

## PUBLIC HEALTH

## Visceral leishmaniasis in Afghanistan

Despite being the third most important vector-borne diseases worldwide in terms of burden of disease, the leishmaniasis are one of the so-called “neglected diseases.”

Since the massive humanitarian reconstruction efforts began after the fall of the Taliban in 2002, Afghanistan is slowly emerging from 2 decades of civil war. Nevertheless, country health indicators are still among the worst globally, with many preventable diseases such as typhoid fever, diarrhea and measles common throughout the country.<sup>1</sup> Besides having the world's largest incidence of cutaneous leishmaniasis, with an estimated 250 000 cases annually,<sup>2</sup> Afghanistan may now have another public health problem on their hands: visceral leishmaniasis.

**Epidemiology:** Visceral leishmaniasis is a chronic, systemic disease characterized by fever, (hepato)splenomegaly,

lymphadenopathy, pancytopenia, weight loss, weakness and, if left untreated, death.<sup>3</sup> The disease is usually caused by *Leishmania donovani* or *L. infantum*, transmitted to human and animal hosts by the bite of phlebotomine sandflies. Although in most disease-endemic areas transmission is zoonotic, with domestic dogs as the main reservoir, transmission is anthroponotic in some areas, such as India and Sudan.

**Clinical management:** In most areas where visceral leishmaniasis is endemic, suspected cases are diagnosed on the basis of positive Giemsa-stained smears of lymph node, bone marrow or spleen aspirates.<sup>3</sup> Recently, there also has been an increased operational use of easy-to-use serologic tests (e.g., immunochromatographic dipsticks or direct agglutination tests). Following parasitologic confirmation, patients are usually given pentavalent antimony therapy (20 mg/kg intramuscularly or intravenously) for 30 days.<sup>3</sup> Other therapeutic approaches include miltefosine and amphotericin B, especially in disease-endemic areas where increased unresponsiveness to antimony has been observed.

**Prevention:** Strategies to prevent and control visceral leishmaniasis are aimed at reducing exposure to the sandfly vector. This can be achieved by improving housing, using insecticide-treated bednets or curtains, spraying houses indoors with residual insecticides and — in zoonotic foci — collaring dogs with insecticide-impregnated dog collars. Although these strategies have proven to be highly effective, they have usually been implemented only on a foci-specific scale rather than nationally or regionally.

**Visceral leishmaniasis in Afghanistan:** Although several hundreds of cases of visceral leishmaniasis are reported every year from Afghanistan's neighbouring countries (Iran, Pakistan, Turkmenistan and Uzbekistan), there have been only 23 cases reported from Afghanistan since 1980 in the scientific literature.

Recently, 6 parasitologically confirmed cases of visceral leishmaniasis in patients from 3 Afghan provinces were observed in HealthNet International's leishmaniasis treatment centre in Kabul. The patients' demographic and clinical characteristics are given in Table 1. This increased detection in the

**Table 1:** Demographic and clinical characteristics of 6 cases of visceral leishmaniasis in Afghan patients referred to HealthNet International's clinic in Kabul between February and April 2005

Case	Age, yr	Sex	Residence	Clinical history and presentation	Date of infection*
1	8	M	Gorzai Village, Baghlan	Malnutrition and incomplete child immunization; hepatosplenomegaly and intermittent fever for 18 mo; no history of travel in year before presentation; initial diagnosis of malaria	Autumn 2003
2	10	M	Borka Village, Baghlan	Gross splenomegaly, intermittent fever for 18 mo; gradual weight loss; several episodes of confirmed <i>Plasmodium vivax</i> malaria	Autumn 2003
3	3	M	Kando Village, Oruzgan	Gross splenomegaly, intermittent fever for 3 mo; initial diagnosis of malaria, typhoid and pneumonia	Autumn 2004
4	7	F	Arabkhana Village, Faryab	Hepatosplenomegaly, intermittent fever for 7 mo; no history of travel in year before presentation; initial diagnosis of malaria and typhoid	Summer 2004
5	4	M	Kodri Village, Baghlan	Hepatosplenomegaly; intermittent fever for 3 mo; gradual weight loss; initial diagnosis of typhoid	Autumn 2004
6	9	F	Jangibig Village, Baghlan	Hepatosplenomegaly; intermittent fever for 8 mo; no history or travel in year before presentation; initial diagnosis of malaria	Spring 2004

