

Unusual *Plasmodium malariae*-like parasites in Southeast Asia

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Abstract

During malaria surveys in Myanmar, 2 peculiar forms of *Plasmodium malariae*-like parasites were found. The morphologies of their early trophozoite stages were distinct from that of the typical *P. malariae*, resembling instead that of *Plasmodium vivax*, var. *minuta*, reported by Emin, and *Plasmodium tenue*, reported by Stephens, both in 1914. Two polymerase chain reaction (PCR)-based diagnoses, which target the same regions in the small subunit ribosomal RNA (SSUrRNA) genes, indicated that these parasites were new variant forms of *P. malariae* and that they could be separated into 2 genetic types that correlated with the 2 morphological types. Sequence analysis of the SSUrRNA and the circumsporozoite protein genes revealed that they were distinct both from each other and from other known *P. malariae* isolates and that the *P. tenue*-like type was closer to a monkey quartan malaria parasite, *Plasmodium brasilianum*. These results illustrate that the microscopic appearance of human *P. malariae* parasites may be more varied than previously assumed and suggest the value of molecular tools in the evaluation of malaria morphological variants.