



REVIEW ARTICLE

A REVIEW ON CUTANEOUS LEISHMANIASIS IN SINDH PROVINCE, PAKISTAN

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ABSTRACT

Cutaneous leishmaniasis is endemic in over 80 countries. CL happens all over the year and several outbreaks are described recurrently. CL, earlier prevalent in Baluchistan, has turned out to be extremely widespread in NWFP, Sindh and Punjab. Cutaneous leishmaniasis (CL) is extensively spreading day by day. Previously, it was recommended that leishmaniasis is prevalent in particular area of Sindh province, but from the latest literature it is quite obvious that the disease is dramatically spreading not only in Sindh but all provinces of Pakistan and warning if preventing measures not taken seriously there would be a serious public health issue.

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INTRODUCTION

Cutaneous Leishmaniasis a sand fly-transmitted disease on list of Neglected Tropical Diseases, approximately 1 to 1.5 million new cases annually (WHO, 2014). Above 90% of the world's CL happen in seven countries: Afghanistan, Brazil, Iran, Peru, Pakistan, Saudi Arabia and Syria (Desjeux, 2004). Over the past few years, the reports of CL in Pakistan have increased to a shocking extent (Burney & Lari 1986).

CL was initially defined in the ninth century as Balakh sore. CL or oriental sore is an extremely old parasitic disease. The oldest medical document being Ebers Papyrus in Egypt, which goes back to the 2000 year BC. This contamination is obtained through the bite of an infected female phlebotominae sand fly, transmitting distinctive species of protozoa of the genus *Leishmania* and resulting in Noduloulcerative skin injury, which at last prompts scar formation (Moray, 1983).

In Pakistan CL occurs around the country, but it is highly endemic in Balochistan and NWFP (Burney and Lar, 1986; Yasinzai et al., 1996). In Punjab CL is limited to Dera Ghazi Khan and Multan and in Sindh, the disease is reported from Dadu, Karachi, Jacobabad and Larkana districts (Jaffaranv and Haroon, 1992).

Afterwards a comprehensive report regarding cutaneous leishmaniasis in Pakistan, research studies have been done into the domain of epidemiology in different contexts of Pakistan. It has been observed that there is the presence of anthroponotic and zoonotic CL in all over the Pakistan. The cutaneous leishmaniasis is also prevalent in all regions of Sindh. It is

found that there are more than 1210 CL were found in coastal areas of Sindh (Bhutto et al., 2009). The prevalence of numerous kinds of leishmaniasis globally is more than 12 million cases. (WHO, 1998). Immigrant's movement into the endemic parts, increased rate of tourism, decreased use of insecticides has contributed to increase in the cases of leishmaniasis; approximately 500,000 new cases yearly. (Ashford, 2000; Desjeux, 2001). This kind of parasitosis spread by sand flies (phlebotomine of *Phlebotomus* family). Sand flies are generally appropriated in tropical and subtropical particularly in deserts, rainforests and highlands, around the whole country, affecting millions of people. Sand flies' females only have blood sucking habit. Once a female sandfly bites a mammalian host, it takes up the amastigote type of parasites from the tainted reservoir/ host. Inside the gut of sand fly, the parasites change themselves to the promastigote form and after that, the unreservedly motile, distinguishing metacyclics gather behind the stomodeal valve, where they stay until the point that they are vaccinated into another mammalian host amid an ensuing blood meal (Soomro et al., 2009).

DISCUSSION

Leishmaniasis is a protozoan infection and caused by *Leishmania* genus (Almagro-Garcia, 2005), in certain forms seem to be evolving internationally (Ashford, 2000). Phlebotomine sand flies (female) (Diptera: Psychodidae) transmit many zoonotic diseases (leishmaniasis, bartonellosis and arboviruses) which affect human health in at least 80 countries (Siddiki et al., 2010 and Alexander Maroli, 2003 and).

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Sand flies breed in forest parts, burrows and caves of small rodents. Their life cycle begins when parasitized female sand fly of subfamily Phlebotomine takes a blood meal from a human host. The parasites exhibit in fly called promastigotes enters the host by means of the proboscis. The promastigotes are taken up by macrophages where they transform into amastigotes and replicate or develop by double splitting, they increment in number at last cell cracks and taint other phagocyte cells and cycle proceeds till the sand fly chomps again and the parasite creates as promastigotes (Donald, 2004; Imelda and Ivy, 2006; Dacie and John, 2006).

Cutaneous leishmaniasis, the most widely recognized shape, makes 1 200 skin sores which self-recuperate inside a couple of months leaving and revolting scar (CDC fact sheet, 2005). Individuals can have at least one scar on their skin. Bruises can change in size and appearance after some time; they regularly wind up giving look like spring of gushing lava with raised age and focal hole. Some ulcer is secured by scab. Sore can be easy or excruciating. A few people have swollen organs close to the sore. Sand flies nibble more at nightfall time, night and sunset to first light. They are three times littler than a mosquito and don't create noise (CDC fact sheet, 2005).

In most geographic areas where leishmaniasis is common in people, infected persons need not carry on the cycle of transmission of the parasite in nature; infected animals (dog and rodent) with the help of sand flies, maintain life cycle. It was observed in 1996 that the frequent number of cases in the interior part of Sindh province. It was noticed that CL patients visited any previously reported endemic area of leishmaniasis before the appearance of lesions on the body (Pathan GM, 2001). From 1996-2010 it was being observed that 450 positive history of travel to endemic areas of CL in the country. 750 patients never travelled to endemic before or after the appearance of the lesion and there were residing in the Central part of Sindh Province (Larkana, Dadu, Jacobabad) were endemic for cutaneous leishmaniasis (Bhutto et al., 2008).

