

CASE REPORT

VISCERAL LEISHMANIASIS CAUSED BY *LEISHMANIA INFANTUM* IN THAILAND

Pasri Maharom¹, Suradej Siripattanapipong², Mathirut Mungthin², Tawee Naaglor²,
Runjuan Sukkawe³, Ruchapan Pudkorn³, Wantanee Wattana³, Darawan Wanachiwanawin⁴,
Darin Areechokchai⁵ and Saovanee Leelayoova²

¹Division of Infectious Diseases, Department of Medicine, Somdejprapinklao Hospital, Bangkok; ²Department of Parasitology, Phramongkutklao College of Medicine, Bangkok; ³Disease Control Division, Health Department, Bangkok Metropolitan Administration, Bangkok; ⁴Department of Parasitology, Faculty of Medicine, Siriraj Hospital, Mahidol University, Bangkok; ⁵Field Epidemiology Training Program - Thailand, Bureau of Epidemiology, Ministry of Public Health, Nonthaburi, Thailand

Abstract. Thailand is considered as a non-endemic area for leishmaniasis. We report the first case of visceral leishmaniasis caused by *Leishmania infantum* in a Thai man living in Bangkok.

INTRODUCTION

Thailand is non-endemic for leishmaniasis. In the past, imported cases of cutaneous and visceral leishmaniasis were reported in Thai workers who returned from Middle East countries (Suttinont *et al*, 1987; Viriyavejakul *et al*, 1997). Recently, a few autochthonous cases of visceral leishmaniasis were reported from northern and southern Thailand (Thisyakorn *et al*, 1999; Kongkaew *et al*, 2007; Sukmee *et al*, 2008). We report a 66-year-old non-HIV-infected Thai man living in Bangkok who was diagnosed with visceral leishmaniasis caused by *Leishmania infantum*.

CASE REPORT

On June 26, 2007, this patient presented

Correspondence: Dr Saovanee Leelayoova, Department of Parasitology, Phramongkutklao College of Medicine, 315 Ratchawithi Road, Ratchathewi, Bangkok 10400, Thailand.
Tel/Fax: 66 (0) 2354 7761
E-mail: s_leelayoova@scientist.com

to Somdejprapinklao Hospital with a history of malaise, itching skin, low back pain for 6 months and weight loss of 25 kg. He has been living in Bangkok, Thailand for the past 6 years. He was a lumber truck driver and traveled throughout the country. During his work, he spent the night in the truck using insect repellent but no insect net for protection from insect bites. He retired when he was 59 years old because of weakness in both legs. During the past 12 months, he did not travel. There were 6 family members living in the same house. He had been living among 20 other family neighbors in a 2-story building made out of wood. He occupied a room on the first floor where the wooden floor was built one foot up from the wet-soil. He did not own any pets but there were dogs and cats living around the neighborhood. Information regarding immigrant workers around that area is limited. From interviewing, no immigrant workers such as those from Myanmar, Pakistan, India, were noted to live within 200 meters from his house. He received medical treatment

for diabetes mellitus and high blood pressure at a hospital for the past 8 years. He had no history of blood transfusions.

Physical examination revealed fever, pallor and hepatosplenomegaly with jaundice. Laboratory evaluation showed pancytopenia (hemoglobin 7.4 g/dl, WBC 2,400/ μ l, platelets 133,000/ μ l). Liver function tests showed elevated levels of both serum alkaline phosphatase (218 U/l) and serum globulin (8.0 g/dl). Protein electrophoresis revealed polyclonal gammopathy. Bone marrow examination showed numerous intracellular amastigotes of *Leishmania* spp. Cultivation of *Leishmania* from a bone marrow specimen using NNN medium was positive. Antibody detection against leishmaniasis was performed using a direct agglutination test (DAT) which resulted in a titer of 1:3,200. *Leishmania* species identification was determined using 2 polymerase chain reaction (PCR) methods amplifying the internal transcribed spacer 1 (ITS1) of the SSU-rRNA gene and the mini-exon gene from a Giemsa stained bone-marrow smear. PCR-RFLP of the mini-exon gene (434 bp) was performed using *EaeI* endonuclease, resulted in specific fragments for *L. infantum*: 326 and 108 bp (Marfurt *et al*, 2003; Schönian *et al*, 2003). Sequence analysis showed 100% similarity to *L. infantum* (GenBank accession number AY155503). The patient had a good response to conventional treatment with amphotericin B administration (50 mg IV every other day for 1 month) but had slightly elevated serum creatinine as a consequence. No *Leishmania* amastigotes were detected on bone marrow smears after a 1-month course of amphotericin B.

