Received: 21 June 2021 | Revised: 8 July 2021 | Accepted: 9 July 2021

DOI: 10.1002/ccr3.4639

CASE REPORT

Clinical Case Reports Open Access WILEY

Colesional cutaneous talaromycosis (penicilliosis) and Kaposi sarcoma in an HIV-infected patient

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Abstract

HIV-infected patients are at high risk of multiple pathologies. Accurate identification of multiple colesional pathologies is critical for the patient management. We report a distinctive case of colesional cutaneous talaromycosis and Kaposi sarcoma. Prudent histopathological examination and judicious use of adjunct diagnostic test are essential for the diagnosis.

KEYWORDS

HIV infections, Kaposi Sarcoma, Skin, Talaromycosis

1 | INTRODUCTION

Individuals infected with human immunodeficiency virus (HIV) are often prone to multiple comorbidities. Despite that, it was estimated that less than 2% of HIV-infected patients with skin lesions showed multiple or colesional pathologies.[1] Talaromycosis (formerly penicilliosis) infection and Kaposi sarcoma (KS) can present primarily as skin lesions or as part of a disseminated diseases. Both disorders are AIDS-defining illnesses and have important implication on patient management.

Talaromyces marneffei is endemic in South Asia and Southeast Asia. However, sporadic cases of talaromycosis due to overseas travel were reported in non-endemic nation, such as Australia, United States, and countries in Europe.[2-4] It is said to be one of the most dangerous fungi in the world.[2] We report a rare colesional cutaneous talaromycosis and KS in a HIV-infected patient.

2 | CASE REPORT

A 40-year-old male patient presented with non-productive cough for four months associated with fever, loss of weight, loss of appetite and night sweats. The patient was diagnosed with HIV and hepatitis C infections two years ago, but he has defaulted treatment. Physical examination revealed cervical lymphadenopathy, and purplish-red skin plaques distributed over his chest, back, and extremities. Few punctate erosions were noted on his forehead. Examination of the respiratory system and chest radiography was unremarkable. The patient's CD4 count was 38 cells/microliter. His serum was positive for Rapid Plasma

Reagin (RPR) (titer 1:16) and *Treponema pallidum* particle agglutination (TPPA) tests.

Histopathological examination of the skin punch biopsy showed mild acanthosis with focal hyperkeratosis and parakeratosis. The upper dermis showed moderate infiltration of histiocytes, lymphocytes, and plasma cells (Figure 1). Many yeast cells, that are free lying and within the cytoplasm of histiocytes, were observed in the inflamed area. The yeast cells were highlighted by Periodic acid-Schiff (PAS) stain and showed distinct transverse septum. Within the same lesion, there were spindle cells proliferation forming thin vasoformative channels dissecting the collagen (Figure 2). These spindle cells exhibited bland nuclei with scanty amount of cytoplasm. Extravasated red blood cells, hemosiderin-laden macrophages, and hyaline globules were observed in the spindle cell area. There was no necrosis or granuloma noted. Immunohistochemical studies showed that the spindle cells were positive for CD31, CD34, and speckled nuclear staining for HHV8. The histological interpretation was colesional cutaneous talaromycosis with KS, plaque stage. His blood culture grew *Talaromyces marneffei*. The aspirate from cervical lymphadenopathy was diagnosed as tuberculous lymphadenitis based on the presence of acid-fast bacilli.

The patient was treated with anti-tuberculous regime, intramuscular benzathine penicillin for latent syphilis, and amphotericin B followed by itraconazole for talaromycosis. He was restarted back on combined anti-retroviral therapy. The patient was subsequently discharged well after 19 days of hospitalization.

3 | DISCUSSION

We reported a HIV-infected patient with multiple comorbidities, including cutaneous talaromycosis, cutaneous KS, hepatitis C infection, latent syphilis, and tuberculous lymphadenitis. Talaromycosis is an infection caused by thermally dimorphic fungus named *Talaromyces marneffei*. Talaromycosis is the third most common infection among immunocompromised patients in South and Southeast Asia, ranked just after tuberculosis and cryptococcosis.[4] In the endemic country, the reported prevalence of cutaneous talaromycosis among HIV-infected patients with skin lesions was 1.5%.[5]

Cutaneous talaromycosis typically presented as umbilicated papules in immunocompromised patients. Other clinical differential diagnoses of umbilicated papules include histoplasmosis, cryptococcosis, and molluscum contagiosum infection.[6] Histopathological or cytological examination of the cutaneous lesion is often essential to differentiate them. A definitive diagnosis of talaromycosis needs fungus isolation from patient specimens and demonstration of intracellular T. marneffei organism by histology or cytology.[4] Tzanck cytology smear can rapidly identify *T. marneffei* in cutaneous lesion and may expedite patient treatment.[7]

KS is a low-grade vascular tumor strongly associated with human herpesvirus 8 (HHV-8) infection.[8] The reported prevalence of cutaneous KS among HIV-infected patients with skin lesions was 0.8%.[5] KS has a highly variable clinical course, ranging from slow to rapidly progressing disease.[8] Early Kaposi sarcoma

