

Brief Communication

Coping with visceral leishmaniasis in Turkey

Huseyin Cakan, PhD, Mehmet Y. Iscan, PhD,
Vecdet Oz, PhD, Mustafa Aslan, PhD, Tuncay M. Karayel, BSc,
Ismail Cakir, PhD, Huseyin B. Uner, PhD.

Recognition of any parasitic infection needs an understanding of factors such as clinical symptoms, anamnesis, migration, and geography.¹ Of the parasitic diseases, visceral leishmaniasis (VL) is one of the most difficult one to diagnose. It is an important disease that affects the general health of a population. Therefore, to control its effect on people, among the initial steps taken is to diagnose, establish its route of infection, and to plan a therapy.² In these attempts, a crucial consideration is to limit its spread and to minimize the time for diagnosis and cure to avoid further adverse effect. Aside from these steps, social factors should be minimized, and technological problems to speed up the therapy are diminished.

In Turkey, the cutaneous form of leishmaniasis has been first identified as Aleppo Boil in 1756.³ The visceral form is publicly best known as kala azar as early as 1916.³ However, the disease is also known under different names in many parts of the world including China, India, Bangladesh, Sudan, Kenya, Near East, Ecuador, Iran, and pre-Columbian Peru.^{4,5} It is now agreed by parasitologists that the species of *Leishmania infantum* is responsible for VL in Turkey.⁶ The vector is thought to be *Phlebotomus* species of sandfly (locally known as tatarcik fly), and the most common reservoirs are carnivorous mammalian animals such as dogs, fox, jackal, and even humans in the Old World.⁶ The VL is sporadically seen in many regions of Turkey and approximately 40 cases a year is reported. Yet, this number is reportedly declining in recent years since 2000.⁶ Although the number is decreasing, a national, systematic control has not been established in Turkey. Many aspects of VL are known. Only a few individuals are affected; it is endemic and the mechanism to eradicate the disease agent has not been fully developed. Affected individuals are freely moving in the country to look for remedy from smaller and rural areas to places with better health care centers and hospitals.

The purpose of this research is to investigate the efforts of the VL affected individuals and families went through including the proximity of health centers to patient's residence where they received reliable diagnosis, effective treatment, and the eventual wellness. The study includes 19 patients (with an age range of 1-17 years (mean of 7.5 years) who visited a hospital from July 2002 to February 2006. Of these initially suspected

individuals, 11 are diagnosed positive as suffering from VL and became the subjects of this study. A standard diagnosis test⁴ for VL including blood (5 ml), bone marrow sample was carried for all patients. This study was performed at the Institute of Forensic Sciences of Istanbul University, Turkey. The Cerrahpaşa Faculty of Medicine Ethics Committee has approved this study for ethical purpose. The bone marrow was examined with a polymerase chain reaction (PCR) technique to determine if there is any evidence of the disease agent, even this is not the objective of the study. The diagnosis of the sample was carried out at the Charite Institute of Microbiology and Hygiene at Humboldt University, Berlin, Germany by the senior author. The PCR does not only diagnose, but also identify the species of the parasite affecting the patients. Turnaround time, blood test results was also recorded. The physician takes a detailed health history of each patient and the family. Questions concerning specialty of the physician, date visited the hospital, and resulted concerning the diagnosis were taken during the interview. Occupation of the parents, and nearby and far away hospitals visited were recorded. Parents of the patients recorded in the anamnesis form were asked about the date the health started, the test samples, the date the individual felt sick and went to a clinic for therapy.

Table 1 shows the descriptive statistics of age and time that took laboratories to diagnose the problem for both gender of 11 individuals. The first time the children taken to the hospital with the suspicion of being infected were on the average of 6.09 years (7.17 for males and 4.80 for females). Data on anamnesis indicated that outliers were much younger in children born in Istanbul (one year of age for boy and 2 for girl to go to a hospital) than those from distant places (12 years for boys and 13 years for girls). The laboratory test time to diagnose, if the condition were leishmaniasis, took the hospitals 2.6 months. Positive diagnosis was made even later than the laboratory tests (Table 1). Samples for testing took about the same time for both. Again, the process took as long as 5 months (Table 1). The same delay was seen to reach a conclusion whether the children had the disease. However, no gender differences were observed during the study.

