Case Report

Glucantime Resistant Cutaneous Leishmaniasis – A Case Report

Nadia Sultan[1], Ali Sher[2], Noor Us Saba Ejaz[3], Tayyab Ahmad[4]

Abstract

Leishmaniasis is a vector-borne disease caused by flagellated protozoans from the genus Leishmania. This disease is prevalent in tropical and subtropical regions and is found across 98 countries in Europe, Africa, Asia, and the America and has become a global health concern. Transmitted through the bite of female sandflies, Leishmania has become endemic in various regions around the world. According to the WHO, it is estimated that there are approximately 700,000 to 1 million new cases of leishmaniasis worldwide each year. Leishmaniasis manifests in three main forms: visceral (the most severe, often fatal without treatment), cutaneous (the most common, typically causing skin ulcers), and mucocutaneous (affecting the mouth, nose, and throat). However, Pakistan has a burden of cutaneous leishmaniasis. Here we report a case of 24 years old male, who presented from district Kashmore of Pakistan with multiple non healing ulcers on exposed body parts particularly suggestive of Cutaneous Leishmaniasis.

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Authors Affiliation:
[1-3]Rahbar Medical and Dental College, Lahore; [4]Allama Iqbal Medical College, Lahore
Corresponding Author: Dr. Nadia Sultan, Rahbar Medical and Dental College, Lahore. **Email:** drnadiaasad82@gmail.com

Introduction

Leishmaniasis has become a global health concern.[1] It is transmitted through the bite of infected female phlebotomine sandflies. Over 90 species of sandflies are known to transmit Leishmania parasites. Leishmaniasis currently poses a threat to approximately 350 million people in endemic areas, with recent studies estimating that the disease causes around 50,000 deaths annually.[4] The types of Leishmania vary, depending on the body structures involved.[3] Despite its rising incidence globally, cutaneous leishmaniasis is considered one of the so-called neglected diseases. Its low mortality rate has resulted in limited attention from financial donors and public health authorities. Traditionally, the primary treatments for cutaneous leishmaniasis have been pentavalent antimonials, although new oral and topical treatment options have only recently become available.

Case Report

Kashif Ali, a 24-year-old Rangers employee currently stationed in District Kashmore, presented to the dermatology department of Punjab Rangers Teaching Hospital with multiple erythematous, crusted plaques and non-healing ulcers on his arms and legs for two months. Local examination revealed multiple ulcerated plaques with erythematous borders and yellowish exudate on the anterolateral aspect of the right arm, forearm, around the left wrist joint, and on both legs (see Figure 1). Based on his history and clinical examination, a clinical diagnosis of Cutaneous Leishmaniasis was made. A skin slit smear test showed LD bodies indictive of Cutaneous Leishmaniasis. Patient was admitted in dermatology department and all baseline investigations were done. He was treated with Inj. Glucantime and topical combination of fusidic acid and terbinafine. After completing 28 doses of Inj. Glucantime, he showed mild improvement and clinical resolution of plaques had started. Patient was discharged and called for follow up after 02 weeks. After 02 weeks, the patient was examined in skin OPD and further clinical resolution was observed.

After 04 weeks, the patient again presented in the OPD with new erythematous popular erupt-

ion over the previous plaques. A slit skin smear test was repeated that showed numerous LD Bodies. A second round of Inj. Glucantime was started along with combination of fusidic acid and terbinafine topically and twice weekly sessions of cryotherapy. Despite adhering to the treatment regimen, there was minimal clinical improvement after 28 days. Another skin slit smear test, was conducted and skin biopsy was performed and both results confirmed the presence of LD bodies indicative of Cutaneous Leishmaniasis. Kashif Ali was subsequently diagnosed with Glucantime-resistant leishmaniasis. He remained otherwise stable with an unremarkable systemic review and medical history.

