Journal of Microbiology, Immunology and Infection (2017) 50, 727–729

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.e-jmii.com

CORRESPONDENCE

# Dissemination of visceral leishmaniasis to Western Argentina: When will imported canine vector-borne zoonotic diseases start being local?

*Dear Editor,*

Visceral leishmaniasis (VL), caused by *Leishmania infantum* (syn. *chagasi*), is expanding at an alarming rate in Argentina. In Argentina, VL was first diagnosed in the Northeastern province of Misiones in May 2006,[1] with previous reports recording this infection in the neighboring Paraguay much earlier. Since its first diagnosis in Argentina, thousands of cases in dogs and over 100 cases (many fatal) in humans have been diagnosed in several regions of the north and northeastern provinces of Argentina (Figure 1).[2,3] The disease has traveled over 1000 km, and so has its vectors and main reservoir, the domestic dog. The vectors described for VL in Argentina, *Lutzomyia longipalpis* and *Migonemya migonei*, have also been detected in the provinces of Catamarca, Santa Fé, and Córdoba, where to date no case of infections in humans or canines has been described. Dogs, whether expensive ones destined for breeding or those of migrant harvest workers, wander freely through the country, and thus facilitate easy transport of these parasites from one region to another; however, the intention to root out the paradigm *exotic disease* is still firmly attached in the minds and hearts of health professionals, from both human and veterinary fields. Regarding its introduction in Argentina, it is highly unlikely that the disease, which is transmitted by sand flies, is introduced into the arid Cuyo region by the Andes in Western Argentina; however, some cases of vector-borne diseases have been reported from uncommon areas: for example, in the Lavalle desert of Mendoza province, which barely experiences 100 mm of rainfall each year, a prevalence of 52% for *Dirofilaria immitis* has been detected in dogs. As another example, an autochthonous case of human dirofilariasis has been reported in the neighboring (also very arid) province of San Juan. However, a serological survey done in dogs more than 1 decade ago could not detect any positive cases in the region. In a span of 3 years, tick-transmitted diseases (hepatozoonosis, ehrlichiosis, and babesiosis) have been diagnosed for the first time in the region. To date, three cases of VL in canines have been reported in the city of Mendoza: one imported from Paraguay and two others introduced from endemic regions of Argentina, over 1500 km away. These dogs were purebred animals with educated owners having knowledge of the disease, and therefore they promptly contacted a veterinarian when their dogs presented compatible symptoms. In Mendoza, human cases of tegumentary leishmaniasis are frequently diagnosed, however, all of them are introduced from endemic regions, sometimes symptomatic, and living in the province for many years before the correct diagnosis was made.[4] The question is "What is behind this expansion?" The tendency is to put the focus on climate change, however, in the case of dirofilariasis in Mendoza, at least temperature will not account for the expansion.[5] Although more assumptions than certainties can be made, the reality is still the same. Dogs can be Trojan horses, delivering unknown dangers, or they can be the canary in the coal mine, alerting us of an imminent peril. The one-world one-health approach is currently more a necessity than just a statement. Either that or we shall be mere sitting ducks, waiting for the vectors to catch up with the parasites.

