

Concurrence of talaromycosis and Kaposi sarcoma in a HIV-infected patient: A case report

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Case report

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Abstract

Background: Concurrence of talaromycosis, an opportunistic infection caused by fungal pathogen *Talaromyces marneffei* and Kaposi sarcoma, the most common neoplasm in patients infected with human immunodeficiency virus (HIV) has only been rarely reported. Despite poor clinical outcomes, clinical characteristics and management of these concurrent diseases in HIV-infected patients has not been described.

Case presentation: A 33-year-old, HIV-positive male patient presented to the Department of Infectious Diseases at Wenzhou Central Hospital with cough, sputum expectoration, hemoptysis, rashes on the feet and violaceous plaques in the oral cavity. Chest computed tomography (CT) showed bilateral nodular, patchy shadows and lymphadenectasis. Skin biopsy and histopathological examination suggested Kaposi sarcoma. *Talaromyces marneffei* was isolated from blood cultures and supported talaromycosis. The patient presented significant resolution of symptoms following chemotherapy for Kaposi sarcoma and *antifungal treatment for talaromycosis*.

Conclusions: Severe medical conditions such as Kaposi sarcoma and talaromycosis may coexist in HIV-infected patients, posing a high mortality risk. Etiological diagnosis and specifically directed treatment are vital for successful management of HIV-infected patients who develop these comorbid diseases

Background

Human immunodeficiency virus (HIV) infection is a major global health issue. Patients infected with HIV are prone to many opportunistic infections and malignancies [1]. Talaromycosis is a severe infection caused by opportunistic fungal pathogen *Talaromyces marneffei* and has been frequently seen in HIV-infected patients in south and southeast Asia [2, 3]. A high mortality rate of 50.6% has been reported for HIV-infected patients who were co-infected with *T. marneffei* and did not receive appropriate antifungal treatment [4]. Kaposi sarcoma is an endothelial neoplasia affecting the skin, lymph nodes and other internal organs of human [5]. It remains the commonest neoplasm in HIV-infected patients [6]. Patients with Kaposi sarcoma often present pulmonary symptoms indistinguishable from pneumonia of microbial origins, leading to diagnostic challenges when comorbid diseases occur.

Herein, we report a concurrence of Kaposi sarcoma and talaromycosis in a HIV-infected patient with respiratory complaints and described the clinical characteristics and management strategies of these conditions.

Case Presentation

A 33-year-old, HIV-positive male patient presented to the Department of Infectious Diseases at Wenzhou Central Hospital with cough, sputum expectoration (two months), and hemoptysis (12 days). He had no fever, shortness of breath, or other discomforts. On admission he had a temperature of 36.5 °C and a respiratory rate of 16 breaths per minute. Physical examination found violaceous plaques in the oral

