Original Article

Clinical trial of 20% *Mat lippia* (bucan) topical ointment for cutaneous leishmaniasis; a preliminary trial

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Abstract

**Background** Cutaneous leishmaniasis is endemic in many parts of Pakistan. The mainstay of treatment is systemic pentavalent antimonials. However, many indigenous plants are also used for its treatment.

**Objective** To test the hypothesis that *Mat lippia* (Bucan), a local plant, may be topically effective in the treatment of cutaneous leishmaniasis.

**Patients and methods** The study comprised of two parts. Part 1: An alcoholic extract from the leaves of the plant was obtained and then 20% ointment in petroleum jelly was made. In part 2, eighty patients of cutaneous leishmaniasis were treated with this ointment applied thrice daily for six weeks. Patients were followed up initially twice a week and then at weekly intervals for six weeks.

**Results** 60% showed excellent response and 20% exhibited fair improvement.

**Conclusion** 20% *Mat lippia* ointment seems to be effective in the treatment of leishmaniasis. However, further comparative studies are warranted to confirm these findings.

**Key words**

*Mat lippia* ointment, leishmaniasis.

Introduction

Leishmaniasis is a chronic infestation of skin, mucosa or viscera caused by several species of intracellular protozoan of the genus *Leishmania.*¹ Phlebotomine sandflies (vector) transmit *Leishmania* from infected animal to humans or from person to person.² In cutaneous leishmaniasis, the amastigote multiply in dermal macrophages near sandfly bite typically on the exposed body surfaces, such as forearms, limbs, cheeks or ears. Lesions may be nodal or ulcerative. Nodules may be single or multiple, whereas
ulcers are of relatively less destructive dry type to more destructive wet type.³

In Pakistan, the cutaneous leishmaniasis is most prevalent in the northern mountainous areas. A total of 11,000 cases were registered during 2001-2002 during the biggest outbreak in districts Larkana and Dadu of Sindh province.⁴,⁵ Continuous influx of Afghan refugees to parts of NWFP and Balochistan and endemicity of the disease in certain parts of Afghanistan, and perhaps the occurrence of droughts in the region, have contributed to the spread of leishmaniasis in both Afghan refugee camps of NWFP and Balochistan and host communities.⁵,⁶

Being a disease of tropical areas where the majority of population belongs to poor socioeconomic stratum it cannot afford quite expensive recommended drugs e.g. injection meglumine antimoniate and amphotericin B etc. Systemic therapy is associated with numerous side effects and is expensive as compared to local applications.⁷

The local traditional use of some plants and herbs for the treatment of infected sores and ulcers has been notified by various authors.⁷,⁸ During a recent out-break of disease in Larkana region, many affected individuals claimed to be cured by local application of leaves of plant Mat lippia (Phyla nodiflora, matchweed. locally called as ‘Bucan’).⁸,⁹,¹⁰ The plant is a natural grower in the affected region and traditionally used for treatment of infected sores and ulcer in rural population.⁷

A preliminary study was devised to confirm or refute this claim.

**Materials and methods**

This observational preliminary study was carried out in the District Leishmaniasis Cell at Leprosy Unit, Chandka Medical College Hospital, Larkana. A total number of 80 patients, native of Larkana region, having cutaneous leishmaniasis were included in the study. The diagnosis was made clinically and confirmed by the presence of Leishman-
Donovan bodies in the smears stained by Leishman-Giemsa stain.

**Preparation of topical ointment**

20% topical ointment with the ethanolic extract of leaves of *Lippia nodiflora* was prepared as under.11-14

1. *Leaves of plant L. nodiflora* were collected from rural areas of Taluka Warh, District Shahdadkot of Larkana region in the month of June (temp: 40-45ºC). These were kept under shade for 25 days at room temperature.

2. *Extraction* Dried leaves were reduced to coarse powder by using an electric blender. 50 gram of this powdered material was kept for maceration in conical flask containing 250 ml of ethyl alcohol for 72 hours. The extract was filtered through Whatman No.1 filter under vacuum. Filtrate was evaporated using rotary evaporator under vacuum at 40ºC, and by this 50 gm of leaves coarse powder yielded 3.3 gm of dried powder extract. Using this procedure repeatedly the required amount of dried powder extract was obtained.

