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PULMONARY PATHOLOGY OF PARAINFLUENZA VIRUS INFECTION

Pneumonia following infection with human parainfluenza virus 3 is ordinarily a rare manifestion of respiratory disease casused by this organism. A typical etiology for bronchiolitis and croup, this member of the *Paramyxoviridae* family of RNA viruses which includes RSV, measles and mumps virus, Parainfluenza virus (PIV) is becoming increasingly recognized as a source of significant morbidity and mortality in the immunocompromised population. Respiratory tract infections are typically the most severe, but PIV has also been demonstrated in the gastrointestinal, genitourinary and central nervous systems. The pathologic features of PIV infection in the lower respiratory tract is characterized by a necrotizing tracheobronchitis and bronchopneumonia, typically featuring giant cells. An association of pulmonary alveolar proteinosis, characterized by the filling of peripheral airspaces by accumulations of amorphous and granular PAS-positive eosinophilic material has also been reported with severe PIV infection in the lung, which may in part be related to underlying immunodeficiency itself. The differential diagnosis of necrotizing or giant cell pneumonitides in the immunocompromised host is lengthy; pulmonary PIV infection may be suggested by histologic examination of routine-stained sections aided by immunoperoxidase stains using anti PIV-3 antibodies. The virus may be detected using electron microscopy and the laboratory diagnosis of PIV is aided by the microscopic examination of inoculated tissue cultures bronchoalveolar lavage fluid using direct fluorescence assays.