Naturally, Leishmania parasite occurs morphologically in two structures; extra-cellular promastigotes and intracellular amastigotes. Flagellated promastigotes are motile, enlarged, and are found in the alimentary tract of sand fly vectors, whereas non-motile and ovoid amastigotes present and multiply in the phagocytosomes of host macrophages. The leishmanial parasites cultural form is morphologically alike to that present in sand fly vector (Mazumdar et al., 1993). In nature increase, the cases of leishmaniasis follow the distribution of vectors in the tropical, subtropical, and temperate regions of the world (Chang et al., 1985).

Cutaneous leishmaniasis (CL) is a chronic parasitic infection of the skin caused by various species of protozoa belonging to genus Leishmania (WHO, 1984). It is originated when acellular, flagellated promastigote type of Leishmania is inoculated into the human skin during the sand fly bite. Phagocyte and macrophages cells, inside which parasite convert into intracellular amastigote form, speedily engulf the organism. Leishmaniasis needs a mammalian host to continue its parasitic population. Infected Terrestrial small rodents have

been reported (Kakarsulemankhel, 2011). Leishmania is a commit intracellular protozoan parasite that is transmitted by a female phlebotomine sand fly bite in promastigote type into the human skin. The infused parasites duplicate more than once in the phagolysosomes of macrophages in the type of amastigotes. The cutaneous type of the illness is caused chiefly in Pakistan by *Leishmania tropica* and *Leishmania major*. Cutaneous leishmaniasis is a standout amongst the most continuous vector-borne parasitic contaminations has the most astounding occurrence in Kabul, Afghanistan with an expected 67,500 to 200,000 cases every year. (Khan and Muneeb, 2010; Faulde et al., 2008, 2009; Kolaczinski et al., 2004).

In spite of being 3rd most significant vector-borne diseases globally regarding freight of disease, leishmaniasis is one of the so-called "neglected disease" (Leslie et al., 2006). Leishmaniasis is characterized depending on the medical conditions produced in man:

Visceral leishmaniasis is possibly deadly if untreated. It is marked by extended spleen, which may end up noticeably bigger than liver. Visceral leishmaniasis (VL) is the chronic parasitic disease caused by *Leishmania donovanicomplex*; *L. donovani donovani*, *L. donovani infantum*, *L. chagasi* which affects the reticuloendothelial system mainly liver, spleen, bone marrow and lymph nodes. It is transmitted by sandfly vector phlebotomus. The main reservoirs are human beings, wild and domestic animals. Visceral leishmaniasis is endemic in subtropical and tropical regions of, Asia, Africa, the Mediterranean, southern Europe, South and Central America (Myler, 2008).

Mucocutaneous leishmaniasis starts with skin bruises, which spread causing tissue harm especially to ears, nose and lips, Mucocutaneous leishmaniasis initiates with skin ulcers which spread causing tissue harm to nose and mouth. This sort of leishmaniasis can be analyzed by skin scrapings (Zardad and Manzoor Elahi, 2005).

Diffuse cutaneous leishmaniasis looks like sickness and is hard to treat Diffuse cutaneous leishmaniasis produces widespread skin injuries which resemble leprosy and it is very hard to treat. (Manzoor Elahi et al., 2008).

Cutaneous leishmaniasis is endemic in certain areas of Pakistan like Baluchistan, NWFP and Sindh. Cutaneous leishmaniasis (CL) causes a sore at the bite side and can heal in a few months to a year. This parasitic infection is transmitted through the bite of sand fly and the presence of its vector is associated with the occurrence of cases in endemic areas (WHO, 1990). During the past decade, cutaneous leishmaniasis has emerged as challenging infectious disease in the form of new outbreaks in areas not identified previously especially in Sindh. It has affected all age group including children (Mujtaba et al., 1998). From 1996, a frequent number of cases of leishmaniasis have been observed in interior part of Sindh, Province, 1210 cases each year reported from Sindh (Bhutto et al., 2008).

CONCLUSION

The conceivable elements in charge of a flare-up and spread of illness from north to south of nation considered as:

- Flow of waterways from north to south

- Increased populace.
- Refugee flood
- Heavy transportation of natural products.
- Military exercises.

An ecological adjustment like the development of water dams can change the temperature and moistness of soil and vegetation, which may change of piece and thickness of sand fly species and rat's species. Infrequently leishmaniasis (a few species) likewise might be spread through defiled needle sharing on blood transfusion, spread from pregnant lady to her child has additionally been accounted for. Cutaneous leishmaniasis is endemic and expanding in the upper and different parts of Sindh region. This requires consideration of well being experts to take suitable measures for viable control, falling flat which, it might make amore serious general medical issue. Additionally, anitty-gritty epidemiological overview on a substantial scale is required to know the correct predominance of CL in and around Sindh territory and sub-atomic portrayal and different reviews are required for further assessment of this sickness. It has been presumed that the cutaneous leishmaniasis is spreading in Sindh and numerous unreported cases are available as a repository of this vector-borne ailment. Wellbeing experts ought to take measures to avoid endemicity of this infection.

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