http://dx.doi.org/10.1016/j.jmii.2016.05.001

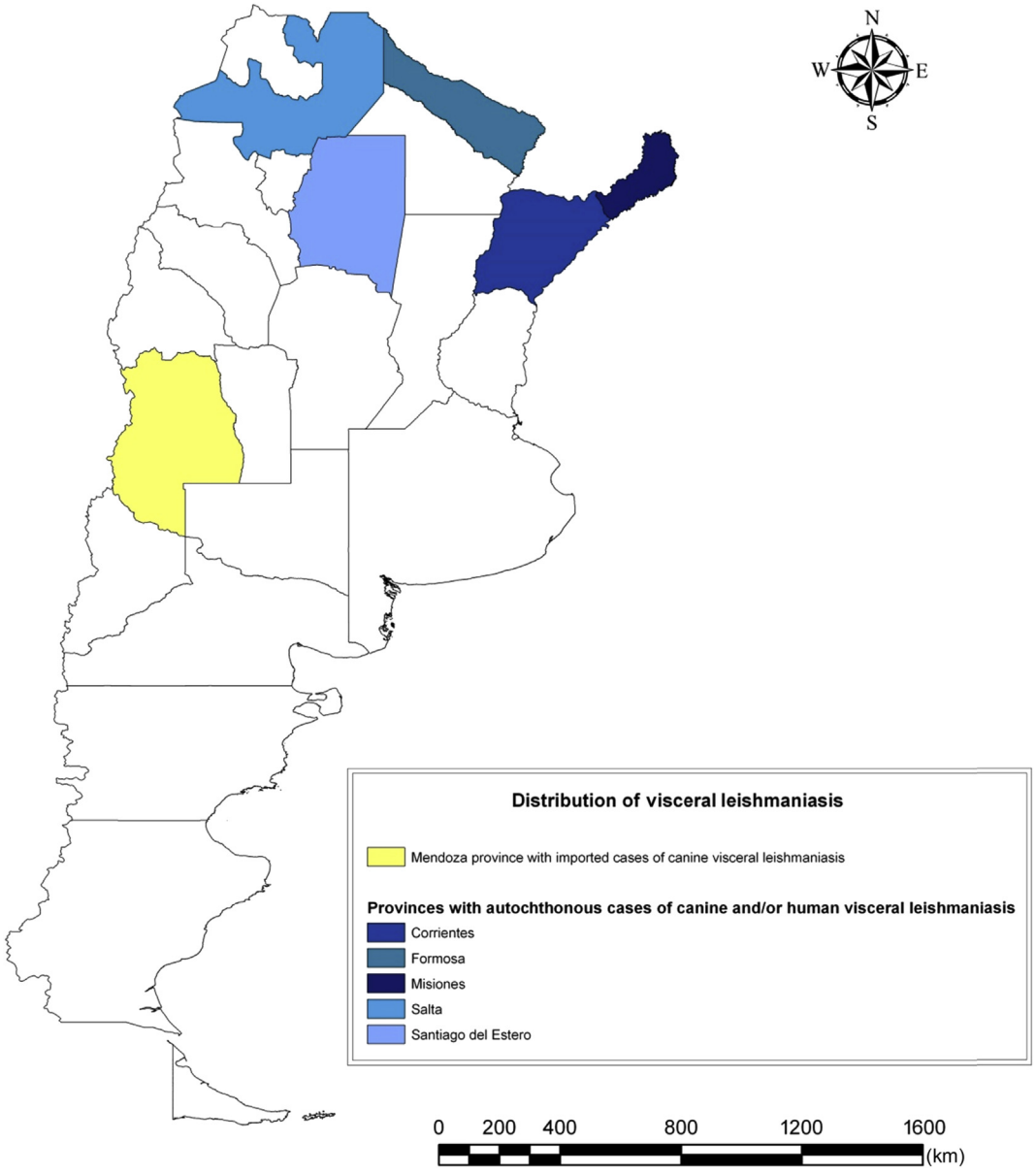


**Figure 1.** Provinces of Argentina with published reports of visceral leishmaniasis.

## Conflicts of interest

All contributing authors declare no conflicts of interest.

## References

1. Salomon O, Sinagra A, Nevot M, Barberian G, Paulin P, Estevez J, et al. First visceral leishmaniasis focus in Argentina. *Mem Inst Oswaldo Cruz* 2008;**103**:109—11.
2. Gould IT, Perner MS, Santini MS, Saavedra SB, Bezzi G, Maglianese MI, et al. Leishmaniasis visceral en la Argentina: notificación y situación vectorial (2006—2012). *Medicina (B Aires)* 2013;**73**:104—10 [Article in Spanish].
3. Barroso PA, Marco JD, Locatelli FM, Cardozo RM, Hoyos CL, Mora MC, et al. Visceral leishmaniasis caused by *Leishmania infantum* in Salta, Argentina: possible reservoirs and vectors. *Am J Trop Med Hyg* 2015;**93**:334—9.
4. Cargnelutti DE, Borremans CG, Tonelli RL, Carrizo LC, Salomón MC. Diagnosis of *Leishmania* infection in a nonendemic area of South America. *J Microbiol Immunol Infect* 2016;**49**(5):809—12.
5. Cuervo PF, Fantozzi MC, Di Cataldo S, Cringoli G, Mera y Sierra R, Rinaldi L. Analysis of climate and extrinsic incubation of *Dirofilaria immitis* in southern South America. *Geospat Health* 2013;**8**:175—81.

Roberto Mera y Sierra*
Gisela Neira
*Centro de Investigación en Parasitología Regional, Facultad de Ciencias Veterinarias y Ambientales, Universidad Juan Agustín Maza, Mendoza, Argentina*

Diego Esteban Cargnelutti
*Instituto de Medicina y Biología Experimental de Cuyo (IMBECU), CCT Mendoza, CONICET, Mendoza, Argentina*

*Corresponding author. Centro de Investigación en Parasitología Regional, Facultad de Ciencias Veterinarias y Ambientales, Universidad Juan Agustín Maza, Avenida de Acceso Este, Lateral Sur 2245, San José, Guaymallén, Mendoza, CP 5519, Argentina.

*E-mail address:* cipar.umaza@gmail.com (R. Mera y Sierra)

15 December 2015
Available online 18 May 2016