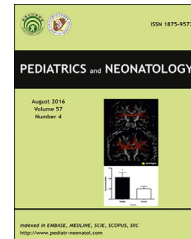




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CASE REPORT

An Important Finding of Systemic Aspergillosis: Skin Involvement and Amphotericin B Resistance in an Adolescent



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Invasive aspergillosis is a life-threatening infectious complication in immunocompromised patients, especially with malignancy, and in some cases, it causes extensive tissue destruction and subsequent systemic illness, leading to multiorgan failure and death. Skin involvement and amphotericin B resistance are very rare findings of aspergillosis. Herein, we report the case of a primary hemophagocytic syndrome patient who developed subcutaneous nodules in the 3rd month of bone marrow transplantation from which *Aspergillus fumigatus* was cultivated despite the fact that she was under antifungal therapy. In immunocompromised patients with prolonged fever, atypical presentations of invasive mycosis should be kept in mind, and early appropriate therapy should be initiated promptly to decrease morbidity and mortality. Copyright © 2013, Taiwan Pediatric Association. Published by Elsevier Taiwan LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

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1. Introduction

In patients affected by hematological diseases, fungal infections, especially those caused by *Aspergillus* spp. or by other filamentous fungi, are being increasingly diagnosed.

Data from the Centers for Disease Control and Prevention reveal that the mortality associated with invasive aspergillosis has increased by 357% since 1980.¹ The mortality of untreated invasive respiratory aspergillosis is nearly 100%; however, the survival among patients treated with amphotericin B is nearly 34%,^{2,3} and it was found to be 48.6% with voriconazole in a recent study.⁴ Incidence of invasive aspergillosis ranges from 0.5% to 30% according to series.^{2,5,6}

We report a case with primary hemophagocytic syndrome who had subcutaneous nodules during the 3rd month of bone marrow transplantation from which *Aspergillus fumigatus* was cultivated despite the fact that she was under antifungal therapy.

2. Case Report

A 16-year-old girl who had been diagnosed as primary hemophagocytic syndrome, treated with steroid, etoposide, and intravenous immunoglobulin in her two consecutive attacks (at 9 and 12 years) was hospitalized for bone marrow transplantation (BMT) from a fully matched donor (her sister). In the protocol of BMT preparation, busulfan, cyclophosphamide, etoposide, and steroid were initiated. As she had respiratory distress, hypoxia, cough, and bilateral pericardiac infiltration in chest X-ray (CXR), 1 day before BMT, imipenem, vancomycin, clarithromycin, and liposomal amphotericin B (3 mg/kg/day) were initiated. On the day of BMT, she had hemoptysis; thorax computed tomography (CT) yielded results consistent with pulmonary hemorrhage or infection. On the 2nd day of hospitalization, chest X-ray (CXR) showed right pleural effusion, thoracentesis results showed transudate criteria; additionally, she had acute renal impairment and needed hemodialysis, and also her respiratory distress increased; hence, she was intubated. Neutrophil engraftment occurred on Day 14 after BMT. After she had been mechanically ventilated for 23 days, she was extubated. After 2 days of extubation, she had extensive mucositis; paranasal CT showed maxillary, frontal, and sphenoidal sinusitis with soft tissue density, which was consistent with fungal infection. Thorax CT demonstrated multiple nodules surrounded by mild ground-glass opacities (halo sign) in the upper and lower lobes of bilateral lungs, which were not seen in previous CT (Figure 1A). Under therapy, new lesions were present; therefore, caspofungin was added to amphotericin B. When antifungal therapy was initiated, galactomannan (GM) antigen (GM levels were studied using the sandwich The enzyme-linked immunosorbent assay (ELISA) commercial kit [Platelia Aspergillus; Bio-Rad Laboratories, France] in accordance with the manufacturer's instruction), OD indices were 0.14 (0-1: negative, 1-1.5: board), but when caspofungin was started, the GM level has risen to 1.04. On Day 61 after BMT, CT results showed regression of soft tissue densities filling the sinus, but hemorrhagic and painful nodular cutaneous lesions of different sizes

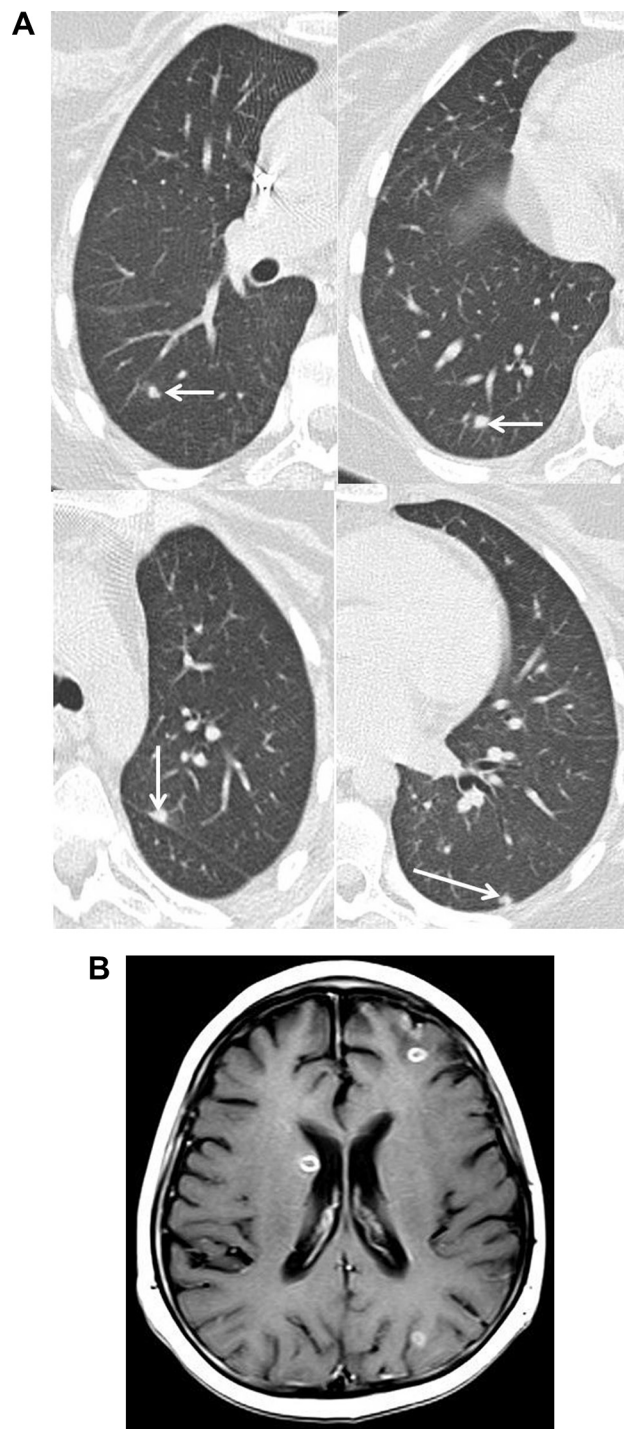


Figure 1 (A) Axial thorax CT image shows multiple subpleural and parenchymal millimetric nodules surrounded by mild ground-glass opacities (halo sign) in the upper and lower lobes of bilateral lungs (arrows). (B) Axial T1-weighted MR image of the brain obtained after the injection of contrast material shows multiple ring-enhancing lesions at the cortico-medullary junction in the hemisphere, consistent with the abscess. CT = computed tomography; MR = magnetic resonance.

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