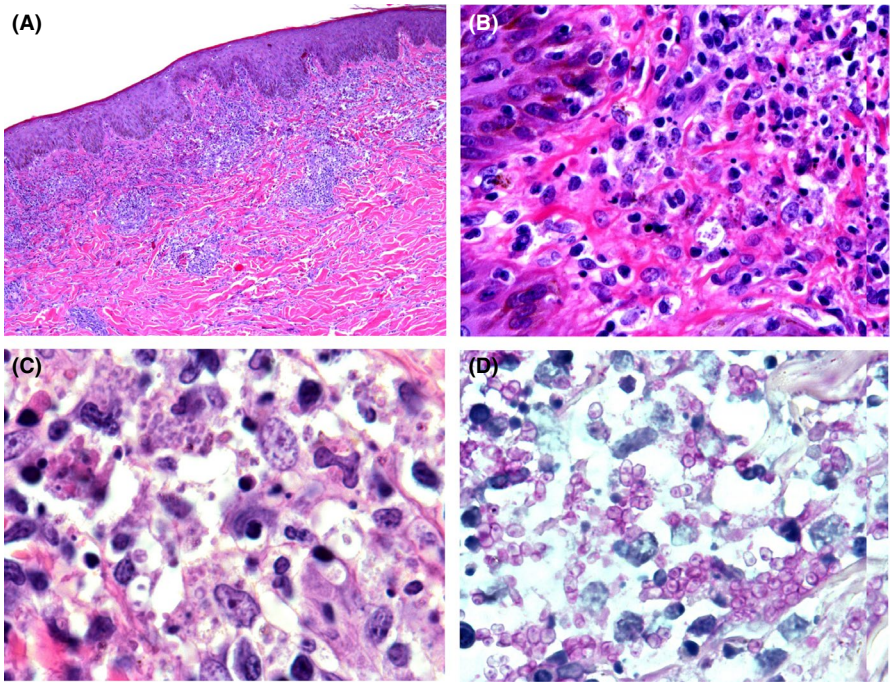

FIGURE 1 Histopathologic findings of the inflamed area. (A) Intact epidermis with dense upper dermis inflammation. Obscured spindle cell proliferation in the upper to middle dermis (H&E, ×100). (B) Multiple fungal yeasts in the background of histiocytic inflammation (H&E, ×400). (C) Round-to-oval yeast cells within the cytoplasm of histiocytes (H&E, ×1000). (D) Distinctive transverse septum of *T. marneffei* yeast cells (PAS, ×1000).

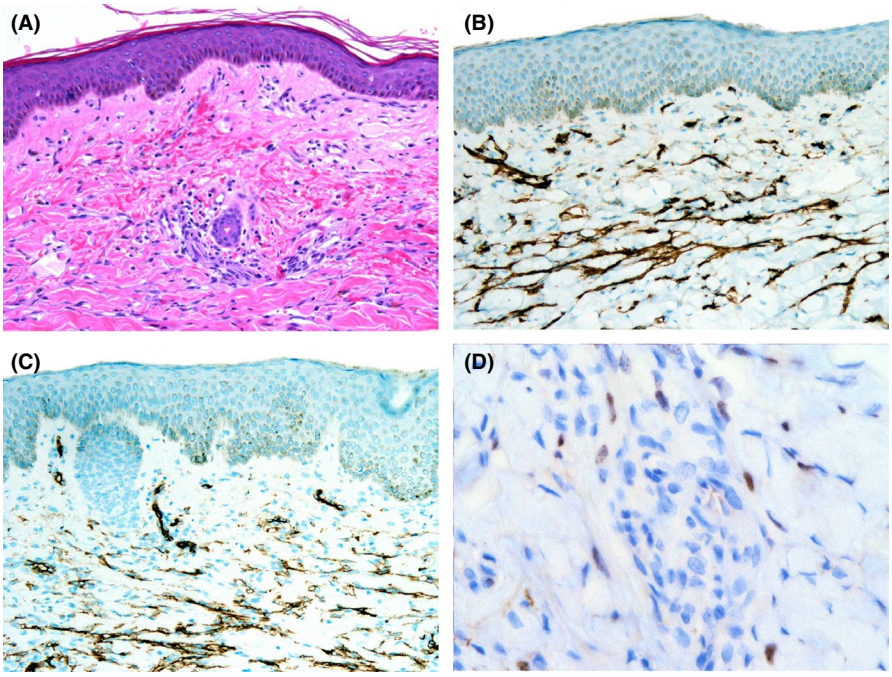

FIGURE 2 (A) Vasoformative channels, hemorrhages, and scattered hemosiderin-laden macrophages (H&E, ×200). Immunohistochemistry analysis shows that the Kaposi sarcoma spindle cells are positive for CD31 (B, ×200), CD34 (C, ×200) and speckled HHV8 nuclear staining (D, ×400).

