

Serodiagnosis of cutaneous leishmaniasis in the Syrian Arab Republic

To the Editor

I read the interesting study by Al-Nahhas¹ on the serodiagnosis of cutaneous leishmaniasis in the Syrian Arab Republic. The author addressed that anti-leishmania antibodies were detected in 92.5% of patients with cutaneous leishmaniasis (CL) using enzyme-linked immunosorbent assay (ELISA) and 94% western blot (WB), and there was no significant differences between these 2 tests. Therefore, the author recommended using these tests to diagnose CL in Syrian patients. Actually, 3 concerns exist regarding the application of serological tests, in particular ELISA and WB to diagnose CL: 1) these tests lack the sensitivity and specificity of 100%, 2) in many regions of the world, there are overlapping endemic areas for trypanosomiasis and leishmaniasis. *Trypanosoma cruzi* and *Leishmania spp.*, the causative agents of these parasitoses which belong to the *Trypanosomatidae* family, share various antigens that can cause cross-reactivity in serological diagnosis.^{2,3} 3. the CL has been incriminated to be among the opportunistic infections co-existing with human immunodeficiency virus/acquired immunodeficiency syndrome (AIDS). In co-infections, CL frequently presents atypically and poses difficulties to be detected by these serological diagnostic tests.⁴ Therefore, positive ELISA and/or WB could be regarded as a presumptive diagnosis of CL rather than definitive. Polymerase chain reaction (PCR) approaches a "gold standard" status, and is convenient to be incorporated into the diagnostic strategies for detection of CL as it has the sensitivity and specificity of 100%.⁵

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Reply from the Author

The comments of Professor Al-Mendalawi on our paper are interesting. However, we would like to clarify some points: these techniques (ELISA or WB) can be used in *Leishmania* diagnosis. They are very sensitive and specific for visceral leishmaniasis (VL) in comparison with CL, however, the sensitivity and specificity of these techniques for CL diagnoses are good and can be used.⁶⁻⁸

It is true that *Leishmania* shares with *Trypanosoma cruzi* various antigens that cause cross-reactivity in serological diagnosis. However, this study was carried out in Syria where the Ministry of Health did not report any Trypanosomiasis. It is true there is a co-infection between *Leishmania* and AIDS. But this co-infection mostly exist between VL cases and AIDS.^{9,10} In the near future, we will apply PCR (although it is expensive) in diagnosing not only leishmaniasis, but other infectious diseases.

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References

1. Al-Nahhas SA. Serodiagnosis of cutaneous leishmaniasis in the Syrian Arab Republic. *Saudi Med J* 2009; 30: 382-386.
2. Chiaromonte MG, Zwirner NW, Caropresi SL, Heredia V, Taranto NJ, Malchiodi EL. [Study of cases of leishmaniasis in the Province of Salta: evidences of mixed infection with *Trypanosoma cruzi* and *Leishmania spp*] *Medicina (B Aires)* 1996; 56: 259-268. Spanish.
3. Frank FM, Fernández MM, Taranto NJ, Cajal SP, Margni RA, Castro E, et al. Characterization of human infection by *Leishmania spp.* in the Northwest of Argentina: immune response, double infection with *Trypanosoma cruzi* and species of *Leishmania* involved. *Parasitology* 2003; 126: 31-39.
4. Ali A. Leishmaniasis and HIV/AIDS co-infections: review of common features and management experiences. *Ethiop Med J* 2002; 40 (Suppl 1): S37-S49.
5. Barrio A, Mora MC, Ramos F, Moreno S, Samson R, Basombrío MA. Use of kDNA-based polymerase chain reaction as a sensitive and differentially diagnostic method of American Tegumentary Leishmaniasis in disease-endemic areas of northern Argentina. *Am J Trop Med Hyg* 2007; 77: 636-639.
6. Zeyrek FY, Korkmaz M, Ozbel Y. Serodiagnosis of anthroponotic cutaneous leishmaniasis (ACL) caused by *Leishmania tropica* in Sanliurfa Province, Turkey, where ACL Is highly endemic. *Clin Vaccine Immunol* 2007; 14 : 1409-1415.
7. Ryan JR, Smithyman AM, Rajasekariah GH, Hochberg L, Stiteler JM, Martin SK. Enzyme-linked immunosorbent assay based on soluble promastigote antigen detects immunoglobulin M (IgM) and IgG antibodies in sera from cases of visceral and cutaneous leishmaniasis. *J Clin Microbiol* 2002; 40: 1037-1043.
8. Brito ME, Mendonça MG, Gomes YM, Jardim ML, Abath FG. Identification of potentially diagnostic *Leishmania braziliensis* antigens in human cutaneous leishmaniasis by immunoblot analysis. *Clin Diagn Lab Immunol* 2000; 7: 318-321.
9. Bal AM. Visceral leishmaniasis--an opportunistic infection in HIV-infected patients. *Lancet Infect Dis* 2005; 5: 196-197.
10. Fernández-Guerrero ML, Robles P, Rivas P, Mójér F, Muñoz G, de Górgolas M. Visceral leishmaniasis in immunocompromised patients with and without AIDS: a comparison of clinical features and prognosis. *Acta Trop* 2004; 90: 11-16.