

## CASE REPORT

### *PLASMODIUM OVALE* IN LAO PDR

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**Abstract.** This is the first report of a case of *Plasmodium ovale* malaria in Lao PDR.

Malaria caused by *P. ovale* has received less attention than the other human malarias. While most cases occur in Africa (Miller and Warrell, 1990), ovale malaria has also been reported from Asia and South America (Lysenko and Beljaev, 1969). *P. ovale* transmission has been reported from the countries which surround Lao PDR-Myanmar (Somboon and Sivasomboon, 1983), Vietnam (Gleason *et al*, 1970) and Thailand (Cadigan and Desowitz, 1969; Yamagakul, 1987). We report here the first case from Lao PDR itself.

A 39 year old female Laotian merchant presented to hospital in the provincial capital of Sawannakhet with a history of headache and fever for three days. She had travelled extensively within Lao PDR, but never outside the country. Giemsa-stained blood smears for malaria were initially interpreted as *P. malariae*. Symptoms resolved after treatment with chloroquine alone. The same blood smears were later sent to the Department of Medicine, AFRIMS, for confirmation. *P. ovale* (Fig 1) was diagnosed by specific morphological criteria (Russell *et al*, 1963). Infected erythrocytes (approximately 10 µm in size) were generally distorted, oval in shape and fimbriated on either one or both ends. Schüffner's dots were present within infected erythrocytes from early trophozoite stages on. Trophozoites themselves were compact and not

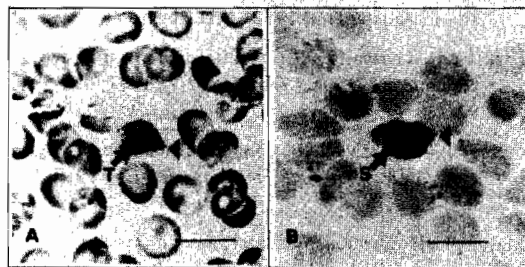


Fig 1—Giemsa-stained thin smears of *P. ovale* infected erythrocytes. Fig 1A shows an early trophozoite (T). Fig 1B shows a schizont (S) containing 8 merozoites. The infected erythrocytes are distorted, oval in shape and fimbriated (arrow heads), and contain numerous Schüffner's dots. Bars = 10 µm.

amoeboid. Schizonts, when present, contained four to eight developing merozoites.

Several medical textbooks still refer to *P. ovale* as an African infection and omit references to its occurrence outside Africa or in Asia (White and Breman, 1994; Bradley *et al*, 1996). The proper speciation of Plasmodia requires considerable expertise. *P. ovale* is often misdiagnosed as either *P. vivax* or *P. malariae* - as in this case, since some stages are similar (Russell *et al*, 1963; Lysenko and Beljaev, 1969). The diagnosis of ovale malaria is made even more difficult if the microscopist has the false impression that ovale malaria is confined to Africa. This first report adds Lao PDR to the list of Southeast Asian nations where ovale malaria occurs and also emphasizes the need to consider this parasite as a possible cause of malaria in Asia.

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REFERENCES

- Bradley D, Newbold CI, Warrell DA. Malaria. In: Weatherall DJ, Ledingham JGG, Warrell DA, eds. Oxford Textbook of Medicine, 3<sup>rd</sup> ed. Oxford: Oxford University Press 1996; pp 835-63.
- Cadigan FC, Desowitz RS. Two cases of *Plasmodium ovale* malaria from Central Thailand. *Trans R Soc Trop Med Hyg* 1969; 63 : 681-2.
- Gleason NN, Fisher GU, Blumhardt R, Roth AE, Gaffney GW. *Plasmodium ovale* malaria acquired in Vietnam. *Bull WHO* 1970; 42 : 399-403.
- Lysenko AJ, Beljaev AE. An analysis of the geographical distribution of *Plasmodium ovale*. *Bull WHO* 1969; 40 : 383-4.
- Miller LH, Warrell DA. Malaria. In: Warren KS, Mahmoud AAF, eds. Tropical and Geographical Medicine, 2nd ed. New York: McGraw-Hill 1990; pp. 245-64.
- Russell PF, West LS, Manwell RD, MacDonald G. Practical Malariology, 2nd ed. London: Oxford University Press, 1963; pp 47-75.
- Somboon P, Sivasomboon C. A case of *Plasmodium ovale* malaria acquired in Burma [Letter]. *Trans R Soc Trop Med Hyg* 1983; 77 : 567-8.
- White NJ, Breman JG. Malaria and babesiosis. In: Isselbacher KJ, Braunwald E, Wilson JD, Martin JB, Fauci AS, Kasper DL, eds. Harrison's Principles of Internal Medicine, 13<sup>th</sup> ed. New York: McGraw-Hill, 1994; pp 887-96.
- Yamagakul P. Report of *Plasmodium ovale* malaria found in Chantaburi, Thailand. *J Infect Dis (Thailand)* 1987; 13 : 168-9.