

Cutaneous leishmaniasis before and after renal transplantation; a case report

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ABSTRACT

Background: Cutaneous leishmaniasis is an endemic infectious disease in Iran caused by flagellated protozoa. The most common cause of cutaneous leishmaniasis is *L. major*. We report a case of disseminated cutaneous leishmaniasis after renal transplantation.

Patient: A 50-year old man received renal transplantation three months ago for diabetes mellitus-associated renal failure. Before renal transplantation, he gave the history of insect bite and a single nodule that was clinically diagnosed as local cutaneous leishmaniasis, however, he had not received therapy. Three months after transplantation while he was on immunosuppressive therapy, he was admitted for disseminated cutaneous nodule. Direct smear and pathology detected leishman body and amastigote in the lesion compatible with the diagnosis of disseminated cutaneous leishmaniasis. Despite difficult therapeutic approach, he cured after combination therapy with glucantim and amphotericin B for one month.

Conclusion: In countries like Iran where leishmaniasis is endemic, each nodule or chronic skin lesion should be evaluated for cutaneous leishmaniasis. Transplant clinicians should have a high index of suspicion of leishmania infections as an important cause of post transplant morbidity.

Keywords: *Leishmaniasis, Disseminate cutaneous, Renal transplantation.*

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INTRODUCTION

Cutaneous leishmaniasis is an endemic infectious disease in Iran caused by flagellated protozoa. The most common cause of cutaneous leishmaniasis is *L. major* (1). Host immunity to leishmaniasis infection determines different clinical manifestations including subclinical, focal lesion,

disseminated cutaneous, mucosal and visceral leishmaniasis. *Leishmania* parasite could remain in macrophage and T cell for a long time despite therapy and if the patient becomes immunosuppressive, such as renal transplanted subjects, it can disseminate in cutaneous, mucosal or visceral tissues (2-5). We report a case of disseminated leishmaniasis after kidney transplantation from Iran.

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PATIENT

A 50-year old man who had renal transplantation 3 months earlier due to diabetes mellitus-associated renal failure complained of cutaneous lesion and infection. Patient was under immunosuppressive therapy (prednisolone, cyclosporine) after renal transplantation.

At admission, clinical examinations showed multiple nodules and ulcers of 1-3cm in diameter, involving face, ear, trunk and extremities (figure 1).

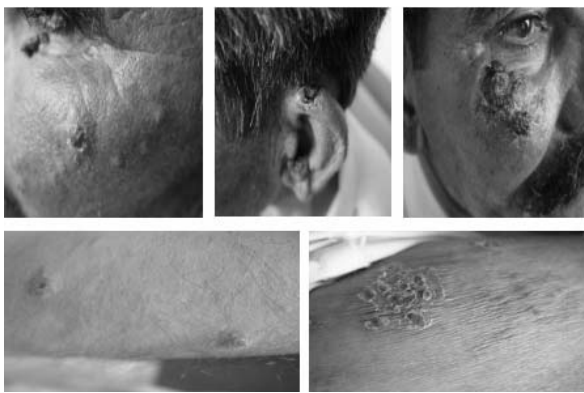


Figure 1. Disseminated cutaneous leishmaniasis in transplanted patient

Some foot nodules became superinfected with bacteria such as staphylococcus aureus and pseudomonas aeruginosa and caused necrotizing cutaneous infection (figure 2).



Figure 2. Bacterial superinfection of cutaneous leishmaniasis

His past medical history revealed a single nodular lesion in dorsal aspect of right foot one month prior to transplantation for which clinical diagnosis of cutaneous leishmaniasis was proposed, however, he didn't receive any medical therapy. Following the operation, it became super infected with bacterial organism. Laboratory tests including complete blood count, liver enzymes, renal function and chest x-ray were within normal range. CT scanning of abdomen, pelvis and transplanted kidney were also normal. Meanwhile, CMV and HSV were rule out and cytology of the lesion for malignancy and smear and culture of lesion for fungal infection were negative. Antibacterial agents were commenced, but nodules and lesions of other parts remained. Finally, the diagnosis of disseminated cutaneous leishmaniasis was confirmed with direct smear and pathology during which leishman body and amastigote were found in the lesion. Patient was recovered after treatment with miltefosin (20/mg daily) and amphotericin B (5mg/kg daily) for one month in addition to vancomycin (1gr/bid) and ceftazidim (2gr/tds) against staphylococci and pseudomonas aeruginosa, respectively.

