

Case Report**Delayed diagnosis of *Plasmodium vivax* malaria in an elderly Sri Lankan returned from a pilgrimage to India**ABNN Premarathna<sup>1</sup>, SAM Kularatne<sup>1</sup>*Sri Lankan Journal of Infectious Diseases* 2020 Vol.10 (1):80-84DOI: <http://dx.doi.org/10.4038/sljid.v10i1.8267>**Abstract**

Malaria was rampant in Sri Lanka two decades ago but we have since been declared free of malaria transmission by the WHO in 2016. However, neighboring India still has a high incidence of malaria, and visitors to India carry a high risk of contracting this disease. Despite the elimination of indigenous cases of malaria in Sri Lanka, a fair number of cases are detected from travelers coming from endemic regions of the globe. Delay in diagnosis occurs due to a lack of awareness among the medical community and a missed travel history as observed in this case scenario.

We report a 71-year-old previously healthy Sri Lankan male who developed a febrile illness after sixteen days of traveling in India on pilgrimage. He presented with a six day history of illness and it took a further seven days to consider malaria as a possible diagnosis. Malaria antigen was positive on day thirteen of the illness with *Plasmodium vivax* trophozoites and gametocytes seen on the thick and thin films. He was treated with chloroquine and recovered slowly with clearing of parasitaemia. A correct diagnosis and close liaison with the anti-malaria campaign helped in the successful management of our patient.

This report is an eye opener to consider malaria as a diagnostic possibility and a clinical dilemma and to take a detailed travel history in patients presenting fever. Raising awareness of travelers about prevention against malaria and the need for malaria prophylaxis is also necessary.

*Keywords: Malaria, Plasmodium vivax, Travel*

**Background**

Malaria is considered the most infectious parasitic disease in humans. Sri Lanka, an island to the southeast of India in the Indian Ocean has an interesting history with regard to the battle against malaria. For centuries, devastating epidemics of malaria occurred in Sri Lanka. However, from 1999, a gradual reduction of malaria took place on the island and indigenous cases have been almost eliminated since 2012.<sup>1</sup> Before elimination, *Plasmodium vivax* and *P. falciparum* accounted

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for the indigenous cases of malaria. The principal vector for malaria is *Anopheles culicifacies* mosquito which is found in the tropical climate with little seasonal variation which is very conducive to vector breeding.<sup>2,3</sup>

Sri Lanka has been constantly threatened by the reintroduction of cases, especially due to the travel of people from countries where malaria is endemic. Most often, reintroduced occurs through Sri Lankans who travel to endemic areas, commonly India, and then return to Sri Lanka.<sup>1,2</sup> In addition, proximity to endemic countries including India, with similar geographic and climatic conditions, and with cultural, religious, political, educational, and commercial interrelationships, the risk of re-emergence of malaria within Sri Lanka is a constant threat. The reemergence of malaria by imported cases from similar locales is, therefore, a definite challenge.

India, a close neighbor of Sri Lanka, has never been successful in malaria elimination and reports about 380,000 cases of *P. vivax* annually.<sup>4,5</sup> There is failure of malaria prevention programs for travelers to India. At the same time, due to elimination of malaria in Sri Lanka, there is a lack of awareness among health workers which results in delays in recognition and diagnosis. We describe a Sri Lankan adult male who contracted *P. vivax* malaria while in India and recovered from it after a considerable delay.

### **Case Presentation**

A 71-year-old previously healthy male, a retired government officer residing in Peradeniya in the Central Province of Sri Lanka was admitted to Teaching Hospital Peradeniya (THP) on September 1<sup>st</sup>, 2018 with a history of fever of 6 days.

