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Correspondence

Coinfection of pneumocystis jiroveci pneumonia and pulmonary aspergillosis in a non-HIV-infected patient

Dear editor,

Solid organ transplantation is one of the risk factors of invasive pulmonary aspergillosis according to recent published guidelines and research for treatment of invasive fungal disease in Taiwan.[1,2] According to Li et al., a delay diagnosed of PJP in non-HIV-infected populations has poor outcomes.[3] Herein, we report a PJP infection in a renal transplant recipient possibly co-infected with pulmonary aspergillosis.

A 28-year-old female was admitted due to progressive shortness of breath, dry cough and fever for 2 weeks. She took immunosuppressant as mycophenolate mofetil 1 g, prednisolone 5 mg and Tacrolimus 5 mg per day after transplantation in 2016.

On admission, her temperature was 38.5 °C and bilateral crackles was noted on auscultation. Laboratory tests indicated a white blood cell count of 7600 per microliter with 8% band cells and 72% neutrophils. Serologic tests were negative for HIV antibodies and negative for B and C viral hepatitis. A chest X ray (CXR) revealed diffuse reticulonodular infiltration (Fig. 1A). Sulfamethoxazole-trimethoprim and piperacillin/tazobactam were empirically prescribed accompanied by prednisolone 20 mg/day for PJP. Bronchoalveolar lavage (BAL) was performed on day 3 and PJP was confirmed by Periodic Schiff-Methenamine staining. After 3 weeks course of treatment, pneumonia improved (Fig. 1B). However, a new nodule developed over right upper lung field on day 23 (Fig. 1C). Chest CT demonstrated a consolidated mass surrounded by ground glass attenuation, compatible with "halo sign" on day 24 (Fig. 1D). Another BAL was arranged on day 24 and the aspergillus galactomannan (GM) antigen titers in serum was 0.087 and in BAL was 0.129. Possible fungal infection was diagnosed according to the 2008 EORTC/MSG consensus[3] and micafungin was prescribed. For unimproved fever and dyspnea, micafungin was shifted to voriconazole on day 27. Another chest CT on day 36 showed a typical "air crescent" sign (Fig. 1E). The bacterial and fungal culture in sputum and BAL were all negative. The patient was discharged on day 36 and completed oral voriconazole for one more month till the total resolution on CXR.

PJP is a common life-threatening disease in immunocompromised patients, especially in non-HIV patients.[3] In kidney transplant patients, the risk factors for PJP may include using glucocorticoid, calcineurin inhibitors, mycophenolate mofetil and sirolimus.[4] However, PJP and pulmonary aspergillosis co-infection in HIV-seronegative patients is extremely rare.[5] The typical image findings of angio-invasive or semi-invasive form of pulmonary aspergillosis were "halo" or "air-crescent" sign on CT scan.[1,2] Our patient fit the criteria of "possible pulmonary aspergillosis" due to image findings and host factors but lack of mycological evidence.

Markantonatou et al. reported 2 cases and reviewed 7 cases of PJP coinfected with Aspergillus fumigatus in non-HIV patients.[5] All these patients were under corticosteroid or combination with other immunosuppressive agents but neither of them was solid organ recipient.[5] Co-infections of PJP and invasive aspergillosis are considered as indicators of poor prognosis.[5]

In conclusion, we report a rare case of PJP co-infected with pulmonary aspergillosis. We initiated the standard treatment for PJP and shortly prescribed anti-fungal therapy for pulmonary aspergillosis. Early diagnosis and initiating treatments early is important for improving patient outcomes.

Conflicts of interest

The authors declare no conflicts of interest.

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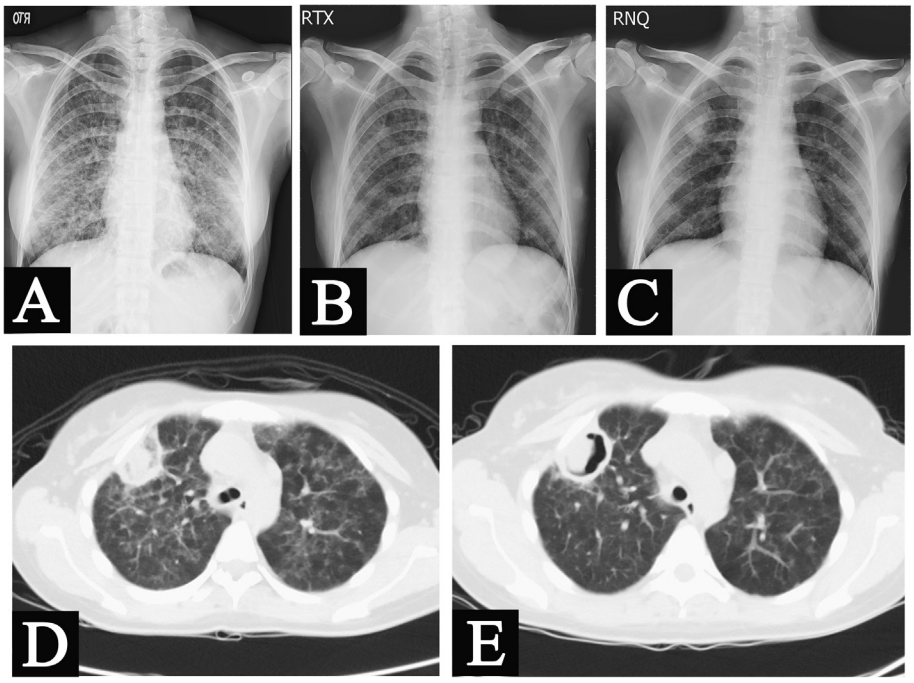

Fig. 1. (A) CXR on day 1 after admission showed diffuse reticulonodular infiltration in bilateral lung fields. (B) CXR on day 19 revealed improvement of bilateral infiltration. (C) CXR on day 23 demonstrated a new nodule developed over right upper lung field. (D) Chest computed tomography (CT) on day 24 showed a consolidated mass surrounded by ground glass attenuation which is compatible with "halo sign". (E) Chest CT on day 36 revealed a mass within a cavity, surrounded by an airspace, resulting in the "air crescent" sign.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jmii.2018.11.001.

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