

Case report

Pulmonary Herpes Simplex Infection: A Case Report

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Abstract:

Pulmonary herpes simplex infection is rarely reported. To date, there is a paucity of literature on this infection. This case study describes a 64-year-old male with a background history of diabetes mellitus and hypertension who was intubated for acute respiratory failure. The managing team had difficulty to wean his oxygenation thus decided for bronchoscopy examination which showed suspicious growth at middle lobe of the right lung. Repeated bronchoscopy by pulmonologist revealed a nodular 'warty' appearance lesion at right bronchus intermedius. His biopsy revealed histopathological changes consistent with herpes simplex infection.

Keywords: Endobronchial pseudo-tumour, herpes simplex, nodular warty, intranuclear inclusion.

International Journal of Human and Health Sciences Vol. 05 No. 01 January'21 Page : 112-114

DOI: <http://dx.doi.org/10.31344/ijhhs.v5i1.244>

Introduction

Pulmonary herpes simplex infection has been described rarely in critically ill patients or immunosuppressed individuals. To date, there have been only a few case reports on endobronchial pseudo-tumour caused by herpes simplex virus.

Case Report

A 64-year-old Malay male with a background history of diabetes mellitus and hypertension with good premorbid condition presented with three days history of fever, cough, and shortness of breath. This patient initially treated as community-acquired pneumonia with acute respiratory distress syndrome. He deteriorated rapidly and intubated. His condition was subsequently complicated with recurrent nosocomial infection. Serial chest radiographs showed persistent right upper lobe lung collapse.

A Contrast Enhanced Computerized Tomography (CECT) Thorax was done which showed air space opacities with air-bronchograms seen at the posterior segment of the right upper lobe associated with surrounding ground-glass opacities. Multiple cystic lesions and dilated airways are seen at the right upper lobe adjacent to and within the consolidation.



Figure 1: CT Topogram of the chest shows multiple cystic lesions at right upper lobe associated with consolidative changes. Scattered reticular opacities in both lungs predominantly at both lower lobes. The right transverse fissure appears thickened.

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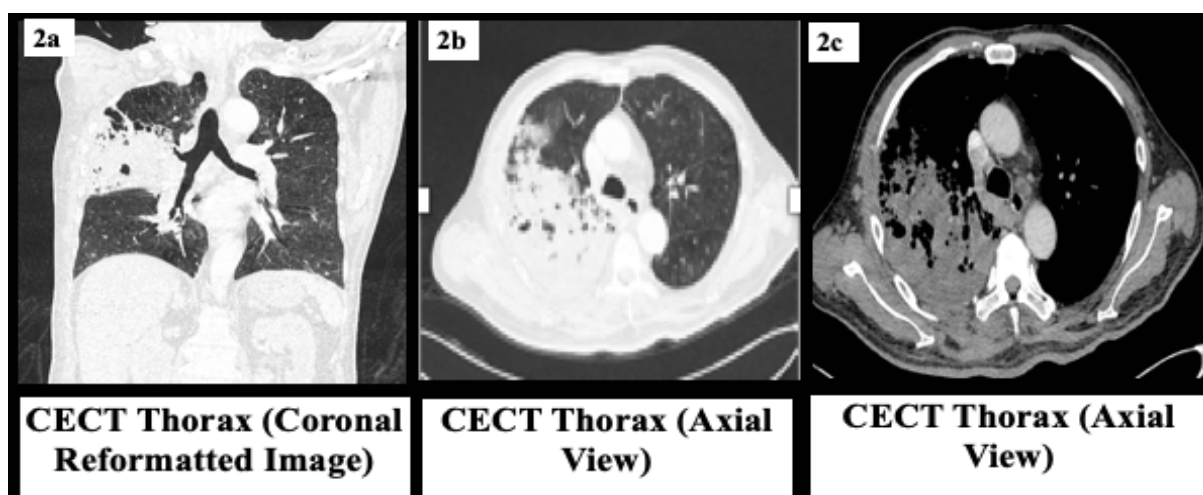


Figure 2: Contrast-enhanced CT Thorax in axial and coronal images (lung and mediastinal windows) shows air space opacities with air bronchograms at the posterior segment of the right upper lobe associated with surrounding ground-glass density. Multiple cystic lesions and dilated airways are seen at the right upper lobe adjacent to it and within the consolidation. Emphysematous changes with air trapping seen at the right upper lobe. In the mediastinum window, multiple mediastinal lymphadenopathies noted with necrotic node at aortopulmonary window.

During his ICU stay, anaesthesiology team had difficulty with weaning of oxygenation thus decided for bronchoscopy which revealed suspicious growth at the middle lobe of the right lung.

At D26 of ICU admission, the case was referred to the respiratory team. Repeated bronchoscopy was done and it showed nodular 'warty' appearance lesion at right bronchus intermedius.

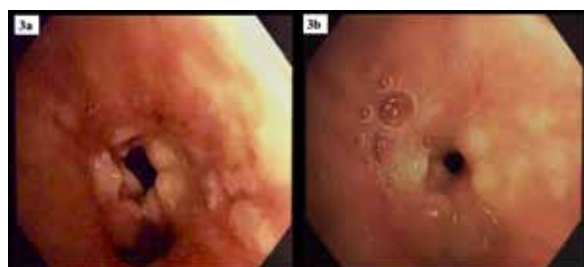


Figure 3: Bronchoscopy finding showed nodular 'warty' appearance lesion at right bronchus intermedius.

