Radiological Quiz

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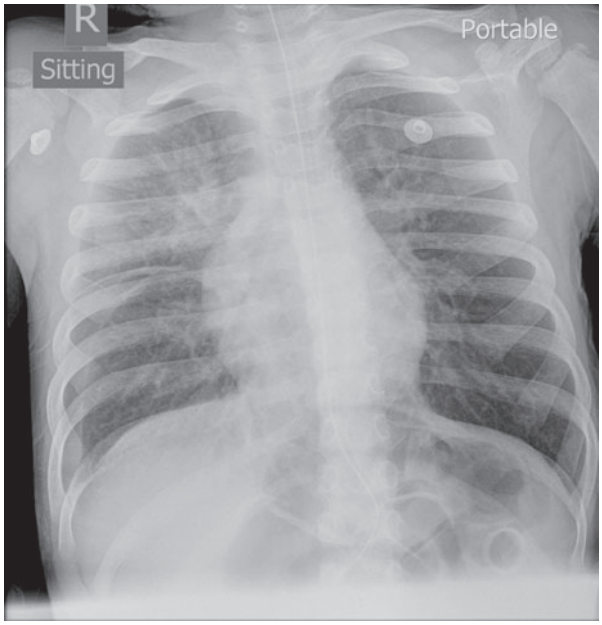
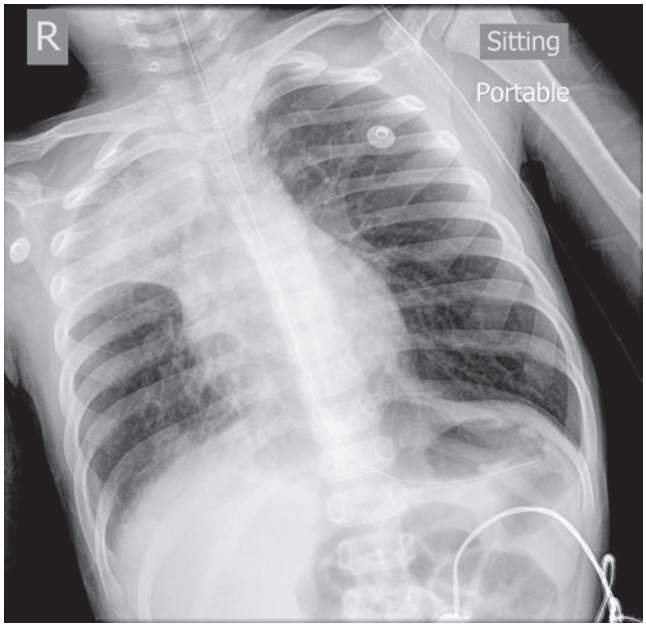
A 3-year-old boy with steroid dependent nephrotic syndrome, vaccinated with PCV7, presented with cough for 2 days and fever for 1 day. He was on alternate day prednisolone 40 mg/m^2/dose and cyclosporin A.

Chest X-ray:



Day 1



Day 2

Question

What is the likely causative organism?

A. Tuberculosis
B. Pneumococcus
C. Virus
D. Co-morbid bacterial and viral causes

(Answer on page 16)

Answers to Radiological Quiz on page 14

Answer: D

Chest X-ray showed diffuse infiltrates and right upper lobe shadow which progressed to collapse and consolidation in 8 hours. Tazocin and oseltamivir were given. He was intubated on day 2 and high frequency oscillation ventilation was required because of severe carbon dioxide retention. Nasopharyngeal aspirate showed influenza A, H3 type and bronchoalveolar lavage (BAL) showed intracellular gram positive cocci and BAL culture grew streptococcus viridans.

Pneumonia is one of the severe complications of influenza, especially in immunosuppressed patient. Primary influenza pneumonia usually presents in chest X-rays with bilateral reticular or reticulonodular opacities. The cytopathic effect of the influenza virus on the tracheobronchial epithelium may predispose to secondary bacterial pneumonia which should be suspected whenever there is an exacerbation of symptoms or neutrophilia and lobar consolidation on chest radiograph.[1] Influenza with bacterial co-infection is often associated with higher complication rate.

For Streptococcus viridans pneumonia, a case series of adult healthy black patients showed that the chest radiograph had segmental or subsegmental consolidation in all cases and appeared to be 'mass-like' in 2 patients.[2] Another case report of a 4-year-old healthy boy had a chest X-ray showing focal parenchymal consolidations over the right upper lobe.[3]

The presence of > or = 5% intracellular organisms infecting polymorphs or macrophages in protected-BAL or conventional-BAL fluids is a specific marker of ventilator associated pneumonia.[4] Detecting intracellular organism may help identify bacterial pneumonia before the availability of culture result.

References

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3. Liaw FY, Wang CC, Chang YW, Chen SJ. Community-acquired Streptococcus Viridans Pneumonia in a Healthy Child. Indian Pediatr 2012;49(4):324-6.
4. Torres A, El-Ebiary M, Fáhbregas N, J González, de la Bellacasa JP, Hernández C, et al. Value of intracellular bacteria detection in the diagnosis of ventilator associated pneumonia. Thorax 1996;51(4):378-84.