Note: In 5 cases the original diagnosis was malaria, and the patients were presumptively given treatment with chloroquine (25 mg/kg). Giemsa-stained slides of bone marrow aspirates from all patients were microscopically positive for *Leishmania* parasites; all 6 cases were retrospectively confirmed by means of polymerase chain reaction to have been caused by *L. donovani*. All cases were successfully treated with intramuscularly administered sodium stibogluconate (20mg/kg daily) for 21 days according to Afghan treatment guidelines.

\*Estimated from patient's history and season of leishmaniasis transmission.



CDC/WHO

Female phlebotomine sandfly. Sometimes mistaken for mosquitoes, these sandflies are common vectors for various diseases, including leishmaniasis.

number of cases is of concern, since it follows the report of 2 US soldiers stationed in Afghanistan with the disease<sup>4</sup> and 2 cases from Baghlan province in 2004 (unpublished data from HealthNet International, Kabul).

Because climate restricts the sandfly vector's season in Afghanistan from April to October, it is probable that the patients, given their individual case histories, contracted the disease in 2004 or 2003. Most of the

cases reported here were from the northeastern province of Baghlan. They could have resulted from a recent outbreak or, most probably, be coincident cumulative reporting of a disease with low endemicity (e.g., owing to better access to health care). Of interest is that most of the patients had originally received a diagnosis of malaria, which is endemic throughout Afghanistan.

There is little historical or current data on visceral leishmaniasis in Afghanistan: neither vectors nor reservoirs have been incriminated, and it is unknown whether the transmission cycle is anthroponotic or zoonotic. Epidemiologic research is highly warranted. The increased detection of visceral leishmaniasis in Afghanistan will require a reassessment of leishmaniasis prevention and control strategies. Unlike cutaneous leishmaniasis, the visceral form is potentially fatal, with case-fatality rates as high as 85%. Large-scale occurrence of a potentially fatal disease in a population that is largely malnourished and impoverished would be devastating. Leishmaniasis management guidelines in Afghanistan will have to be updated to include available treatment regimens for the visceral form of the disease. Additional prevention and control measures, such as the reduction of animal reservoirs (if any), the introduction and upscaling of personal protection and vector control, awareness campaigns, and training for health professionals, will require significant input from international funding agencies, above

and beyond what is currently available for cutaneous leishmaniasis control.

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## REFERENCES

1. Waldmann R, Hanif H. *The public health system in Afghanistan: current issues*. Islamabad: Afghanistan Research and Evaluation Unit; 2002. Available: [www.areu.org.af/publications/waldman\\_health.pdf](http://www.areu.org.af/publications/waldman_health.pdf) (accessed 2006 Jun 01).
2. Reithinger R, Mohsen M, Aadil K, et al. Anthroponotic cutaneous leishmaniasis, Kabul, Afghanistan. *Emerg Infect Dis* 2003;9:727-9.
3. Division of Control of Tropical Diseases, World Health Organization (WHO). *Manual on visceral leishmaniasis control*. Geneva: WHO; 1996. Available: [www.who.int/leishmaniasis/surveillance/training/en/WHO\\_LEISH\\_g6.40.pdf](http://www.who.int/leishmaniasis/surveillance/training/en/WHO_LEISH_g6.40.pdf) (accessed 2006 Jun 1).
4. Two cases of visceral leishmaniasis in U.S. military personnel — Afghanistan, 2002–2004. *MMWR Morb Mortal Wkly Rep* 2004;53:265-8.

## IMPACT

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