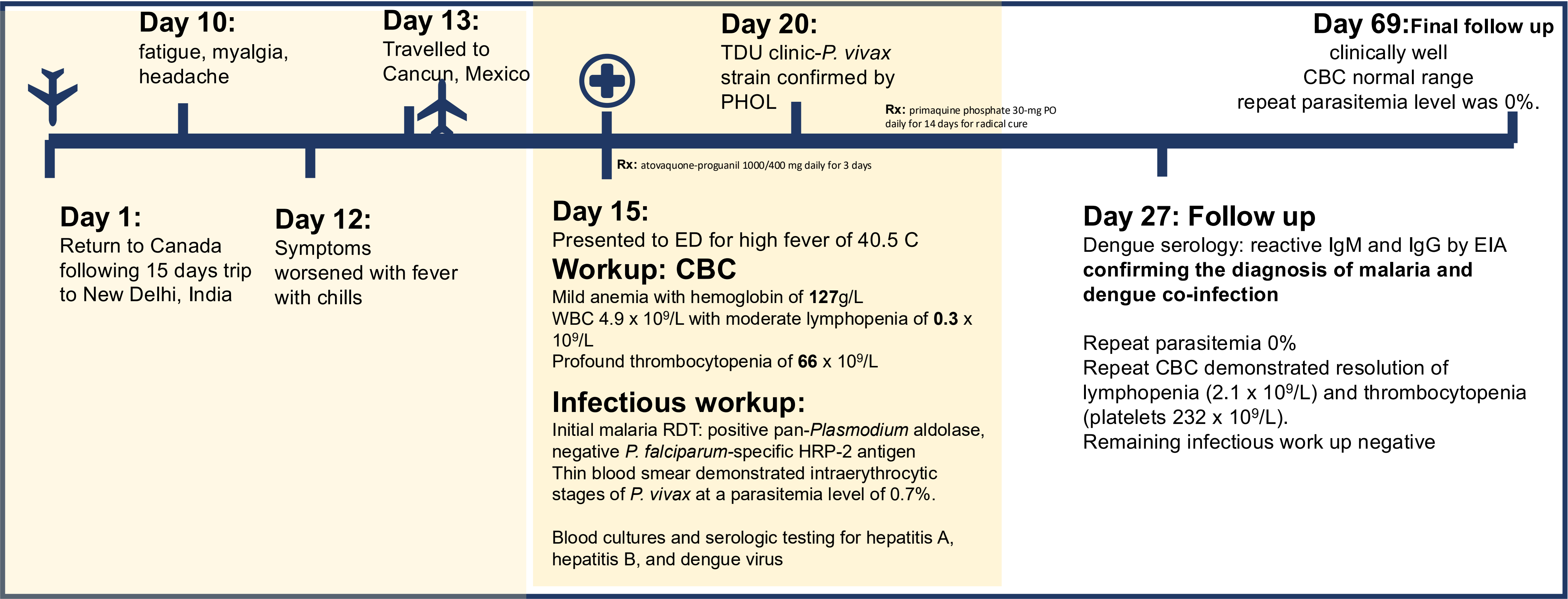
Herein, we describe a case of a 27-year-old man of Indian origin residing in Canada who took a 15-day trip to India to visit friends and relatives (VFR), and thereafter presented to hospital for evaluation of high fever, fatigue, myalgia, headache and generalized weakness.

Global distribution of Dengue and Malaria co-infection



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CASE TIMELINE



CLINICAL OUTCOME

Investigations

Initial work up for malaria while present in the ED by rapid diagnostic test (RDT) demonstrated positive pan-*Plasmodium* aldolase and negative *P. falciparum*-specific histidine rich protein-2 (HRP-2) antigen, most suggestive of a non-falciparum malaria. However, the few cases of HRP-2 mutant strains of *P. falciparum* reported from the Indian sub-continent necessitate interpreting a negative HRP-2 band cautiously. Thin blood smear demonstrated intraerythrocytic stages of *P. vivax* at a parasitemia level of 0.7%.

Dengue serologic testing performed during his first visit to the ED (drawn on day 8 of fever) was reported as **reactive** IgM and IgG by enzyme immunoassay (EIA), confirming the diagnosis of malaria and dengue co-infection.

Management

The patient was started on atovaquone-proguanil 1000/400 mg daily for 3 days with fatty meals

Once the reference laboratory confirmed that his malaria was caused by *P. vivax* strain, he was additionally started on primaquine phosphate 30-mg PO daily for 14 days for radical cure, after confirming a normal G6PD level of 8.3 U/g Hb.

Symptomatic management for dengue ensued

Outcome

The patient improved clinically rapidly and during the follow up at our clinic 6 weeks from symptom onset he continued to remain clinically well.

His CBC at the time of 6-week follow-up was within normal range

Routine repeat day 28 parasitemia level was 0%.

LEARNING POINTS

This case highlights that dengue and malaria intercurrent infection might be more common than previously estimated, particularly as vector ranges expand with global warming and climatologic events permissive to mosquito generation.¹



The severity of the intercurrent infection can be mitigated by early diagnosis and treatment of the malaria component while supportive measures are instituted for dengue.^{2,3}

This case underscores the importance of patients presenting with either infection acquired from areas endemic for both coupled with the trifecta of low parasitemia level, moderate to severe thrombocytopenia and leukopenia, support the diagnosis of intercurrent infection.⁴



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