

## CUTANEOUS LEISHMANIASIS: AN EMERGING CHILDHOOD INFECTION

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**Background:** Cutaneous Leishmaniasis (CL) has been an endemic parasitic infection in certain areas of Pakistan. New outbreaks have occurred in many areas not identified previously especially in the province of Sindh. The object of this study was to see the prevalence of CL as a childhood disease. **Methods:** It was a cross sectional study in which 400 cases coming to various skin disease clinics were included for confirmation of CL by microscopy, culture and PCR. **Results:** Out of 400 cases, 185 cases of ages from 1–14 years were diagnosed clinically and confirmed by Lab. Tests for CL. Both dry and wet types of lesions were observed that indicated presence of more than one strain of the parasite. **Conclusion:** Cutaneous Leishmaniasis was found to be significantly prevalent in children. The strains were found to be *L. tropica* and *L. major* as was indicated by the nature of lesions and confirmed by PCR.

**Keywords:** Cutaneous leishmaniasis, Childhood infection, *L. tropica*, *L. major*.

### INTRODUCTION

Cutaneous leishmaniasis is endemic in certain areas of Pakistan like Balochistan and NWFP. 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.<sup>1</sup>

During the past decade cutaneous leishmaniasis has emerged as a challenging infectious disease in the form of new outbreaks in areas not identified previously especially in Sindh.<sup>2,3</sup> It has affected all age groups including children.

This study was conducted to see the prevalence of this disease in childhood as the treatment poses difficulties in children due to considerable toxicity of chemotherapy.<sup>4</sup>

### MATERIALS AND METHODS

This study was conducted from 1997 till 2001 at Basic Medical Sciences Institute JPMC and the Aga Khan University and Hospital Karachi.

All the cases with non healing ulcers clinically suggestive of cutaneous leishmaniasis were included for confirmation of diagnosis by microscopy for Leishman Donovan (LD) bodies in Giemsa stained smears from the lesions, culture and polymerase chain reaction (PCR) as standard recommended procedures.<sup>5</sup> All the children up to 14 years of age who had non healing ulcers on skin were included. Those who had skin lesions suggestive of fungal or bacterial infections or eczema were excluded

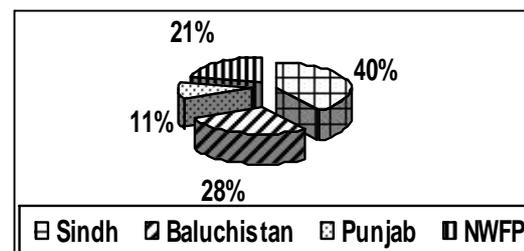
Relevant history regarding place of origin, any visit to endemic area or contact with animals was recorded. Cases were examined for site and nature of lesions

The samples were collected by scrapping of ulcers under strict aseptic conditions and divided into three aliquots. One was stained by Giemsa and examined microscopically for LD bodies, the other

inoculated on blood agar slants enriched with tissue culture medium and the third subjected to P.C.R to amplify mini exon derived RNA gene that detects presence of infection and identifies strain specific differences.<sup>6,7</sup>

### RESULTS

A total of 400 cases with non healing ulcers clinically diagnosed and confirmed on microscopy, culture and PCR for cutaneous leishmaniasis presented in the study duration. Out of these 185 (46.25%) were children of age up to 14 years. There were 118 males (63.7%) and 67 (37.2%) females. The cases belonged to various areas. There were 75 (40.5%) cases from Sindh of which 17 (22.6%) were residents of Karachi who did not give history of visit to any endemic area. From the remaining cases 52 (28 %) were from Balochistan from known endemic areas, 20 (10%) from Punjab and 38 (20.5%) from NWFP (Figure-1).



**Figure-1: distribution of cases of cutaneous leishmaniasis according to area of origin.**

The cases were divided into age groups and the average age group affected was found to be 7 years (Figure-2).

The lesions were observed to be of two types. In 75 cases from Sindh 60 (82.6%) showed wet type of lesions characterized by exudates, redness and inflamed margins. The remaining 15 (17.3%)

were of dry and nodular type covered by crust. The lesions in all the 52 (28.1%) cases from Balochistan and 20 (10.8%) cases from Punjab were of dry nodular type while all the 38 (20.5%) cases from NWFP were observed to be of wet type (Table-1). Both types of lesions were clearly distinctive. The dry lesions were associated with satellite lesions while the wet type of lesions were mostly solitary.

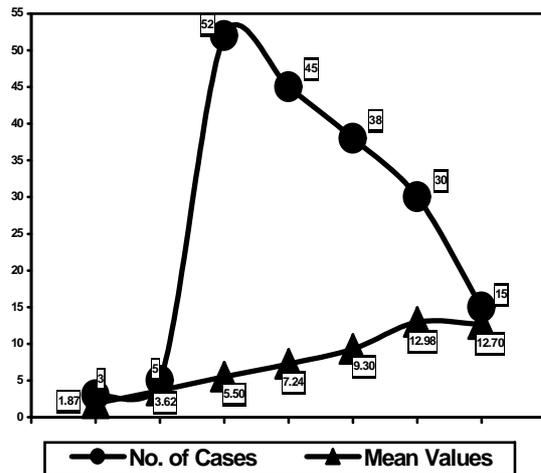


Figure-2: Distribution of cases according to age

The sites most affected were face 82 (44.32%) cases, upper limbs 59 (31.89%) cases and lower limbs 44 (23.78%) cases respectively.

Table-1: Distribution of cases according to types of lesions.

PLACE OF ORIGIN	WET LESIONS	DRY LESIONS
Sindh	60 (32.43%)	15 (8.10%)
Balochistan	-	52 (28.10%)
Punjab	-	20 (10.81%)
NWFP	38 (20.54%)	-
Total Cases	98 (52.97%)	87 (47.02%)

## DISCUSSION

This study revealed a considerable prevalence of cutaneous leishmaniasis as a childhood infection in Pakistan. Up till now only a few studies have been carried out on C.L from this aspect. A recent study in the neighboring country India that was carried out in 2005 recorded 63 cases of CL in children below 12 years of age.<sup>8</sup> Another study on childhood leishmaniasis from Tunisia in 2004 revealed that this infection emerged as an epidemic and affected children with ages from 5 months to 15 years<sup>9</sup> average age was 7.75 years. The disease is endemic in the

neighboring country Iran<sup>10</sup> in all the mentioned studies the male cases were found to be less than the females, however in the present study the male cases were more which may be due to the more outdoor activities of the boys as compared to the girls as cultural customs.

The lesions were found to be of both dry and wet types indicating the presence of different strains in the country. In the province of Sindh, the presence of both types of lesions indicates that *Leishmania tropica* as well as *L. major* both exist as the infectious agents which a significant finding.<sup>2</sup>

PCR was found to be an effective method for the confirmation of infection as well as to conform the species specific differences in the parasites from the cases<sup>6,11</sup> and was superior as compared to microscopy and culture.<sup>12</sup>

The results of the present study reveal that cutaneous leishmaniasis has emerged as a challenging childhood infection indicating a dire need for designing effective preventive measures on a mass scale.

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