The data on the selection or availability of a hospital have also been collected. There were 4 different types of hospital services including state, university, social security, and children. At the stage when the leishmaniasis seemed to be a problem, patients were taken mostly to a state hospital nearby their hometown. However, to collect the sample and start the laboratory procedure, some children were taken to other more specialized. Five patients out of 11 moved their families from their place

Table 1 - Time past since illness suspected and age (year) of diagnosis in male and female children.

Gender and age diagnosed	Mean	SD	Minimum	Maximum
Gender combined (n=11)				
Age to hospital (years)	6.09	4.25	1.00	13.00
Time to obtain sample (month)	2.16	1.67	0.50	4.93
Time past to diagnose (month)	3.59	2.28	1.50	8.00
Age at diagnosis time (years)	6.36	4.72	1.00	15.00
Male (n=6)				
Age to hospital (years)	7.17	4.17	2.00	13.00
Time to obtain sample (month)	2.03	1.64	0.50	4.87
Time past to diagnose (month)	4.42	2.62	1.50	8.00
Age at diagnosis time (years)	7.67	4.93	2.00	15.00
Female (n=5)				
Age to hospital (years)	4.80	4.44	1.00	12.00
Time to obtain sample (month)	2.31	1.89	0.90	4.93
Time past to diagnose (month)	2.60	1.47	1.50	5.00
Age at diagnosis time (years)	4.80	4.44	1.00	12.00

to other places where the hospital facilities are better, which is Istanbul. The places and the distance where they moved were gathered from country maps. The range or distance from home to a new location ranged from 97 km to 1435 km. Two patients returned home to Hatay and Kars (now in Kocaeli, Turkey). There was one 7-year-old boy from the town of Uşak (504 km) and one 12-year-old girl from Zonguldak (333 km) remained in Istanbul after their treatments. There is one 6-year-old boy from Istanbul went to a better hospital in Kuthay and Afyon for a more effective treatment. Of the remaining 6 children, 4 (<4 years) were native Istanbulians. The other 2 (2 and 6 years old) were from Kastamonu (506 km from Istanbul) and made frequent visitation to hospitals in Istanbul but remained in their hometown.

The current study shows that VL is sporadically present in many parts of Turkey.⁶ Of 19 children examined, 11 responded positive to leishmaniasis with boys older than girls (age range from 1-13 years) at the time of infection. Laboratory tests took nearly 3.5 months to be sure that the child was indeed infected. Female children were tested and diagnosed earlier than boys. Although there are state hospitals nearby where the patients resided, but they are not well equipped to cope with the diseases or they are not as efficient as the parents anticipated. Lack of specialized doctors are the main concerned, since many hospitals in remote parts of the country were new and less experienced physicians. Some parents are willing to spend their money on their

children for their well-being, thus, they are looking for a better hospital even it will take 1,500 km from their town.

The study shows that leishmaniasis is haphazardly handled in Turkey. Many procedures showed problems such as delays in making appointments, laboratory tests, and notifying the patient on a timely manner. The observed data and anamnesis suggested that the diseases remain endemic primarily because of a lack of established medical procedure and guidelines to follow.

In conclusion, it should be stated that infectious diseases are extremely serious and must be handled swiftly and with an ongoing improvement in medical procedure. All hospitals should be in contact with the existing health centers or the Ministry of Health. Good communication network should be established between doctors and centers around the country. This procedure in dealing with an infectious disease is also important for physicians to avoid potential legal issues arising from wrong diagnosis, causing hardship for the patient or family, and providing efficient remedies to the patients.

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From the Institute of Forensic Sciences, (Cakan, Işcan, Cakir, Uner, Karayel, Oz) and Cerrahpaşa Medical Faculty Microbiology and Clinical Microbiology Department (Aslan), Istanbul University, Istanbul, Turkey. Address correspondence and reprint requests to: Dr. Hüseyin Cakan, Institute of Forensic Sciences, Istanbul University, Istanbul, Turkey. Tel. +90 (212) 4143000 Ext. 22824. Fax. +90 (212) 5880011. E-mail: hcakan@istanbul.edu.tr

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