Picture quiz 3

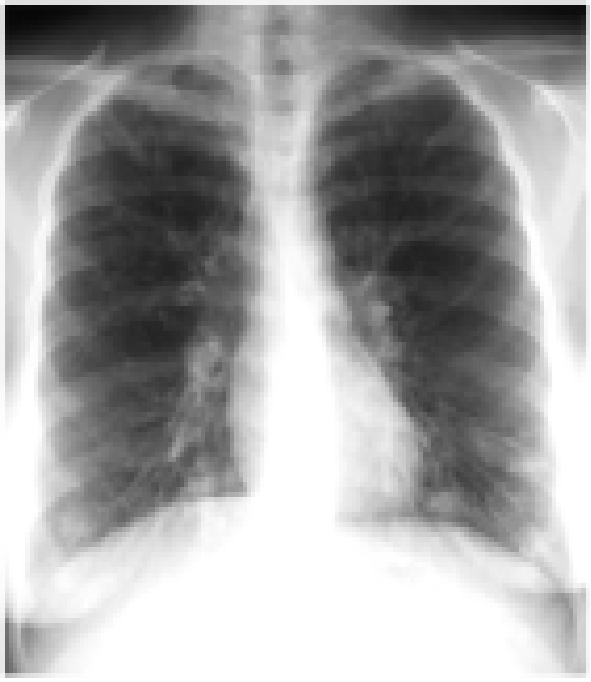

Image 1: PA chest radiograph.

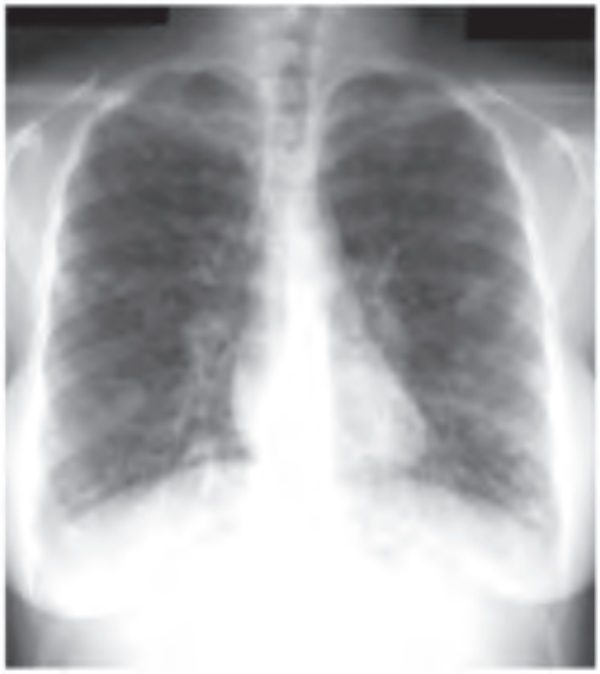

Image 2: PA chest radiograph 1 year later.

