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Short Communication

**EVIDENCE FOR INFECTION CAUSED BY SPOTTED FEVER GROUP
RICKETTSIA IN KYUSHU, JAPAN**

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SUMMARY: Of 50 cases that gave negative immunofluorescence reaction with *Rickettsia tsutsugamushi* among patients with suspected tsutsugamushi disease encountered in Miyazaki Prefecture during the last four years, three showed a significant rise in the antibody titer to *Rickettsia montana*, a species of spotted fever group. This paper reports evidence for the occurrence of the rickettsial infection of the spotted fever group in Kyushu, Japan.

Tsutsugamushi disease is a major rickettsial infection existing in certain areas that extend from the northern part of Honshu to the southern part of Kyushu, Japan (Fig. 1). During the last four years (1982-1986), 429 specimens of sera from patients with suspected tsutsugamushi disease were sent to the Miyazaki Prefectural Public Health Laboratory in Miyazaki-city located in the southern part of Kyushu, and 320 patients were confirmed as tsutsugamushi disease by the specific immunofluorescence (IF) test. In Shikoku which lies to the east of Kyushu, on the other hand, only two cases of tsutsugamushi disease were reported during the last decade (1), though the reason for the low incidence is unclear.

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Fig. 1. Map of Japan.

Recently, rickettsial infections with the spotted fever group (SFG) have been found along the southeastern coast of Shikoku (2-4). The causative agent was isolated from the blood of patients in the Muroto area, the southern end of the southeastern coast of Shikoku (5). The reported cases of the infection were confined to the southern part of Shikoku, where the climate is temperate and warm and sustains sporadic subtropical vegetation like that of the southern part of Kyushu. One of the authors (Ta. U.) suspected that the spotted fever might have occurred in the southern part of Kyushu, because of its incidence in Shikoku. Thus, we intended to test the sera that gave negative IF reaction with *Rickettsia tsutsugamushi*. Among the paired sera of 50 patients, three showed a significant rise in the antibody titer to *R. montana*, a species of SFG that reacted with the sera from patients with the spotted fever in Shikoku (6) (Table I). Symptoms and signs of these three cases were similar; high fever, generalized erythematous rash and an eschar. Two cases were treated with Minocycline, followed by prompt defervescence. From the findings, the three cases with negative serologic reaction of tsutsugamushi disease were the rickettsiosis of SFG. The present communication provides evidence for occurrence of the rickettsial infection of SFG in Kyushu.

Table I. Antibody titers to the SFG antigen of patients' sera that gave negative immunofluorescence reaction with *Rickettsia tsutsugamushi*

Case ^{a)}	Days of illness	Immuno-globulin class ^{b)}	IF titers ^{c)} to				
			<i>R. montana</i>	<i>R. tsutsugamushi</i>			
			VR611	Karp	Kato	Gilliam	Kawasaki
M. A.	8	IgM	⟨20 ^{d)}	⟨20	⟨20	⟨20	⟨20
		IgG	⟨20	⟨20	⟨20	⟨20	⟨20
	23	IgM	320	⟨20	⟨20	⟨20	⟨20
		IgG	640	⟨20	⟨20	⟨20	⟨20
K. K.	5	IgM	⟨20	⟨20	⟨20	⟨20	⟨20
		IgG	⟨20	⟨20	⟨20	⟨20	⟨20
	21	IgM	1280	⟨20	⟨20	⟨20	⟨20
		IgG	10240	⟨20	⟨20	⟨20	⟨20
T. Y.	11	IgM	40	⟨20	⟨20	⟨20	⟨20
		IgG	160	⟨20	⟨20	⟨20	⟨20
	27	IgM	160	⟨20	⟨20	⟨20	⟨20
		IgG	1280	⟨20	⟨20	⟨20	⟨20

a) M.A., female, 43 years old, onset on October 19, 1983; K.K., male, 72 years old, onset on June 15, 1985; T.Y., male, 68 years old, onset on April 11, 1986.

b) FITC conjugated goat anti-human IgM (mu-chain) and IgG (gamma-chain) antibodies (TAGO Inc., Burlingame, CA, USA) were used in the indirect IF test.

c) Preparation of antigens for *R. montana* and *R. tsutsugamushi* was described elsewhere (see references 6 and 7, respectively).

d) The figures are the reciprocals of titers.

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