Radiological Quiz

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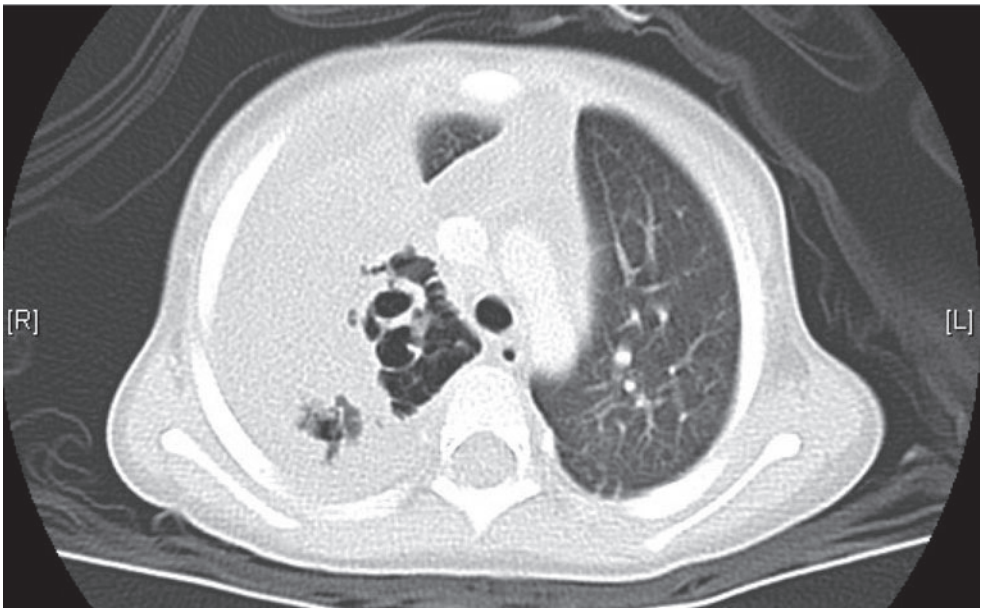
Case history

A 31-month-old previously healthy boy was admitted with 6 days history of fever, coryzal symptoms and 2 days history of breathlessness. There was no recent foreign travelling or contact of any infectious disease. He was seen by a general practitioner and was prescribed antibiotics together with various other symptomatic treatments. However his symptoms deteriorated and he was referred for admission into this hospital.

On admission he was alert, febrile with temperature of 39.3°C. His heart rate was 189/min and BP was 109/77. He was tachypnoeic with RR 70-80/min and his oxygen saturation was 94% in room air. On chest examination the right side was stony dull on percussion, the breath sound was reduced over the right side with coarse crepitations. Rest of the physical examination was unremarkable. CBC showed that his Hb was 9.1, WBC 16.2 with neutrophilia and platelet 224. The clotting profile was normal but the D-Dimer was grossly elevated. His serum Na^+ was 126, K^+ 4.5, urea 3.5 and creatinine 32.

Chest X-ray confirmed right sided pneumonia with pleural effusion. He was started on vancomycin, cefotaxime and clarithromycin after admission.

An urgent CT thorax with contrast was performed.



Question
What is the best description of the CT scan?
A. Right upper lobar pneumonia
B. Right congenital cystic adenomatous malformation
C. Right upper lobe lung abscess
D. Right upper lobe necrotising pneumonia with pleural effusion
E. Pulmonary tuberculosis

(Answer on page 14)

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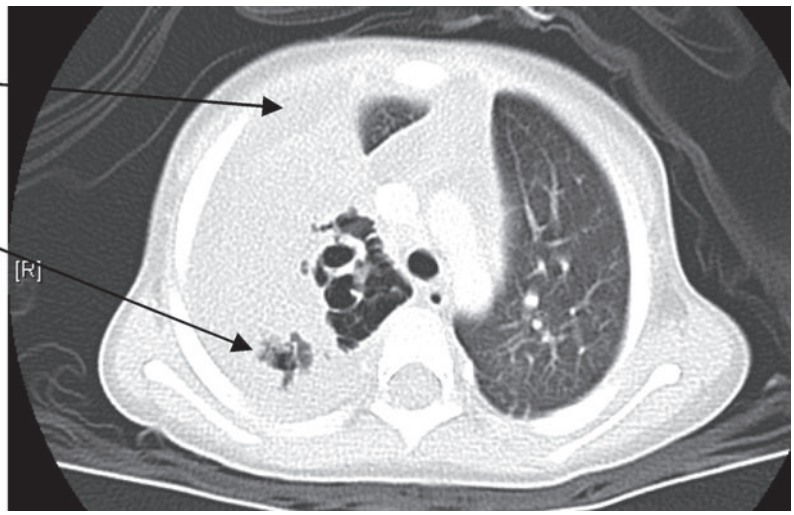
Answer: D



The CT thorax showed right pleural effusion with small air-fluid level at the anterior aspect. Hypo-enhancing consolidative changes with indistinct margins and enlarged irregular air-spaces were seen in right upper lobe. The overall features are suspicious of necrotising pneumonia. There were also right lower lobar consolidation and right middle lobe subsegmental consolidation. Necrotising pneumonia (NP) is a complication of severe and complicated pneumonia in children. It has been diagnosed more frequent with the increasing use of CT scan of thorax. Staphylococcus aureus was the main pathogen in the past especially in children under 2 years of age.[1] However recent evidences suggest that Streptococcus pneumoniae and community acquired methicillin resistant staphylococcus aureus (CA-MRSA) have become important pathogens. Other reported pathogens include mycoplasma and Streptococcus pyogenes. Co-infection between seasonal Influenza A and CA-MRSA has been reported.[2-5] Physicians should be alert to this possibility when children with Influenza A infection deteriorate clinically.

CT thorax is needed to diagnose NP. Features include loss of normal lung parenchymal structure with consolidation. There are multiple thin walled cavities within the consolidation with decreased or absence of contrast enhancement. The empirical antibiotics of choice are cephalosporins, vancomycin and/or clindamycin together with macrolide. In the case series published by Wong and colleagues[1] all the bacterial isolates were sensitive to cefotaxime and vancomycin. A prolonged course of antibiotic, sometimes as long as 3 weeks is needed. The long term outcome in children is usually good.[6]

References

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