The pneumocytes show enlarged, smudgy nuclei and intranuclear inclusions consistent with an adenovirus cytopathic effect, diagnostically confirmed by immunohistochemistry. The xTAG respiratory virus panel test (Luminex Molecular Diagnostics, Inc., Toronto, Canada) showed adenovirus only. Viral culture on bronchoalveolar lavage fluid was also positive for adenovirus (serotype 3). A quantitative PCR demonstrated more than $2 \times 10^6$ adenoviral copies per milliliter of blood.

Adenovirus infection in children, military recruits, and immunocompromised patients is a well-described entity and accounts for at least 5 to 10% of pediatric and 1 to 7% of adult respiratory tract infections. The majority of the infections are self-limited and run a benign course. Adenovirus accounts for up to 20% of childhood pneumonia but is relatively uncommon in immunocompetent adults (2, 4, 5). Although fatality due to severe adenovirus infections in neonates, young children, and immunocompromised individuals is a well-described entity, these events are rather unusual in immunocompetent hosts and are mainly subjects of case reports (1). Of the many different types of adenovirus, serotypes 3 and 7 are most often associated with severe infections. Clinically, patients with adenovirus infection may exhibit lobar pulmonary consolidation mimicking a bacterial infection (4). In addition, patients with fulminant adenoviral infection may develop clinical features such as respiratory failure, shock, and disseminated intravascular coagulopathy, further complicating the distinction from bacterial sepsis.

The present patient did not have an identifiable cause for his immunodeficiency other than his new-onset diabetes, diagnosed at the time of admission. Very high viral loads, as present here, have been described to occur in adult stem cell transplant recipients and have been associated with an adverse outcome (3). Although immune alteration in diabetes is a known phenomenon, it is unclear whether diabetes alone could have contributed to the extreme degree of “immunodeficiency-like” status in this patient. The moderate respiratory illness in the patient’s son was also documented to be an adenoviral pneumonia (by xTAG respiratory viral testing), but the child recovered completely. Serotyping was not performed on the child’s sample. The reason for the unusual and unfortunate paradoxical clinical outcome is not entirely clear.

REFERENCES