DISCUSSION

L. infantum is the causative agent of both cutaneous and visceral forms of human leishmaniasis. Domestic dogs are known to be the most important reservoir hosts (Gramiccia and

Gradoni, 2005). Recently, *L. infantum* was diagnosed in cutaneous leishmaniasis in a domestic cat in Spain (Martin-Sánchez *et al*, 2007). In this study, an outbreak investigation was also conducted to rule out humans and animal reservoirs living within a radius of 200 meters from the patient's house. Blood samples for *Leishmania* screening using DAT were drawn from his family members, 67 neighbors and animals, including 9 dogs, 1 cat, and 3 rats. No other active cases were found since all human and animal sera were negative for *Leishmania* antibodies. These negative findings and a history of travel as a truck driver indicate the patient may have acquired this infection from elsewhere, since *L. infantum* leishmaniasis can remain asymptomatic in patients for more than 20 years. Although sandflies have been identified in several locations in Thailand, there was no information regarding sandflies in this area (Apiwathnasorn *et al*, 1993). Sandfly trapping was unsuccessful in this study due to wet weather. Thus, no transmission cycle was proven in the affected area. Further studies regarding potential sandfly vectors are required to understand the disease transmission.

Leishmaniasis has now become a public health concern since cases have been reported from the North, South, and this case of *L. infantum* from Bangkok in Central Thailand. Leishmaniasis may be due to international travel or migration of infected people or animals into Thailand. In order to control this disease, intensive surveillance of human cases, reservoirs and vectors of this disease is urgently needed.

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REFERENCES

- Apiwathnasorn C, Sucharit S, Surathin K, Deesin T. An anthropophilic and zoophilic phlebotomine sand flies (Diptera, Psychodidae) from Thailand. *J Am Mosq Control Assoc* 1993; 9: 135-7.
- Gramiccia M, Gradoni L. The current status of zoonotic leishmaniasis and approaches to disease control. *Int J Parasitol* 2005; 35: 1169-80.
- Kongkaew W, Sirirayaporn P, Leelayoova S, *et al.* Autochthonous visceral leishmaniasis: a report of a second case in Thailand. *Southeast Asian J Trop Med Public Health* 2007; 38: 8-12.
- Marfurt J, Nasereddin A, Niederwieser I, Jaffe CL, Beck HP, Felger I. Identification and differentiation of *Leishmania* species in clinical samples by PCR amplification of the miniexon sequence and subsequent restriction fragment length polymorphism analysis. *J Clin Microbiol* 2003; 41: 3147-53.
- Martín-Sánchez J, Acedo C, Muñoz-Pérez M, Pesson B, Marchal O, Morillas-Márquez F. Infection by *Leishmania infantum* in cats: epidemiological study in Spain. *Vet Parasitol* 2007; 145: 267-73.
- Schönian G, Nasereddin A, Dinse N, *et al.* PCR diagnosis and characterization of *Leishmania* in local and imported clinical samples. *Diagn Microbiol Infect Dis* 2003; 47: 349-58.
- Suttinont P, Thammanichanont C, Chantarakul N. Visceral leishmaniasis: a case report. *Southeast Asian J Trop Med Public Health* 1987; 18: 103-6.
- Sukmee T, Siripattanapipong S, Mungthin M, *et al.* A suspected new species of *Leishmania*, the causative agent of visceral leishmaniasis in a Thai patient. *Int J Parasitol* 2008; 38: 617-22.
- Thisyakorn U, Jongwutiwes S, Vanichsetakul P, Lertsapcharoen P. Visceral leishmaniasis: the first indigenous case report in Thailand. *Trans R Soc Trop Med Hyg* 1999; 93: 23-4.
- Viriyavejakul P, Viravan C, Riganti M, Punpoowong B. Imported cutaneous leishmaniasis in Thailand. *Southeast Asian J Trop Med Public Health* 1997; 28: 558-62.