cavity and purple rashes on his feet (Fig. 1A. and B) and dry rales in the bilateral lobes. Blood test results were as below: white cell count $2.4 \times 10^9/L$ with lymphocytes $1.0 \times 10^9/L$, CD4 T-cell count 1 cell/mm 3 , hemoglobin 126 g/L, C-reactive protein (CRP) 5.0 mg/L, procalcitonin (PCT) 0.29 ng/mL, aspartate aminotransferase (AST) 53 U/L, lactate dehydrogenase (LDH) 314 U/L, 1,3-β-D-glucan 90 pg/mL. Other tests were carried out with normal results reported by the diagnostic laboratory, including detection of galactomannan antigenemia, interferon gamma release assay (IGRA), sputum gene X-pert MTB/RIF assay for *Mycobacterium tuberculosis*, tumor markers, blood clotting, and antinuclear antibodies. In spite of negative bronchoscopy results, chest computerized tomography (CT) showed bilateral nodular and patchy shadows (Fig. 2A). Abdominal CT also showed small inguinal lymph nodes. Histopathological examination of skin biopsy suggested Kaposi sarcoma (Fig. 3). *Talaromyces marneffei* was isolated from microbiological culture of blood samples nine days after patient's admission. Diagnoses of acquired immune deficiency syndrome (AIDS), Kaposi sarcoma and talaromycosis were established, based on the supportive evidence listed below: 1) a positive HIV test, 2) a CD4 T-cell count of 1 cells/mm 3 (less than 200 cells/mm 3), 3) a typical clinical sign of violaceous skin rashes and oral plaques, 4) results of skin histopathological examination, 5) isolation of *Talaromyces marneffei* from blood cultures. The patient was given specifically directed treatment including pegylated liposomal doxorubicin 30 mg/d q2w for Kaposi sarcoma and itraconazole 0.2 g q12h for talaromycosis, following the Chinese Guidelines for Diagnosis and Treatment of Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome and National Comprehensive Cancer Network (NCCN) Clinical Practice Guidelines in Oncology about AIDS-related Kaposi Sarcoma. The patient's respiratory symptoms resolved and oral plaques/skin rashes dramatically regressed 4–5 days after administering doxorubicin and itraconazole (Fig. 1C & D). Repeated chest CT suggested a significant absorption of the bilateral pulmonary shadow (Fig. 2B). The patient remained in the hospital for 42 days and was discharged after 4 repeated blood cultures that were negative for *Talaromyces marneffei*.

Discussion And Conclusion

Immunosuppression resulted from HIV infection often allows opportunistic microbial infections and malignancies in AIDS patients. Concurrence of talaromycosis and Kaposi sarcoma, however, seemed to be rare, with a recent study reporting low prevalence of individual condition in HIV-infected patients in China (1.4% for talaromycosis and 0.8% for Kaposi sarcoma) [7]. Coexistence of these two conditions, though being a rare event, might suggest high risk of mortality [8]. In the only study that described the concurrence of talaromycosis and Kaposi sarcoma in HIV-infected patients, 2 out of 3 patients died; other important clinical information, including disease features and management strategies was not described or discussed [8].

Kaposi sarcoma is a malignant vascular tumor frequently found in HIV-infected patients [1] and has been linked to human gammaherpesvirus 8 [9]. Diagnosis of Kaposi sarcoma mainly relies on clinical manifestations and histopathological examination. Radiographic characteristics of pulmonary Kaposi sarcoma are non-specific, often presenting as nodules, pleural effusions, hilar or mediastinal

lymphadenopathy, and patchy shadows [9]. In this case, the patient's chest CT showed multiple nodules and infiltrates in the bilateral lungs, in combination with purple rashes in his feet and violaceous plaques in the oral cavity, suggesting a possibility of pulmonary Kaposi sarcoma, that was subsequently supported by histopathological analysis of skin biopsies. Highly active antiretroviral therapy(HAART)is the recommended treatment for HIV-infected patients with Kaposi sarcoma [10]. Oral plaques, foot rashes and respiratory tract symptoms of the patient all significantly resolved upon the use of HAART. Relief of respiratory symptoms of this patient, along with remarkable pulmonary improvement on the Chest CT, however, could also be owing to antifungal therapy for talaromycosis. Talaromycosis is a common opportunistic infection that often occurs in the respiratory system of HIV-infected patients in southern and eastern China [3, 7]. Patients with talaromycosis may also present fever, cough, sputum expectoration, skin rash, and lymphadenopathy [11], and have non-specific hilar or mediastinal lymphadenopathy and multiple nodular on the chest CT [12]. Talaromycosis often progress rapidly in HIV-infected patients and also has a high mortality rate if antifungal treatment is delayed [4].

High mortality rate of the concurrence of these conditions in HIV-infected patients has been linked to low CD4 T-cell count and hemoglobin level [8]. Caution should be taken when seeing HIV-infected patients suspected of concurrent talaromycosis and Kaposi sarcoma. Although our patient had a normal hemoglobin level of 126 g/L, a very low CD4 T-cell count of 1 cell/mm³ suggested a high mortality risk. Timely etiological investigation, diagnosis, and treatment were the key to successful management. The patient rapidly recovered after timely HAART and antifungals were given. Although Amphotericin B is the recommended antifungal drug for induction therapy for patients with talaromycosis [13], Itraconazole alone was used for this patient due to his moderate clinical symptoms [14].

