

Opinion

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Leishmaniasis in Syria



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Opinion

Leishmaniasis is still considered a main health problem in Syria. Three epidemiological forms are known in this country: ACL (*L. tropica*), ZCL (*L. major*) and VL (*L. infantum*) which spread according to the geographical nature of the place (the altitude); the species of the vectors (sandflies) [1], the animal reservoirs and many other environmental factors. Table 1 presents the parasite species, the vector species, the animal reservoirs and the transmission way. These make the control of this disease difficult and more complicated beside to many other

problems related to different issues like: population growth and movement, the health system, intersect oral co operation, the weakness of national research institutions. etc. Most of the reported cases from rural areas around the capital Damascus, the costal western region (Latakia and Tartous), the middle region (Homs, Hama and Idlib) and the eastern region (Al , Hasakeh and DeirEz-Zour) of the country, are cutaneous (ACL and ZCL). However, in the eastern and southern regions dozens of visceral cases are reported every year.

Table 1: Different species of *Leishmania*, vectors and animal reservoirs

	ACL (Urban Form)	ZCL (Rural Form)	ZVL
Parasite	<i>L. tropica</i> MON 76 [2], New research; ROM 94-95-103-104-105	<i>L. major</i> Mon 26 [11,13]	<i>L. infantum</i> Mon 1 [13], New research; Rom 1
Vector	Ph. Sergenti [18,6]	Ph. Papatasi [19]	Ph. Tobbi [4,17]
Reservoir	Human	<i>Psammomys obesus</i> [16] Merions- Nesokia indice	Stray dogs [10]
Transmission	Person-sandfly-person	rodent-sandfly-person	Dog-sandfly-person
Governorates	Central, north and coastal areas: Aleppo, Idlib, AlHasakeh, Hama, Homs, Latakia, Tartous, rural Damascus	Semi-arid areas: Alhassakeh, Dei Ezzour, Homs, rural Damascus	Latakia, Idlib, Aleppo, Tartous, Daraa

During the 10 year period (2005-2015), the number of cutaneous leishmaniasis cases reported by the Department of disease control (Table 2), while the number of visceral leishmaniasis was 211 cases between 2006 and 2016. People with cutaneous leishmaniasis have one or several long-lasting lesions on the skin, usually without fever or general symptoms. Cutaneous leishmaniasis caused by *L. major* (known as rural

zoonotic cutaneous leishmaniasis). The lesions are often severely inflamed and ulcerated and heal within 2-8 months. The incubation period is often less than 4 months. While, Cutaneous leishmaniasis caused by *L. tropica* (known urban anthroponotic cutaneous leishmaniasis) produces painless, frequently multiple, dry ulcers of the skin, which usually heal spontaneously within about one year. The incubation period is usually 2-8 months.

Table 2: Number of Reported CL cases between 2005 and 2015 According to Provinces.

Governorates	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Damascus	852	435	444	766	1581	1471	1320	879	1026	1186	772
Rural of Damascus	1064	441	351	661	1007	823	1123	1728	2157	2542	3583
Dara'a	35	54	56	67	133	100	77	53	19	7	11
Qunaitra	30	18	11	3	69	141	14	0	0	2	0
Swaida	9	9	28	32	95	57	72	82	85	65	30
Homs	215	181	261	455	592	321	201	545	1489	866	868
Hama	1695	1875	2302	3883	5512	3732	4121	3906	7616	5719	8874
Idleb	2231	2168	1842	2219	4894	4416	5324	3820	12327	12699	7603
Aleppo	11025	10714	10295	18603	29403	23780	27712	22088	22365	11787	6218
Lattakia	1739	1220	876	849	862	538	510	598	2467	1385	475
Tartous	1932	1031	732	676	572	491	641	735	2832	1997	1085
Raqqa	57	48	98	186	384	212	415	1566	1272	959	427
DeirEzoor	192	249	179	346	579	1364	4635	5277	10817	2587	552
Hasakeh	875	289	234	394	665	4727	11991	14617	7524	12075	20474
Total	21951	18732	17709	29140	46348	42173	58156	55894	71996	53876	50972

In light of the crisis our country faces, there is a big demographic change due to:

- i. The migration of people from their permanent residency areas and staying in evacuation shelters, poor housing.
- ii. The introduction of non-immune people into areas with existing endemic or enzootic transmission cycles.
- iii. The large number of people found into a small space may attract sand flies
- iv. The deficient medical facilities
- v. The high density of rodents in some areas.
- vi. The per-domestic sanitary conditions (e.g. lack of waste management, open sewerage).
- vii. The climate changes (rainfall, atmospheric temperature and humidity)

All of these changes increase the incidence of the leishmaniasis, or affect the transmission of the disease.

Depending on the Ministry of Health reports, a high number of ACL cases, was recorded in safe governorates (Latakia and Tartous). During the period (2011-2015), the number of cutaneous leishmaniasis cases was:

- 1) Latakia: 510, 589, 2457, 1385 and 475 respectively
- 2) Tartous: 641, 735, 2832, 1997 and 1085 respectively.

While the number of CL cases (mostly ZCL) at Alhasaka governorate Increased dramatically from 4727 cases in 2010 to 20474 cases in 2015.

The diagnosis and treatment centers were established in each province of Syria. The original techniques for demonstrating amastigotes in smears of bone marrow and skin lesions for diagnosis are still reference methods. Although, the detection of parasite DNA by PCR in blood or bone marrow aspirates is substantially more sensitive than microscopic examination [2-4].

Two serological tests, the direct agglutination test and the rK39 antigen-based immuno-chromatographic test were specifically developed for field use and have shown good diagnostic accuracy in most endemic areas [5-9]. The rK₃₉-based test is easy to perform, fast, cheap and give reproducible results and can therefore be used for early diagnosis of visceral leishmaniasis (especially in hot spot areas). A standard treatment regimen was started for patients with parasitological proven either Local or systemic treatments (Antimonials) or physical treatment (Thermotherapy 50 °C, Cryotherapy -196 °C). The cost of treatment and implementation of prevention strategies needs a high financial and human resource investment [10-19].

The control activities are:

- a) Early active and passive case detection
- b) Laboratory Diagnosis & Treatment
- c) Health education and community participation.
- d) Establishment vector control activities (two insecticides spray campaigns), and animal reservoir control activities (in zoonotic foci).
- e) Cooperation and coordination with other concerned sections and authorities.
- f) Environmental corrections and managements.

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