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South American scrub typhus: first case series from continental Chile

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Scrub typhus is a neglected zoonotic disease endemic to the Asian-Pacific region and caused by Orientia tsutsugamushi. Until 2006, this potentially life-threatening rickettsiosis had never been detected outside these geographical limits; however, since then, patients reported from the Chiloé Island in Chile (n=3) and Dubai (n=1) suggest the emergence of the disease further afield. Here we report the first autochthonous scrub typhus cases from continental territories of Chile.

From 2016 to 2018 we detected a total of 9 scrub typhus cases acquired on mainland Chile, 7 male, with a median age of 28 years (range 21-69). All occurred during the summer months (Feb.-March) and were associated to outdoor activities; 7 were travel-associated and diagnosed on return to Santiago.

Infections were acquired in 3 different regions (Biobío, Los Lagos, and Aysén), ranging over a distance of 1,930 km (38°03’S to 47°47’S). Clinically, all presented with fever, maculopapular rash, eschar, and headache; other symptoms included myalgia, night sweats, and regional lymphadenopathy; 8 patients were hospitalized. Frequent lab abnormalities were elevated CRP and transaminases, thrombocytopenia, and leukopenia. All cases were confirmed by qPCR (rrs), PCR and sequencing (rrs and 47-kDa gene) using eschar material. Commercial serological tests for IgG (IFT, ELISA) and IgM (ELISA) using O. tsutsugamushi antigens were positive in 5/5 patients, but showed low titers. After treatment with doxycycline (n=7) or azithromycin (n=1), patients recovered rapidly; 1 patient recuperated without specific treatment.

This case series presents the first evidence of endemic South American scrub typhus in continental Chile. Our preliminary molecular analysis suggests that South American scrub typhus is caused by a distinct Orientia sp., which might explain the low seroreactivity against O. tsutsugamushi antigens. Vectors and possible zoonotic reservoirs are subject to ongoing studies. Our findings confirm the emergence of this important rickettsial infection and have significant impact on our understanding of the global epidemiology of the disease.