An endobronchial biopsy was taken, and the result is consistent with herpes infection as evident by balloon degeneration free lying epithelium with ground glass nuclei admixed with necrotic tissue with inflammatory exudate. Endobronchial tissue also shows intranuclear inclusion.

The patient was started on IV Acyclovir. However, this patient succumbed later due to severe Klebsiella Carbapenem-resistant Enterobacteriaceae (CRE) nosocomial infection.

Discussion

Herpes simplex virus has been reported to cause

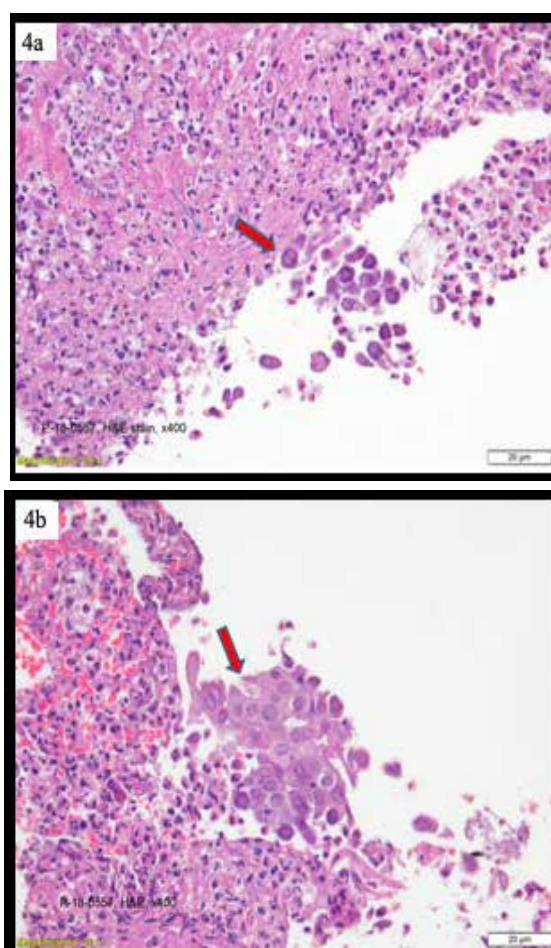


Figure 4a-4b: Endobronchial tissue showing intranuclear inclusion (4a). Balloon degeneration free lying epithelium with ground glass nuclei admixed with necrotic tissue with inflammatory exudate (4b) - (H&E stain, x400 magnification).

lower respiratory tract infection. It is generally discovered during a bronchoscopic examination performed to determine the underlying respiratory issues, as described in this case.

Endobronchial observations of herpes simplex infection during bronchoscopy include fungating and endobronchial masses, polypoid lesions, mucosal irregularities, and ulcerations that cause airway stenosis. Necrotic and vesicular blistering lesions were also reported.¹

In our case, it was initially suspected that the endobronchial lesion was a growth or tumour. However, it has a 'warty' nodular appearance of pseudo-tumour and the histopathological examination confirmed the diagnosis of herpes simplex infection.

The overall morbidity and death of these patients appear to be high.¹

Although the herpes simplex virus in this patient was not the apparent cause of death, it led to substantial morbidity.

The exact mechanism of the disease involved is not clear. Pulmonary herpes simplex virus infection is most likely triggered by viral reactivation in the throat and subsequent contamination, colonization of bronchial and lung infection. It could be secondary to a critical disease and local microtrauma due to endotracheal and gastric tubes and oropharyngeal cavity suction.²

It was postulated that the virus could enter the lower respiratory tract by aspiration or contiguous propagation after oropharynx reactivation, and spread may occur following orotracheal intubation.³

HSV-pneumonia diagnosis is based on microscopic findings and characteristic cytopathic cellular changes in specimens obtained by bronchial brushing, bronchoalveolar lavage, or tissue biopsy,

such as intranuclear inclusions or homogenization of nuclear chromatin.⁴

Acyclovir is the drug of choice for an infection of herpes simplex virus. This is an effective compound and has low toxicity.⁵

Randomized trials of acyclovir in immunocompromised patients advocate the use of this prophylactic or preventive acyclovir in this patient population. However, based on the one randomized study in ARDS patients, the use of acyclovir cannot be justified in ARDS patients unless there is a specific immunocompromised state or there is specific suspicion or histological evidence of pulmonary parenchymal invasion.⁶

Conclusion

While rare, the herpes virus can infect the lower respiratory tract, even mimicking a tumour. An objective evaluation of this individual should be done because it fundamentally affects the care and prognosis of the patient.

Acknowledgments

We thank all clinicians, the late patient, and his family that provided clinical information. Verbal informed consent for patient information was obtained from an authorized representative.

Conflict of interest

The authors have disclosed no conflict of interest.

Funding statement

This case report did not receive any special funding.

Ethical Approval Issue

Not applicable.

Author's contribution

Conception: UAZ, MRAZ. *Collection and assembly of data:* UAZ, MRAZ, SA, SNHSY. *Writing manuscript:* UAZ. *Editing and approval of final draft:* UAZ, MRAZ.

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