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Paper Poster Session IV

Focus: Leishmania

Leishmania tropica as Dr. Jekyll and Mr. Hyde: visceralization of a well-known cutaneous leishmaniasis agent

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OBJECTIVES: Leishmaniasis may cause not only cutaneous lesions, but also systemic, life-threatening infections that hold visceral organs. Visceral leishmaniasis (VL) is common especially in developing countries and its mortality rates range 10-20%. In Turkey, visceral leishmaniasis (VL) caused by *Leishmania infantum*, and cutaneous leishmaniasis (CL) caused by *L. tropica* and *L. infantum* have been recorded. Here, we report three autochthonous VL cases caused by *L. tropica* from Manisa province in western Anatolia, an uncommon location, diagnosed with Real-Time PCR. Patients had initially fever, anorexia, fatigue and weight loss, while none had any cutaneous lesion.

METHODS: Initial medical evaluation of the patients indicated pancytopenia, enlargement of liver and spleen, fever and competent immune functions. Suspected of VL, clinicians extracted bone marrow samples and referred them to Parasitology Laboratory. These samples were stained with Giemsa, inoculated in NNN medium and used for Real Time PCR that targeted the ITS-1 region of *Leishmania spp.* Bone marrow sample of one patient was partly inoculated in the peritoneal cavities of three Balb/C mice for diagnosis.

RESULTS: The amastigotes and promastigotes of *Leishmania spp.* were identified with microscopy and culture, respectively, and registered to the database of Celal Bayar University (MHOM/TR/2007/CBU007, MHOM/TR/2009/EP169, and MHOM/TR/2009/CBUEP170). Application of Real Time PCR that targeted the ITS-1 region of *Leishmania spp.* showed melting curves, which were concordant with *L. tropica*. The parasites which were initially inoculated in the peritoneal cavities of the mice showed not only visceral (enlargement of both liver and spleen) but also dermatotropic (desquamation, hair loss and cutaneous lesions) manifestations.

CONCLUSION: Genetic exchange has been identified in *Leishmania* species, which help them to adapt to the changing environmental conditions, while causing failure in both diagnosis and treatment of clinical cases due to their "altered" genetic structures. CL-causing *L. tropica* is well-recognized in Turkey, with many cases identified previously in many provinces, including Manisa. Interestingly, VL cases presented here were from Manisa but caused by *L. tropica*. The differences in the genomic and proteomic components or structures of these two groups of diversely-acting *L. tropica* isolates are mysteries at the moment. However, based on these initial data, we plan to investigate immediately the genomic and proteomic compositions of *L. tropica* isolates of these three VL patients and compare them with three different *L. tropica* isolates (MHOM/TR/2012/CBU017, MHOM/TR/2011/CBU012 and MHOM/TR/2013/CBU023) from previously-diagnosed CL patients from Manisa, with molecular methods and two-dimensional electrophoresis. Identification of any genomic and/or proteomic variations in these two different *L. tropica* isolate sets may point out not only the shift either for visceralization of the parasites or their limited localizations inside the dermal regions of infected individuals, but also some suitable target molecules for vaccine development trials.