An unexpected encounter: cutaneous leishmaniasis in wound care

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Cutaneous leishmaniasis is a parasitic infection caused by the *Leishmania* species, transmitted by infected sandflies. Patients with cutaneous leishmaniasis present with single or multiple skin lesions at the bite site. This article presents a rare case of cutaneous leishmaniasis in Namibia. The diagnosis was confirmed via histopathology and molecular typing of the *Leishmania* species. The article highlights the challenges of diagnosing cutaneous leishmaniasis in non-endemic areas. It also emphasises the importance of biopsy and multidisciplinary care when managing chronic wounds. The report connects the case to global trends in leishmaniasis epidemiology and discusses the implications for clinical practice.

Keywords: chronic wounds, cutaneous leishmaniasis

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Introduction

Cutaneous leishmaniasis is a parasitic infection caused by the *Leishmania* species. Infected sandflies transmit it, and it is endemic in certain parts of Africa, Asia, Latin America, and the Middle East.[1] Patients with cutaneous leishmaniasis present with single or multiple skin lesions at the bite site. In most cases, the lesions resolve spontaneously, but others will persist for years and need treatment to resolve.

Cutaneous leishmaniasis lesions are not unique in appearance. In areas where the disease is not endemic, a doctor will probably not have a clinical suspicion of the condition. In this case, we describe a patient who presented with cutaneous leishmaniasis after visiting the southern part of Namibia. He had non-healing, ulcerating lesions, which were diagnosed with punch biopsy. It is important to note that this is the first reported case of cutaneous leishmaniasis in Namibia in which the *Leishmania* species was identified by molecular typing.

Case report

An 82-year-old male patient presented to N1 City Medical Chambers in Cape Town, South Africa, with a five-year history of three small, non-healing ulcers on the right arm. He vividly remembers getting painful "insect bites" around the right elbow whilst camping at his son's farm in Karasburg, Namibia. Karasburg is 200 km south of Keetmanshoop, close to the South African border. Within a month after the insect bites on his right arm, the patient developed ulcers, which failed to heal. He presented to his local general practitioner, who initially suspected a sac spider bite, and he managed the wounds conservatively with dressings. Due to poor wound progress, the patient was referred to the plastic surgeon for further evaluation and management.

The patient's medical history included deep venous thrombosis, ischaemic heart disease with two coronary artery stents, hypertension, and dyslipidaemia. He also had chronic atrial fibrillation requiring life-long warfarin. The warfarin was significant as he had considerable drug-to-drug interactions between the fluconazole that he was to receive and the warfarin, requiring substantial warfarin dose adjustment. On examination, he was overweight, with a 27 kg/m^2 BMI. He had three ulcerated plaques with peripheral crusting and an erythematous rim on the right elbow (Figure 1). He had no regional adenopathy. The