This patient has been on a pilgrimage to India with a team of thirty-six members on 8<sup>th</sup> August 2018. They flew from Katunayake to Chennai and then traveled by train to Bodhgaya after a one day stay in Chennai. From Bodhgaya, the team traveled to many places, including Isipathana, Kapilawasthu, Kusinara, Agra, and Lumbini in Nepal by bus. They did not stay in Nepal. Throughout their journey, they rested in Buddhist centers where there were purpose-built separate rooms though these had no mosquito nets or repellents. The trains they traveled in were open and the buses were air-conditioned. They had not used any mosquito repellents or nets during their journey and chemoprophylaxis against malaria was not taken.

On August 24<sup>th</sup>, after sixteen days in India, the patient began to feel unwell with malaise, headache, and poor appetite and felt that something was wrong with him. On the same evening, he developed fever with chills which lasted only fifteen minutes. Despite ill health, his excitement and enthusiasm made him able to take part in the journey as usual. He took paracetamol for fever on the second day. As fever persisted, he took medicine from a general practitioner on the third day of illness. According to him, he continued to have bouts of fever daily with irregular timing. His symptoms continued until he, with the team left for Sri Lanka from Delhi on the 29<sup>th</sup> of August 2018.

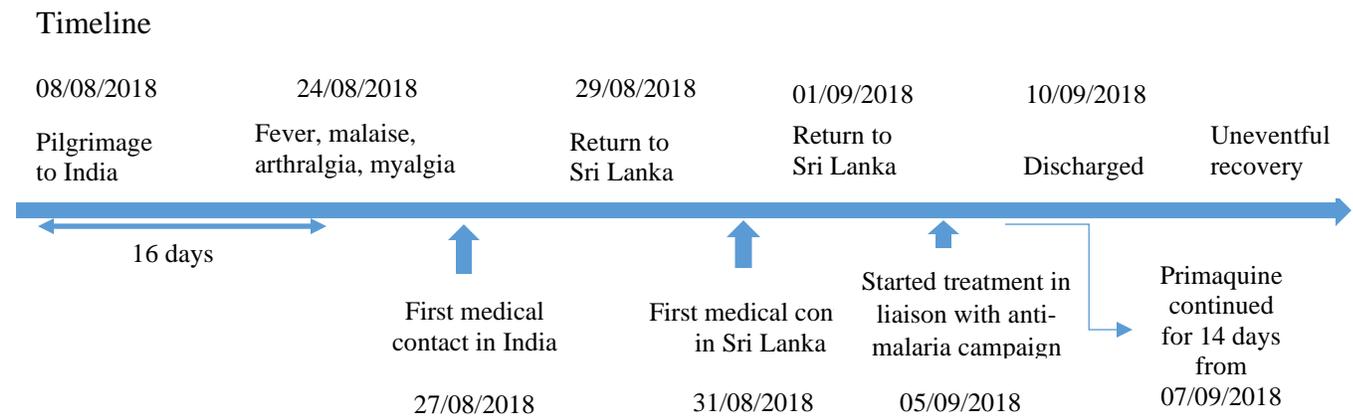
After arrival, the patient was at home for two more days. He was exhausted and running a fever. There was accompanying arthralgia and myalgia with some shortness of breath with an occasional nonproductive cough. The patient also developed a scanty amount of watery diarrhea without

much abdominal pain about three times a day along with the fever. On August 31<sup>st</sup> he took medicine from a general practitioner in Sri Lanka. On the 1<sup>st</sup> of September, as he was not well, he was admitted to Teaching Hospital Peradeniya.

On admission, he was ill and mildly dehydrated. He was not pale or icteric and there were no palpable lymph nodes or skin rashes. He was hemodynamically stable with normal cardiovascular and respiratory system examination. The abdomen was soft and there was splenic dullness. He was conscious and rational and neurological examination was normal

He was initially managed as a viral infection with a secondary bacterial chest infection with broad-spectrum antibiotics for 4 days. As fever continued with high spikes, and on obtaining the history of travel to India, a blood sample was checked for the malaria antigen on 5<sup>th</sup> September which was positive. Subsequently, thick and thin blood smears showed the trophozoites and gametocytes of *P. vivax* with a parasite density of 3479/ml. On the same day, the “anti-malaria campaign” was contacted and the Regional Malaria Office issued treatment for *P. vivax* malaria.