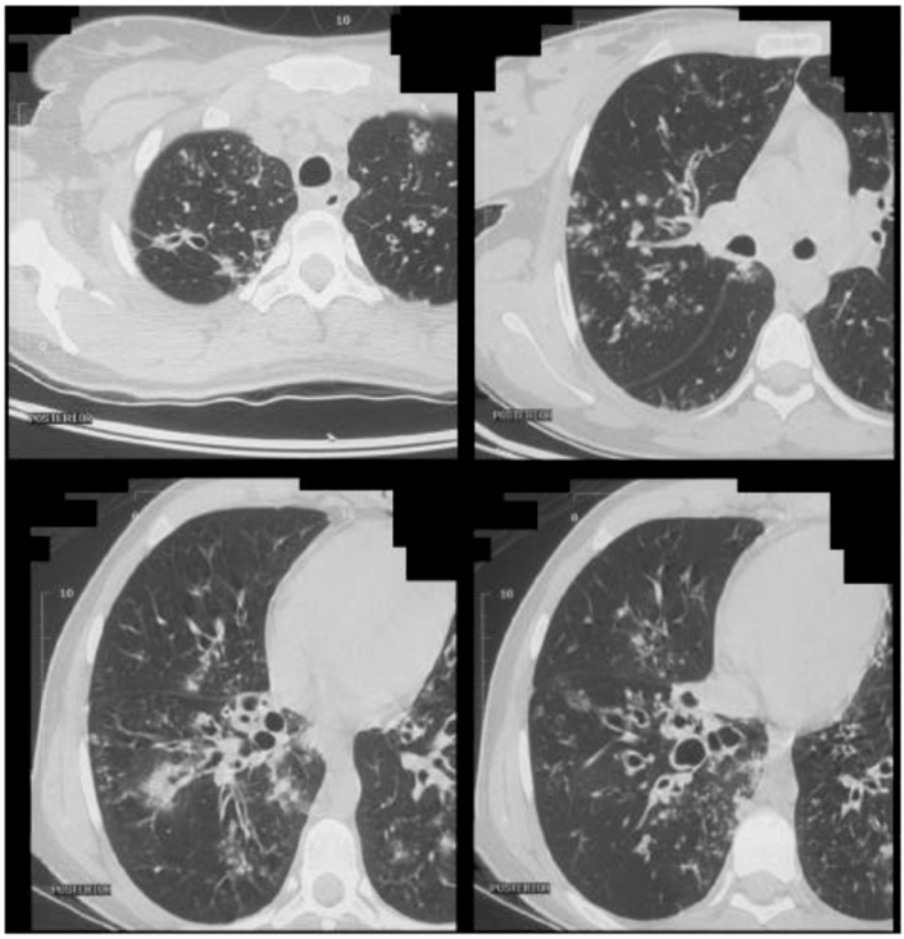

Image 3: High resolution CT scan of chest.

Question

A 19-year old woman with long standing pulmonary disease, admitted with dyspnoea and fever. What are your observations? What is the diagnosis?

Answer

Diagnosis: Cystic fibrosis. *Psuedomonas aeruginosa* infection.

Description: Images 1–3: High resolution CT (lung window) confirms moderately severe cylindrical bronchiectasis. Note the ring shadows and the failure of the bronchi to taper distally. There is prominent peribronchial thickening. Scattered centrilobular nodules are identified as clustered ill-defined nodular opacities attributed to small airway inflammation and bronchopneumonia.

Differential diagnosis: Allergic bronchopulmonary aspergillosis (ABPA), bronchiectasis, infiltrative interstitial diseases including sarcoidosis.

Discussion: Chronic pulmonary infection is the major cause of morbidity and mortality in patients with cystic fibrosis. Progressive airway damage is closely related to bacterial exotoxins and inflammatory cell metabolites. Paediatric patients are colonised with *Staphylococus aureus* and *Haemophilus influenzae*, which may contribute to subsequent colonisation and infection with *P. aeruginosa*, observed in over 90% of adult patients.

Patients with cystic fibrosis are also prone to other infections, including colonisation with *Aspergillus* (25–60%) complicated by ABPA in up to 10% of cases, and typical and atypical mycobacteria (2–20%), and three viruses, including adenovirus and influenza virus.

The pathologic changes of *P. aeruginosa* infection are those of a necrotising, haemorrhagic bronchopneumonia with peribronchial infiltration and microabscesses. Extensive alveolar consolidation is not common in patients with cystic fibrosis and bronchopneumonia due to *P. aeruginosa*. Instead, the radiographic appearance is that of increased peribronchial thickening and mucus plugs. Early bronchopneumonia can be identified as centrilobular nodules on high resolution CT.

Reference

Hansell DM, Dee P. Congenital disorders of the lungs and airways. In: Peter Armstrong, Alan G Wilson, Paul Dee, David M Hansell, eds. *Imaging of Diseases of the Chest*. 3rd ed. London: Harcourt Publishers Limited, 2000: 712–4.

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(Continued from page 33)

From: *To His Coy Mistress*

(Andrew Marvell 1621–1678)

Now therefore, while the youthful hue
Sits on thy skin like morning dew,
And while thy willing soul transpires
At every pore with instant fires,
Now let us sport us while we may,
And now, like amorous birds of prey,
Rather at once our time devour
Than languish in his slow-chapt power.
Let us roll all our strength and all
Our sweetness up into one ball,
And tear our pleasures with rough strife
Thorough the iron gates of life:
Thus, though we cannot make our sun
Stand still, yet we will make him run.