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Invasive Fungal Infection in T-cell Acute Leukemia Patient

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Introduction: Early recognition and immediate antifungal treatment are crucial for the control of invasive fungal infection (IFI). IFI is an important cause of morbidity and mortality in immunocompromised patients: it has an in-hospital mortality rate of 15.8 percent of pediatric patients with candidemia and 18 percent of children with invasive aspergillosis. We aim to present a case of IFI.

Case presentation: A 3-year-old boy was repeatedly treated at Vilnius University Hospital Santaros Klinikos for recurrent viral or bacterial infections with unexplained pancytopenia and occasional lymph node enlargement. Bone marrow showed increased lymphoblasts, however, not reaching the criteria for leukemia diagnosis. At 4 years of age, the boy was diagnosed with early T-precursor acute leukemia (ETP). Chemotherapy was initiated according to the ALLTogether protocol, remission and negative MRD were achieved. At the end of induction, neutropenia and systemic candidemia developed (*Candida tropicalis*). At the beginning of Consolidation 1 phase, the patient developed fever and polymorphic skin rash, which later developed into skin pustules, which ruptured occasionally. The skin biopsy showed chronic inflammation with PAS/Groccot positive fungi. CBC showed pancytopenia, later developed to neutrophilosis. Regardless of sufficient leuko- and neutropoiesis, a disseminated IFI with multiple infiltrates in liver, spleen and kidney were detected. The patient was treated with different combinations of five antifungal agents. Multiple blood cultures were repeated, no fungi growth was identified. There is a suspicion of an underlying genetic syndrome that causes prolonged pancytopenia and final transformation to an ALL.

Conclusions: In this case an IFI – systemic candidemia – is resilient to management despite adequate neutrophil production and antifungal therapy. An atypical toxicity profile should raise a concern about an underlying genetic disorder.