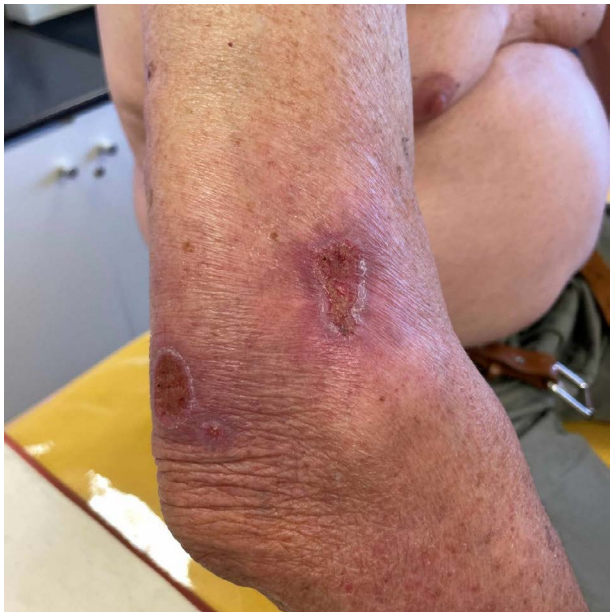

Figure 1: Chronic non-healing wounds on the right elbow of an 82-year-old male

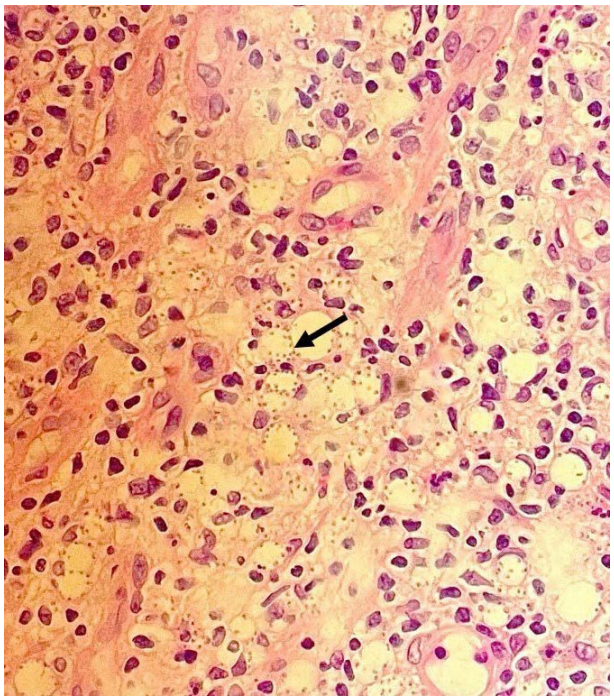

Figure 2: Microscopic examination shows scattered groups of macrophages filled with cytoplasmic granules (arrow) consistent with *Leishmania donovani* bodies (Haematoxylin and Eosin stain slide, original magnification 100×)

initial clinical impression was that of either a cutaneous squamous cell carcinoma or an ulcerated basal cell carcinoma. Two punch biopsies were obtained and sent for histological analysis.

Both biopsies showed features consistent with cutaneous leishmaniasis (Figure 2). The epidermis showed ulceration with underlying granulation tissue proliferation, a neutrophil infiltrate, and a dense infiltrate of lymphocytes and plasma cells. Foci of macrophages were present with expanded, clear cytoplasm containing *Leishmania donovani* bodies,

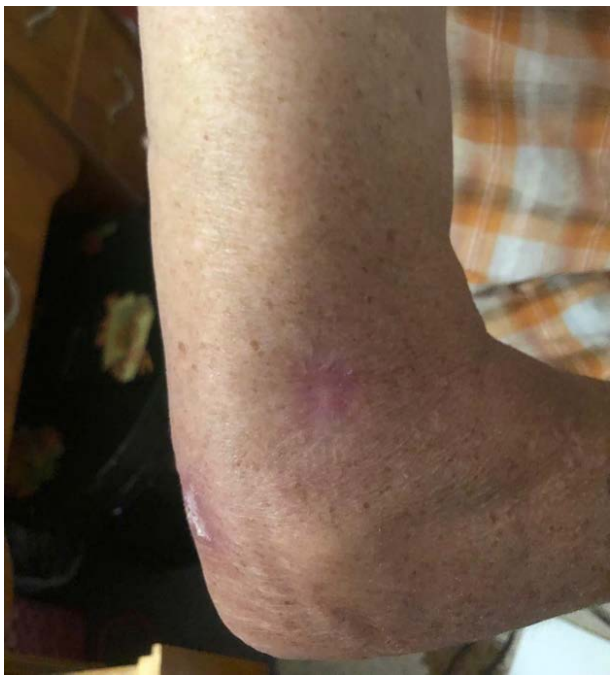

Figure 3: Healed cutaneous leishmaniasis wounds following the appropriate treatment

which showed positive staining on Grocott's and periodic acid-Schiff fungal stains. The Ziehl–Neelsen stain was negative. In addition, the samples were sent for microbiological identification sequencing using the Sanger technique. The results showed *Leishmania tropica* as the cause of the lesions.

Due to the non-healing nature of his ulcers, advanced age, and prolonged course of the disease, the case was discussed with an infectious diseases physician, after which the patient was treated with 200 mg oral fluconazole daily for six weeks. After the clinical review, two of the three wounds had responded to the treatment and were completely healed (Figure 3). A repeat biopsy of the remaining wound showed no evidence of cutaneous leishmaniasis. However, Grocott's fungal stain demonstrated the presence of fungal yeasts and hyphae, which did not result in any identification upon sequencing of the amplified fungal genome. An antifungal ointment was prescribed for two months, ultimately healing the remaining ulcer.