In conclusion, Kaposi sarcoma and talaromycosis may concur in patients with HIV, due to their immunodeficient status. Etiological investigation and specifically directed treatment are required for patients suspected of such severe comorbid conditions.

Abbreviations

AIDS

Acquired immunodeficiency syndrome; HIV:Human immunodeficiency virus; CT:Computed tomography; CRP:C-reactive protein; PCT:procalcitonin; AST:Aspartate aminotransferase; LDH:Lactate dehydrogenase; HAART:Highly active antiretroviral therapy; NCCN:National Comprehensive Cancer Network.

Declarations

Ethics approval and consent to participate

Consent to participate was shown and explained to the patient. The written-consent was received from the patient.

Consent for publication

Verbal and written consent for publication was obtained from patient.

Availability of data and materials

On request.

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Not applicable.

Authors' contributions

FFS designed the study. XM and HY, and SY collected clinical data. XGM and FFS wrote the manuscript. All authors read and approved the final manuscript.

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Competing interests

The authors declare no competing interests.

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Figures

Fig. 1

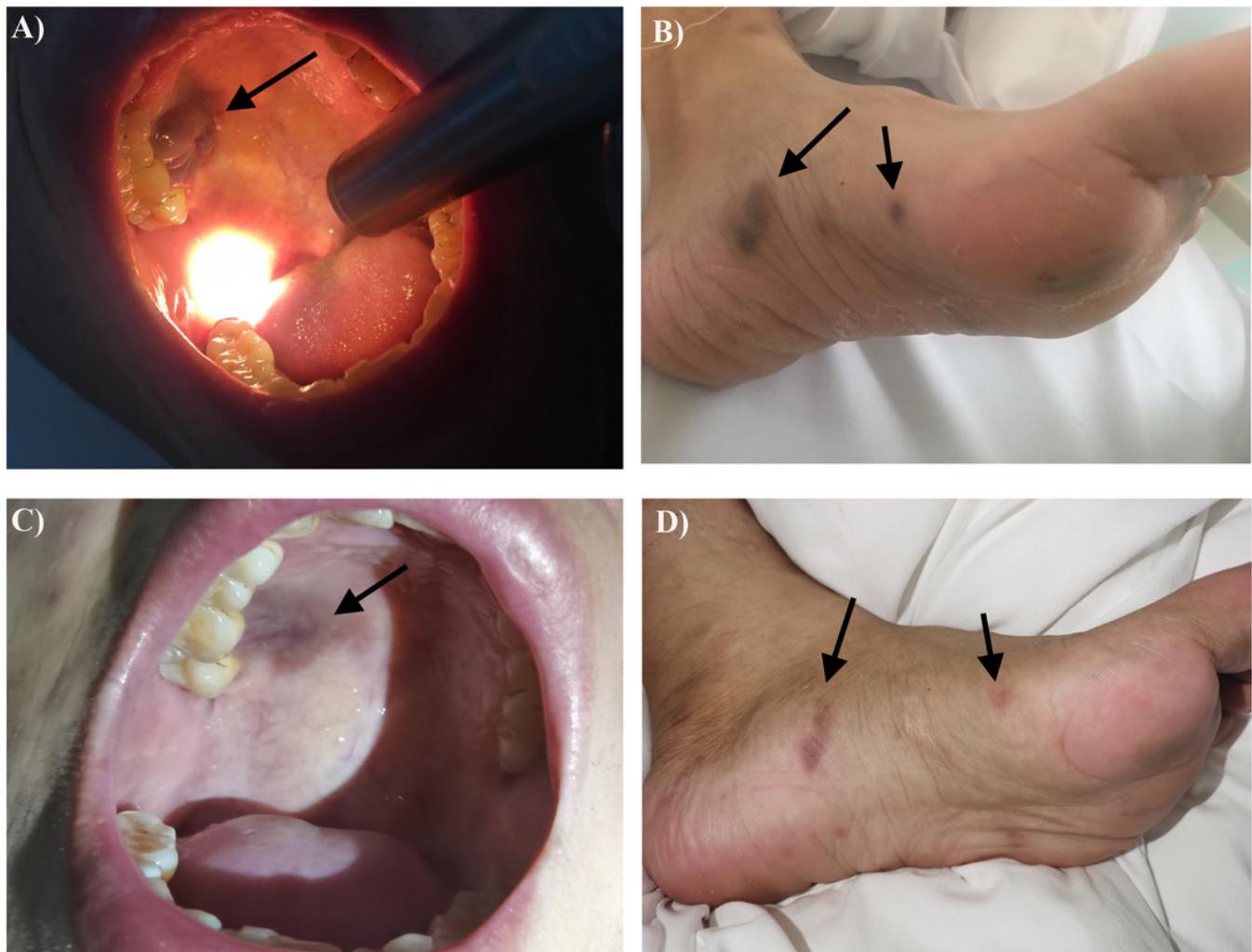


Figure 1

Oral plaques and foot rashes before (A and B respectively) and after antifungal and anti-Kaposi sarcoma treatments (C and D respectively).

Fig. 2

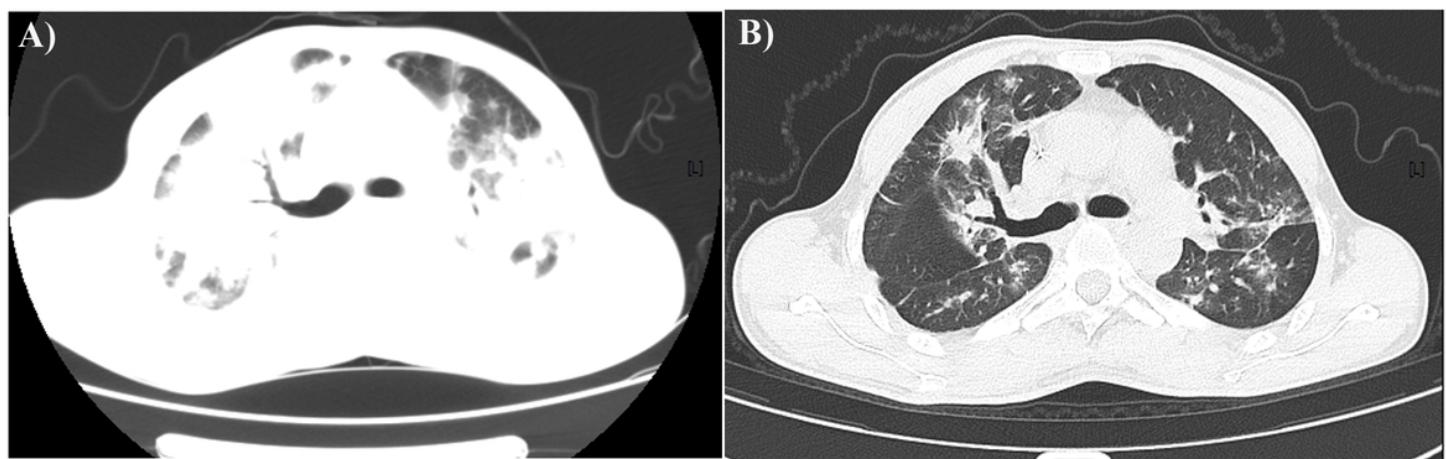


Figure 2

Chest CT before (A) and 4 days after (B) initiation of Kaposi sarcoma and antifungal treatments.