3. **20% Mat lippia topical ointment.** It was prepared by complete homogenous mixing of 20 gm dried powder extract with 80 gm of petroleum jelly.

**Patients recruitment and follow-up**

80 patients having cutaneous leishmaniasis sores and willing to apply the *Mat lippia* ointment were included in the study. 37 (46.3%) were males and 43 (53.7%) were females. The age and sex wise distribution of these patients is shown in **Table 1**.

All the patients were instructed to use 20% *Mat lippia* ointment on sores and ulcers three times a day after cleaning the lesions with soap and water. They were also followed up regularly, initially on every third day and then after every week up to six weeks. All the subjects were instructed to carry out their daily activity during the period of treatment without any hindrance.

**Effectiveness of topical ointment**

Before the application of 20% *Mat lippia* ointment the lesions were examined and photographed. Lesions were examined for size, shape, margins, induration, oozing or

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Male n (%)</th>
<th>Female n (%)</th>
<th>Total n (%)</th>
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</thead>
<tbody>
<tr>
<td>0-5</td>
<td>6 (7.5)</td>
<td>-</td>
<td>6 (7.5)</td>
</tr>
<tr>
<td>6-10</td>
<td>10 (12.5)</td>
<td>6 (7.5)</td>
<td>16 (20)</td>
</tr>
<tr>
<td>11-20</td>
<td>6 (7.5)</td>
<td>21 (26.3)</td>
<td>27 (33.7)</td>
</tr>
<tr>
<td>21-29</td>
<td>6 (7.5)</td>
<td>3 (3.7)</td>
<td>9 (11.25)</td>
</tr>
<tr>
<td>30-39</td>
<td>-</td>
<td>3 (3.75)</td>
<td>3 (3.75)</td>
</tr>
<tr>
<td>40-49</td>
<td>6 (7.5)</td>
<td>10 (12.5)</td>
<td>16 (20)</td>
</tr>
<tr>
<td>50-59</td>
<td>3 (3.75)</td>
<td>-</td>
<td>3 (3.7)</td>
</tr>
<tr>
<td>Total</td>
<td>37 (46.3)</td>
<td>43 (53.7)</td>
<td>80 (100)</td>
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Table 2 Efficacy of 20% Mat lippia ointment in cutaneous leishmaniasis (n=80)

<table>
<thead>
<tr>
<th>Response</th>
<th>n (%)</th>
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<tbody>
<tr>
<td>Excellent</td>
<td>48 (60)</td>
</tr>
<tr>
<td>Fair</td>
<td>16 (20)</td>
</tr>
<tr>
<td>Good</td>
<td>10 (12.5)</td>
</tr>
<tr>
<td>Nil</td>
<td>6 (7.5)</td>
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discharge. Similar examination was carried out at each follow up visit after the application of 20% Mat lippia ointment thrice a day. The observations were recorded and compared carefully with that of first and last examination.

Finally the effect of 20% Mat lippia ointment was graded into four categories on the basis of healing response in lesions as follows:

1. No response = no healing, no decrease in the size and induration of the lesion.
2. Fair response = 50% healing with decrease in size and induration.
3. Good response = 80%-90% healing with marked decreases in size and induration.
4. Excellent response = more than 90% and complete healing and no induration.

Results

Out of 80 patients, excellent response was observed in 48 (60%) patients (Table 2).

Discussion

Mat lippia (Phyla nodiflora) belongs to family Verbeneae and in local Sindhi language it is popularly known as “Bucan”.15-19 The plant is widey distributed is Sindh Province but grows throughout plains of Pakistan along bunds of irrigation canals and river banks. Alcoholic extract of Mat lippia has anti-inflammatory and antibacterial activity.17 Leaves of the plant are used to treat various medical problems in rural population especially for healing of wounds, sores and ulcers.15 In our study no side effects were noted. Further comparative studies are recommended to evaluate the efficacy of this cheap treatment for cutaneous leishmaniasis.

References


10. Akhter FM. *Chemical and biological investigation of medicinal herbs*. Karachi: Department of Pharmacognosy, Faculty of Pharmacy, University of Karachi; 1993.