Now it was decided to put patient on second line anti-protozoal therapy. The patient was started on Cap. Miltefosine 50 mg orally, three times daily, after meeting the eligibility criteria, and continued with cryotherapy twice weekly and same topical preparation. Throughout the 28-day course of Cap. Miltefosine, the patient remained clinically stable, with regression of the lesions and no new eruptions. No LD bodies were seen at the repeated slit skin smear test at the end of 04 weeks treatment with Miltefosine. He was discharged after achieving clinical remission and completing the 28-day treatment regimen. (see Figure 2) Patient was called after two weeks of completion of treatment for a follow-up visit and his lesions showed great improvement (see figure 3).

Figure 1: An ulcerated plaque with erythematous border and yellow exudate on the anterolateral aspect of the right forearm.

Figure 2: Right forearm lesion after achieving clinical remission and completing 28-day treatment regimen.

Figure 3: Picture of lesion on a follow up visit after two weeks of completion of treatment.

Discussion

The World Health Organization identifies leishmaniasis as one of the most significant neglected tropical diseases.[1] Leishmaniasis is a parasitic infection caused by flagellated parasites from the genus Leishmania. It is primarily a zoonotic disease transmitted through the bites of bloodsucking sandflies of the genus Phlebotomus. The primary

reservoirs for the disease are wild or semi-domesticated animals, such as rodents and dogs.[2] Leishmaniasis can affect the skin, mucosal membranes, and internal organs and is categorized into three types: Cutaneous, Mucocutaneous, and Visceral.[3] In Pakistan, Cutaneous leishmaniasis is endemic in District Kashmore, predominantly impacting the rural population, with most patients presenting with lesions on their legs and feet.[5] Soldiers are at high risk for leishmaniasis while conducting operations or performing duties in endemic regions. Of the three forms of leishmaniasis, Cutaneous leishmaniasis is the most common. Its severity can vary, influenced by factors such as host immunity, parasite virulence, and the behavior of both the host and the vector.[6] Cutaneous leishmaniasis presents with a broad differential diagnosis due to its diverse clinical manifestations. It typically starts as a small papule that enlarges and ulcerates in the center, forming a volcano-shaped, "wet" lesion.[7] Leishmaniasis should be included in the differential diagnosis for individuals who reside in or have traveled to known endemic areas and present with symptoms of visceral infection or with cutaneous or mucosal lesions.[3] The confirmatory diagnosis of leishmaniasis relies on the microscopic identification of Leishmania amastigotes in tissue samples. This can be accomplished through aspirates or biopsies of relevant tissues, including bone marrow, spleen, lymph nodes, liver, or skin slit smears and biopsies. Once a diagnosis is confirmed, various treatment options are available for leishmaniasis. Historically, pentavalent antimonials have been the first-line treatment for the disease.[8] However, it is associated with risks such as liver cirrhosis and pancreatic toxicity. Additionally, there is an emerging risk of resistance to pentavalent antimonials.[9] As a result, amphotericin B and its lipid formulations have become second-line therapies. However, these drugs are nephrotoxic and necessitate careful monitoring of kidney function. Miltefosine has since become a widely used treatment for both Visceral and Cutaneous leishmaniasis. It is a structural analog of lecithin, with the chemical formula C21H46NO4P and a molar mass of 407.576 g/mol.[10]

Miltefosine offers significant advantages as an oral medication, including high efficacy and a short treatment duration. It has been included in the World Health Organization (WHO) List of Essential Medicines since 2010. It is currently the only oral drug effective in the treatment of leishmaniasis. Several local therapies have been developed to treat limited cutaneous leishmaniasis alongside systemic treatments. These include photodynamic therapy (PDT), cryotherapy, and thermotherapy, all of which have demonstrated effectiveness in managing cutaneous leishmaniasis.

Conclusion

Leishmaniasis is a significant health issue endemic in various regions worldwide. Although multiple treatment options are available for leishmaniasis, pentavalent antimonials are regarded as the primary therapy. However, given the painful intramuscular route of administration and the rising global resistance, it is the need of hour to explore alternative treatment options.

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Author's Contribution

NS: Conceived, designed, edited the manuscript, given final approval of the version to be published, critical revisions.

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