Fig. 3

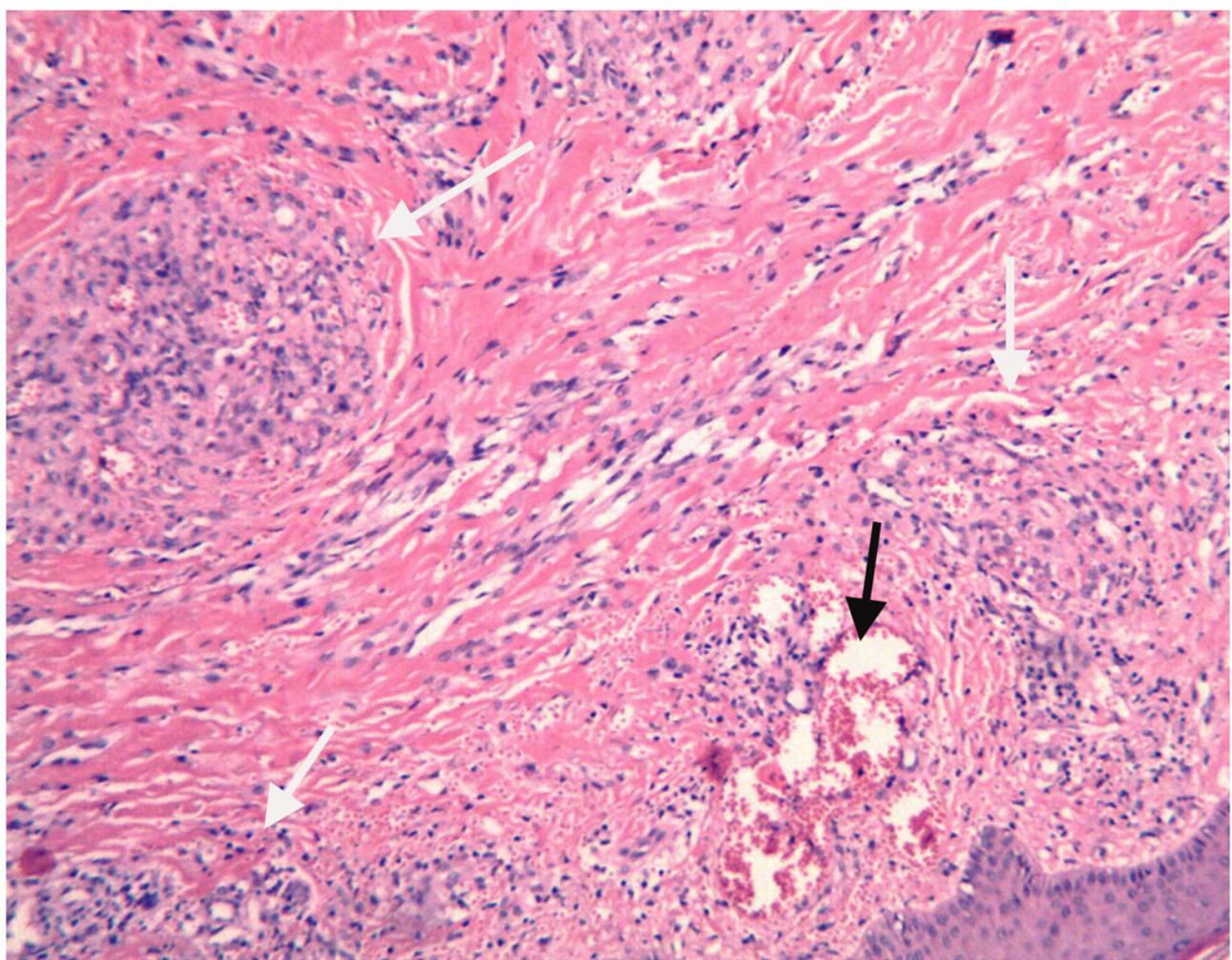


Figure 3

Skin biopsy and hematoxylin-eosin stain showing sheets of spindle cells, blood vessels (white arrows), red blood cells (black arrow) (40x magnification).