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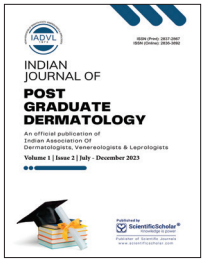

Case Report

Rare Presentation of Immune Compromised District: Disseminated Herpes Simplex Infection over Active Dermatophytosis in an Immunocompromised Patient

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ABSTRACT

Immunocompromised districts are the localised areas of immune deficiency in skin. It is more vulnerable than the rest of the body for infections or other dermatoses. The factors responsible for localised immune dysregulation can be multifarious such as herpetic infections, burns, trauma, ionising or ultraviolet radiations and chronic lymphatic stasis. Herpes simplex virus belongs to the herpesviridae family and can cause mucocutaneous as well as genital skin lesions. Here, we report a rare presentation of disseminated herpes simplex infection over the dermatophytosis skin lesions in a tuberculosis patient with chronic kidney disease.

Keywords: Herpes simplex, Tinea corporis, Tuberculosis, Immune compromised districts

INTRODUCTION

Herpes simplex virus (HSV) infection can be caused by HSV-1 or HSV-2 virus. It can lead to the development of cutaneous lesions, mucosal lesions and genital lesions. Disseminated HSV infection is more commonly seen in immunocompromised patients.[1] Here, we report a case of disseminated HSV infection in a patient with active dermatophytosis, pulmonary tuberculosis and chronic kidney disease (CKD).

CASE REPORT

A 44-year-old male known case of pulmonary tuberculosis and CKD presented with multiple pustules and blisters over his body and oral and genital erosions for 4 days. He was receiving antitubercular drugs for pulmonary tuberculosis for 1 month and terbinafine for dermatophytosis for 2 weeks. There was no history of use of topical steroids over tinea lesions.

On cutaneous examination, there were multiple pustules and haemorrhagic blisters present specifically confined within annular, scaly, erythematous tinea plaques present in the groin folds, axillae, lower extremities, palm and soles. Multiple erosions were present in the oral mucosa, periorbital and on the gluteal region [Figure 1]. Potassium hydroxide mount from scraping over the lesions showed presence of hyphae and the serology for immunoglobulin M for HSV 1 and 2 was positive. He was diagnosed as disseminated herpes simplex infection with dermatophytosis