lesion can present as a diagnostic challenge. It is characterized by subtle proliferation of thin-walled, jagged, empty-appearing vasculatures in the upper and mid-reticular dermis. The spindle cell component is scarce and may require multiple levels of examination for its detection.[9]

The previously reported cases of cutaneous KS with colesional infections were cryptococcosis, histoplasmosis, candidiasis, mycobacterial infection, cytomegalovirus infection, and molluscum contagiosum.[1,6] We believe that this is a unique case of colesional cutaneous talaromycosis and cutaneous KS. There were four reported cases of concurrent KS with systemic talaromycosis in English literature.[10,11] Two out of the four reported cases died despite treatment.[10] The mortality rate of untreated talaromycosis in HIV-infected patients is about 100%.[2] The presence of colesional pathology is often a warning of severe immunodeficiency in HIV-infected individuals. Therefore, prompt and accurate diagnosis is critical for better survival.[2]

Colesional pathology may easily be missed, especially when one of the pathologies dominates the cutaneous lesion. In this case, the KS lesion was obscured by the inflammatory cells surrounding the *T. marneffei*. The KS tumor cells were more conspicuous at the periphery, where the inflammation was lesser. The detection of HHV-8 positivity of the spindle cells is essential to differentiate KS from reactive fibroblasts or endothelial cells. A high index of suspicion for multiple pathologies is needed when examining specimen of HIV-infected patients.

4 | CONCLUSION

HIV-infected patients could present with skin lesions of multiple or colesional pathologies. Colesional cutaneous KS and cutaneous talaromycosis could be obscured by the background inflammation. A judicious use of immunohistochemistry study and special staining is helpful for the interpretation. This report adds to the growing knowledge of colesional cutaneous pathology caused by HIV-related immunodeficiency.

ACKNOWLEDGMENTS

The authors wish to thank the patient for their kind permission to proceed with this case report. Published with written consent of the patient.

CONFLICT OF INTEREST

Authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

SKL and LJT: involved in study concepts, data collection, data interpretation and manuscript writing. HH, AAS, and IHB: involved in data interpretation and manuscript revision.

ETHICAL APPROVAL

The patient has consented to publication of the case.

DATA AVAILABILITY STATEMENT

The data that support the findings are available on request from the corresponding author.

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REFERENCES

1. Grayson W. Recognition of dual or multiple pathology in skin biopsies from patients with HIV/AIDS. *Patholog Res Int*. 2011;2011:398546.
2. Hyde KD, Al-Hatmi AM, Andersen B, et al. The world's ten most feared fungi. *Fungal Divers*. 2018;93(1):161-194.
3. Cao C, Xi L, Chaturvedi V. Talaromycosis (penicilliosis) due to Talaromyces (Penicillium) marneffei: Insights into the clinical trends of a major fungal disease 60 years after the discovery of the pathogen. *Mycopathologia*. 2019;184(6):709-720.
4. Vanittanakom N, Cooper CR, Fisher MC, Sirisanthana T. Penicillium marneffei infection and recent advances in the epidemiology and molecular biology aspects. *Clin Microbiol Rev*. 2006;19(1):95-110.
5. Jing W. A retrospective survey of mucocutaneous manifestations of HIV infection in Malaysia: analysis of 182 cases. *J Dermatol*. 2000;27(4):225-232.
6. Busarla SVP, Sayed S, Nazarian RM, Gimbel DC, Moloo Z, Sohani AR. Kaposi sarcoma in association with molluscum contagiosum: An uncommon diagnosis in a single biopsy and potential diagnostic pitfall. *Am J Dermatopathol*. 2012;34(1):7-9.
7. Lai SK, Abd Rauf N, Preet KR, Tan LJ. Tzanck cytology smear in diagnosis of cutaneous talaromycosis (penicilliosis). *Indian J Dermatol Venereol Leprol*. 2021;1-4.
8. Wu XJ, Pu XM, Kang XJ, et al. One hundred and five Kaposi sarcoma patients: a clinical study in Xinjiang, Northwest of China. *J Eur Acad Dermatol Venereol*. 2014;28(11):1545-1552.
9. Gleason BC, Hornick JL. Vascular Tumors. In: Hornick JL, ed. *Practical Soft Tissue Pathology: A Diagnostic Approach*, 2nd edn. Philadelphia, PA: Elsevier; 2019:382-384.
10. Chen J, Zhang R, Shen Y, et al. Clinical characteristics and prognosis of penicilliosis among human immunodeficiency virus-infected patients in eastern China. *Am J Trop Med Hyg*. 2017;96(6):1350-1354.
11. Miao X, Ye H, Yang S, Su F. Concurrence of talaromycosis and Kaposi sarcoma in an HIV-infected patient: a case report. *Curr HIV Res*. 2021;19(2):195-198.

How to cite this article: Lai SK, Tan LJ, Hussin H, Salleh AA, Bakrin IH. Colesional cutaneous talaromycosis (penicilliosis) and Kaposi sarcoma in an HIV-infected patient. *Clin Case Rep*. 2021;9:e04639. https://doi.org/10.1002/ccr3.4639