

The Survey of Rodent-Borne Infectious Diseases in Orchid Island, 2019

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Abstract

Orchid Island, located in the southeastern sea region of Taiwan, is a subtropical climate island, suitable for propagating a variety of rodent-borne pathogens, resulting in many scrub typhus cases each year. For the purpose of epidemic surveillance and public health concern, we carried out the rodent-borne infectious diseases survey in this region in April 2019. We conducted mice trapping in the field, collected rodent's serum, tissue, urine and ectoparasites. Latex agglutination (LA) test, indirect immunofluorescence analysis (IFA) and polymerase chain reaction (PCR) were used to detect *Yersinia pestis*, *Orientia tsutsugamushi*, Q fever pathogen, and Leptospire in our laboratory. The mouse capture rate was 16.0% (41/262), the tissue pathologic lesion rate was 56% (23/41), the lepto-trombidium mite ectoparasitic rate was 100% (41/41) and the lepto-trombidium mite index was 202 (8,300/41) in this study. The collected murine sera were assayed for presenting antibody to Q-fever (3%, or 1/29) and to *Orientia tsutsugamushi* (76%, or 31/41). PCR assay positive rates were 10% (1/10), 40% (4/10), and 66% (27/41) for pathogens of Q-fever, Leptospire and *Orientia tsutsugamushi*, respectively. Our results indicated that Q-fever, Leptospire and *Orientia tsutsugamushi*

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were found in Orchid Island. This result of investigation could be a worthy reference for the public health department to determine strategies of epidemic prevention, such as rodent control, travel health guidance, and educating people to protect from infection during outdoor field activity and seek for a doctor if suspected symptoms develop.

Keywords: Orchid Island, *Yersinia pestis*, Q fever pathogen, Leptospire, *Orientia tsutsugamushi*