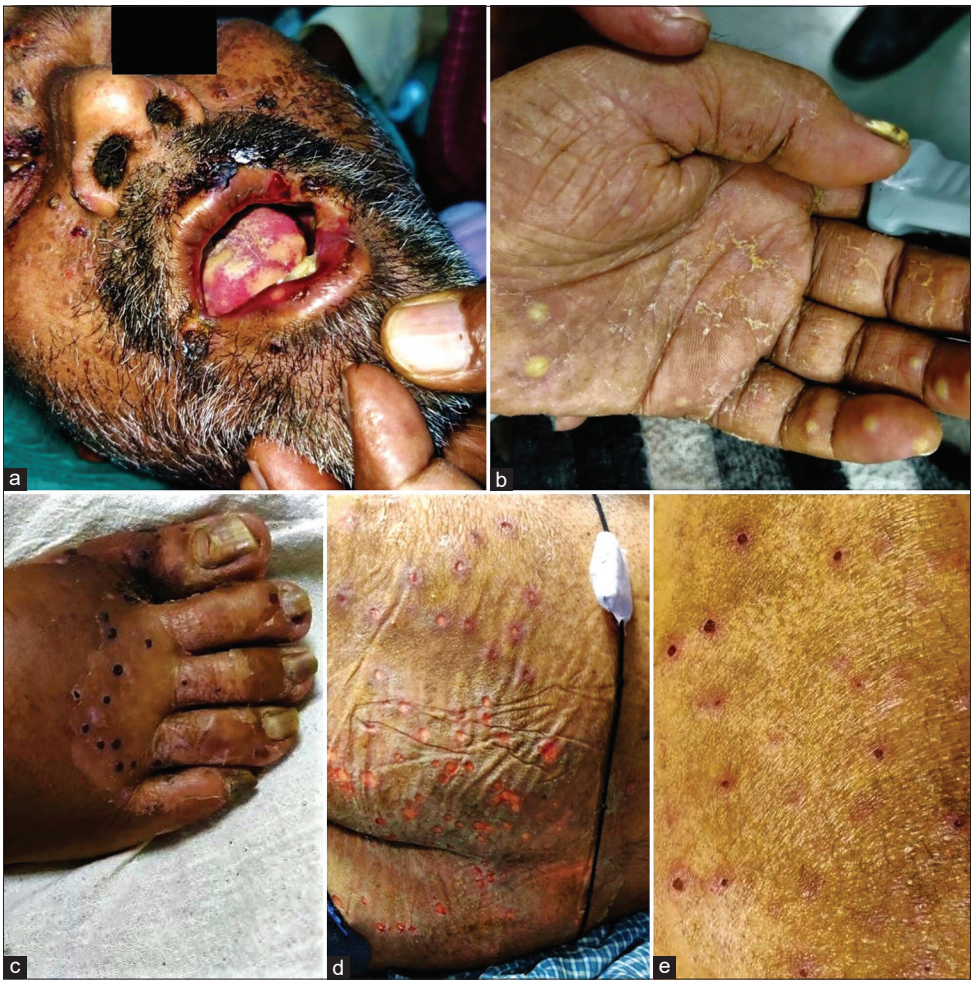

Figure 1: (a) Erosions present over lip mucosa, tongue and haemorrhagic vesicles over cheeks and periorbital region, (b) pustules and dry scales present over left palm, (c) erosions with haemorrhagic crust present over dorsum of right feet, (d) multiple small erosions present in gluteal area overlying tinea plaque and (e) haemorrhagic vesicles present on the tinea plaque over right lower limb around knee.

and was started on intravenous acyclovir 500 mg thrice a day for 14 days along with continuation of the treatment of tuberculosis and dermatophytosis. On follow-up after 7 days of treatment, lesions improved with drying of erosions and post-inflammatory hyperpigmentation [Figure 2].

DISCUSSION

The skin acts as a physical barrier as well as provides immunological protection against foreign antigens. The skin immune system consists of specific cells such as melanocytes (ultraviolet protection), langerhans cells, mast cells and macrophages, T lymphocytes (including γδ T cells) and merkel cells. They cooperate to promptly recognise and eliminate antigens and malignant cells.[2] Hence, when there is immune deficiency, opportunistic infections and tumours can emerge; and exaggerated immune response can lead to allergic or immune-mediated disorders.

The impairment of skin function can often be seen in a sectorial area. This localised impairment of immune functions of the skin has been recognised as Ruocco's immunocompromised districts (ICDs).[3] It encompasses different phenomena such as isomorphic (Koebner) and isotopic (Wolf) responses of skin and locus minoris resistentiae. ICDs can form as a result of trauma, tattooing, burns, lymphedema, infection, radiotherapy and vascular dysfunction. The existence of ICDs has also been reported in immunocompromised patients which further validates the concept of ICD itself, meaning the development of a more immunocompromised site in an already vulnerable patient.[4,5]

The form and extent of ICD can vary depending on the aetiology like a minimal area due to intradermal vaccination, small area (following recurrent HSV infection), wide area (from large field radiotherapy) and a band like or dermatomal pattern area (post-herpes zoster infection).

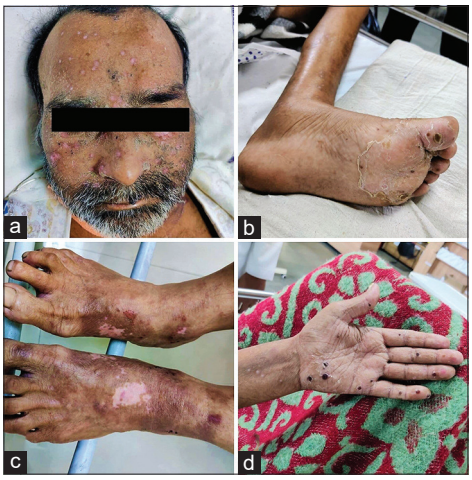

Figure 2: (a) Hypopigmented scars present over face suggestive of improvement, (b) dried erosions over left sole, (c) resolution of lesions over both feet and (d) dried erosions over left palm.

The development of other infectious or inflammatory dermatoses over active dermatophytosis is rare. One such case of lichen planus occurring over healed tinea corporis lesions has been reported by Ghosh *et al*.[6] and four cases of varicella zoster over tinea lesions haven reported by Verma *et al*.[7]

To the best of our knowledge, this is the first case report of herpes simplex infection developing over active tinea lesions after starting of terbinafine. Herpes simplex or Varicella/herpes zoster appearing at the site of superficial dermatophytosis could be due to the T-cell exhaustion at these sites. The persistent dermatophyte antigens may lead to exhaustion of T cells in these cases, eventually resulting in the affected sites becoming an ICD.[8]

CONCLUSION

As superficial dermatophytosis have created an epidemic kind of scenario in India, so it would be interesting to look for the development of various secondary dermatoses appearing over it or tinea lesions developing on the preexisting dermatoses. The development of ICD over some dermatophytosis lesions can also provide insight into the pathogenesis of recalcitrant or chronic dermatophytosis as well as varying responses to the treatment of different dermatophytic lesions in the same patient. Identification of ICD in dermatology is important from diagnostic and therapeutic purposes such as early diagnosis of malignancies on clinical suspicion at previous sites of infection or trauma.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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