DISCUSSION

Cutaneous leishmaniasis is endemic in southern and central parts of Iran. Fortunately, mortality and morbidity from leishmaniasis in immunocompetent host is insignificant (6), however, both morbidity and mortality are considerably augmented in immunocompromised patients, including transplant recipients. Parasitic infections affect transplant recipients as a result of transmission with the transplanted organ, recrudescence of a dormant infection, or de novo natural infection. Yet, it is often very difficult to identify the mode of infection in a particular individual (2-4), but in our case, recrudescence infection appeared to cause disseminated cutaneous leishmaniasis.

The parasitic antigens down regulate the macrophage, thereby, inhibiting its ability to destroy them by its powerful proteolytic enzymes and free oxygen radicals. The infected macrophage eventually ruptures, releasing the amastigotes, which infect other macrophages. The latter include both circulating and "fixed" macrophages in different tissues. It is the latter that define the primary site of clinical disease and consequently, the clinical type of leishmaniasis.

Bacterial, viral (most often cytomegalovirus), and fungal infections often develop in transplant recipients receiving combined immunosuppressive therapy. In a large European trial, chronic therapy with cyclosporine was associated with infection in approximately 40% of patients, sepsis in 20%, and cytomegalovirus in 15 to 25%. Noteworthy, the majority of transplant recipients require other immunosuppressive therapy in addition to cyclosporine. Prolonged use of corticosteroids may also increase the incidence of secondary infection, mask acute infection (including fungal infections) or prolong or exacerbate viral infections. Corticosteroids decrease inflammation by suppression of migration of polymorphonuclear leukocytes and reversal of increased capillary permeability; suppress the immune system by reducing activity and volume of the lymphatic system.

We used immunosuppressive drugs to prevent transplant rejection. It seems as if they predispose patient to disseminated leishmaniasis.

Leishmaniasis can cause subacute or chronic ulcer in healthy subjects and cured with or without treatment, but cosmetic problem may persist as a cutaneous complication. Host immunity response against leishmaniasis infection determines its clinical presentation including local, disseminated cutaneous or visceral leishmaniasis (7). As it was seen in our case, leishmaniasis in individuals with intact immune system could cause single cutaneous lesion which was not severe before transplant, but it is hazardous in immunosuppressive or transplant

patients since it could be associated with disseminated leishmaniasis (8,9). Recurrence of cutaneous leishmaniasis has been described in immunocompromised patients as well as in organ transplant recipients. The skin lesions tend to be diffuse rather than localized and may involve internal organs (5,10,11).

Any nodule or chronic ulcer in patients subjected for transplantation, especially in endemic areas for leishmaniasis, is of utmost importance and should be investigated and treated before the operation.

In diabetic patients subjected for kidney transplantation, chronic foot infections are critical and if these infections failed to response to empiric antibacterial drugs, other causes of chronic lesions such as fungal, parasitic and viral infections should be considered (10).

In endemic areas without sufficient laboratory infrastructure, cutaneous leishmaniasis is often diagnosed on the basis of clinical characteristics, but parasitologic confirmation is essential to exclude erroneous diagnoses. We used the conventional method of excisional biopsy and smear staining for making the diagnosis, but fine-needle aspiration cytology and diagnosis by the polymerase chain reaction seems to be approaching a 'gold standard' status as novel techniques. Moreover, PCR approach enables faster identification of *Leishmania* species and subspecies (10).

Cutaneous leishmaniasis in patients with intact immune system can be treated topically or intramuscularly, but transplant patients with disseminated leishmaniasis should be hospitalized and treated with combined systemic long term drugs. Our case was treated with glucantim and Amphotricin B (2,12).

In conclusion, since leishmaniasis is endemic in Iran, transplant clinicians should have a high level of suspicion for leishmaniasis as an important transmission threat, as well as a potential cause of significant post transplant morbidity.

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