Plasmodium knowlesi: The Fifth Human Malaria Parasite

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Plasmodium knowlesi is a protozoan parasites causing malaria in long-tailed and pig-tailed macaques. Human infections were thought to be extremely rare, but after reporting a large focus of human infections P. knowlesi was recognized as the fifth pathogen of malaria in humans.

Analyze and summarize the data regarding P. knowlesi.

The open sources of the Internet were used to collect the data about malaria caused by P. knowlesi, peculiarities of its life cycle, epidemiology, clinical presentation, and diagnostic methods.

The first case of naturally acquired knowlesi malaria was reported in 1965. The area of natural distribution of the infection includes countries of Southeast Asia. The disease is typically characterized by daily fever pattern as P. knowlesi has the shortest erythrocytic cycle – 24 hours. The clinical picture of acute knowlesi malaria is similar to that seen in falciparum and vivax malaria. Fevers, chills, and rigors are the most dominant symptoms reported. Hematological findings include thrombocytopenia and mild anemia. Most cases of knowlesi malaria respond to treatment and resolve without complications. In case of complications, the most common features are jaundice, acute kidney injury, hypotension, acute respiratory distress syndrome and acidosis. Diagnosis of Plasmodium knowlesi infections is associated with a number of challenges as its early trophozoites may be mistaken for that of P. falciparum while late and mature trophozoites, schizonts and mature gametocytes of P. knowlesi are generally indistinguishable from those of P. malariae. Accuracy of methods based on antigen detection (immunochromatographic tests) and molecular detection (PCR) is higher, though they do not eliminate the risk of misdiagnosis.

1) Plasmodium knowlesi is the fifth species of Plasmodium causing malaria in Humans. 2) As knowlesi malaria has a three-fold greater risk in development of complications than falciparum malaria, an accurate and timely diagnosis can be life-saving. 3) Microscopy cannot accurately identify P. knowlesi. 4) Elaboration of cheap, reliable and rapid techniques for diagnosis of P. knowlesi is required. 5) If a patient whose blood smear suggests infection with P. malariae develops acute malaria or high parasitemia, Pl. knowlesi infection should be suspected.