Discussion

Leishmaniasis is a vector-borne parasitic disease caused by a group of flagellated protozoa, the *Leishmania* species, and transmitted by sandflies (*Phlebotomus* spp. or *Lutzomyia* spp.).[1] The disease has three main forms: visceral leishmaniasis, mucocutaneous leishmaniasis, and cutaneous leishmaniasis. Visceral leishmaniasis, also known as kala-azar, is fatal if left untreated in 95% of cases. It is common in India, East Africa, and Brazil. Mucocutaneous leishmaniasis leads to total or partial destruction of mucous membranes of the nose, mouth, and throat and occurs in Bolivia, Brazil, Ethiopia, and Peru.[2]

Cutaneous leishmaniasis is endemic in the tropics, and there are about 1.5 million new cases each year, of which more than 90% occur in Middle Eastern countries like Afghanistan, Algeria, Iran, Iraq, and Saudi Arabia in the old world, and Brazil and Peru in the new world.[3] It is estimated that between 600 000 and 1 million new cases occur worldwide, with only around 200 000 cases being reported to the World Health Organization (WHO).[2]

There has been a global rise in the incidence of cutaneous leishmaniasis in the last two decades, attributed to global warming and the habitat expansion of *Phlebotomus* vectors in recent decades. This expansion is demonstrated in many field studies on the epidemiology of leishmaniasis and its vectors in Anatolia and Eastern Europe.[1]

Cutaneous leishmaniasis can mimic other inflammatory and malignant conditions. Consequently, it has been referred to as "a great imitator", leading to misdiagnosis, inappropriate treatment, and morbidities.[4] The case for misdiagnosis is more marked in areas where it is least suspected and where routine monitoring for the disease is not done within the public system.

Clinically, a typical cutaneous leishmaniasis lesion first appears as a red papule, which, within one to three months, may progress into erythematous nodules, indurated or scaly plaques, or ulcers with raised borders. This classical presentation is similar to how this case presented to the initial care provider. Although, in uncomplicated cases, cutaneous leishmaniasis is self-limiting, irreversible disfiguring scar formation often occurs, and nodular lymphangitis can complicate the outcome with lasting disability and permanent unsightly destruction.[5]

This case imparts some crucial lessons in approaching any chronic wound. It also highlights the emergence of cutaneous leishmaniasis in areas where it previously has not been fully described. In a 1989 review article, Grové documented more than 18 cases of cutaneous leishmaniasis from the Keetmanshoop-Karasburg-Bethanie region.[6] There has been no documented case since and, of all the cutaneous leishmaniasis cases reported, the species had not been identified.[7] This is the first case in the available literature that identified the genus of the leishmaniasis species found in Namibia. This case would not have raised suspicion of cutaneous leishmaniasis as there were no reported cases in the literature over the last 35 years, probably due to underdiagnosis and underreporting.

Good clinical practices are important, and despite the case being atypical, obtaining a biopsy of the lesion yielded the diagnosis and assisted doctors in determining the correct treatment plan. Early referral to a dermatologist is important, especially in patients presenting with a chronic wound, and would assist in the patient receiving appropriate care.

Conclusion

Cutaneous leishmaniasis is uncommon in many parts of the world and is likely overlooked by many wound care practitioners. This article highlights the importance of obtaining a biopsy from a chronic, non-healing ulcer. Furthermore, it provides a valuable addition to the limited literature on cutaneous leishmaniasis in southern Africa, particularly Namibia. It underscores the importance of considering rare diseases in differential diagnoses for chronic wounds and aligns with global concerns about leishmaniasis expansion due to environmental changes.

- **Relevance to clinical practice in South Africa**: High relevance, as it highlights diagnostic challenges and introduces the possibility of emerging endemic areas.
- **Relevance to wound care specialists**: Significant, as it provides practical lessons on biopsies and interdisciplinary approaches.

Conflict of interest

The authors declare no conflict of interest.

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Ethical approval

Informed consent was obtained from the patient.

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