The patient was started on chloroquine according to 4-4-2 regime.<sup>6</sup>His Glucose-6-Phosphotase Dehydrogenase assay was normal and he was started on primaquine 0.25mg/kg on the third day from the start of chloroquine. He was fever free on the third day of starting chloroquine with gradual clinical improvement. Primaquine was continued for a total of fourteen days. Meanwhile the patient was given adequate supportive care including hydration and offered antibiotic cover with oral levofloxacin for a total of five days for the cough. He was discharged on September 10<sup>th</sup> when parasitemia was not detectable with follow up care arranged in liaison with the anti-malaria campaign. The regional malaria officer followed the patient up till he finished the fourteen-day course of primaquine. The patient had an uneventful recovery.



## Discussion

An estimated 216 million cases of malaria were reported worldwide in 2016. Most malaria cases occurred in the African region (90%), followed by Southeast Asia (7%) and the Eastern Mediterranean region (2%). Falciparum malaria is more prevalent in sub-Saharan Africa (99%) whereas *P. vivax* is found in America (64%), Southeast Asia (30%), and the Eastern Mediterranean

region (40%). In 2016, the estimated number of malaria deaths worldwide were 445,000. Sri Lanka was declared malaria-free in 2015.<sup>7,8</sup>

The last century saw devastating epidemics of malaria in Sri Lanka with high morbidity and mortality despite continuous control activities of the anti-malaria campaign. However, elimination of malaria has become a reality with the dawn of the new millennium.<sup>9</sup> However, it is said that Sri Lanka still has both “receptivity” and “vulnerability” for malaria. Since the ecosystem of the country fosters a high prevalence of malaria vectors, it becomes receptive<sup>10,11</sup> and it is vulnerable because of the high propensity to transmit malaria from other countries that are endemic as described here.<sup>12,13</sup> It is estimated that the highest number of *P. vivax* cases worldwide is reported from India, although the majority of the falciparum malaria cases are reported from the other territories mentioned above. There were 2.14 million confirmed cases of malaria caused by *P. vivax* reported in the world in 2014 and 18% of these cases were reported from India. Among the diagnosed cases of malaria in India, 1/3 to 1/2 cases are caused by *P. vivax*. The prevalence of malaria is highest in both rainy and post rainy seasons similar to the cases of caused by *P. falciparum*. Urban malaria has become a diagnostic challenge for malaria control in India.<sup>14,15</sup>

The case of vivax malaria described in this case report was imported from India during a pilgrimage. It was a diagnostic challenge because the patient presented with predominant respiratory signs with a considerable delay in the diagnosis. The delay in diagnosis invariably adds to the risk of reintroduction of the disease back in the country. The antimalarial therapy was provided to the patient under the careful guidance of the anti-malarial campaign.<sup>16</sup>

The patient was unaware about the prevalence of malaria in India and precautions needed before going to a malaria endemic country.<sup>17</sup> Education of travelers on prevention of mosquito bites, especially from dusk to dawn, and the need for prophylaxis is needed.<sup>17</sup> Clinicians too should be alert to the need for a travel history and the possibility of malaria in travelers a week to three months after return from an endemic country.<sup>19,20</sup>

## Conclusion

We describe a case of imported *P. vivax* malaria from India. Almost all the cases of malaria reported in Sri Lanka since it was eliminated are imported from countries with high prevalence. Clinicians should actively investigate for malaria when Sri Lankans with a travel history to endemic countries visit the health sector with a febrile illness, and with nonspecific clinical manifestations which could be the most common presentation. At the same time, a proper awareness program should be available for travelers to endemic areas to minimize risk of acquiring malaria from the endemic areas.

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