

# It is all in the sputum: a case of non-resolving pneumonia

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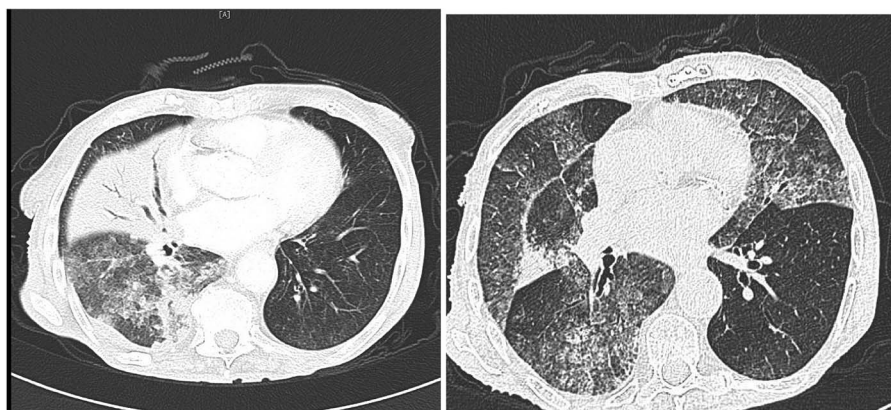
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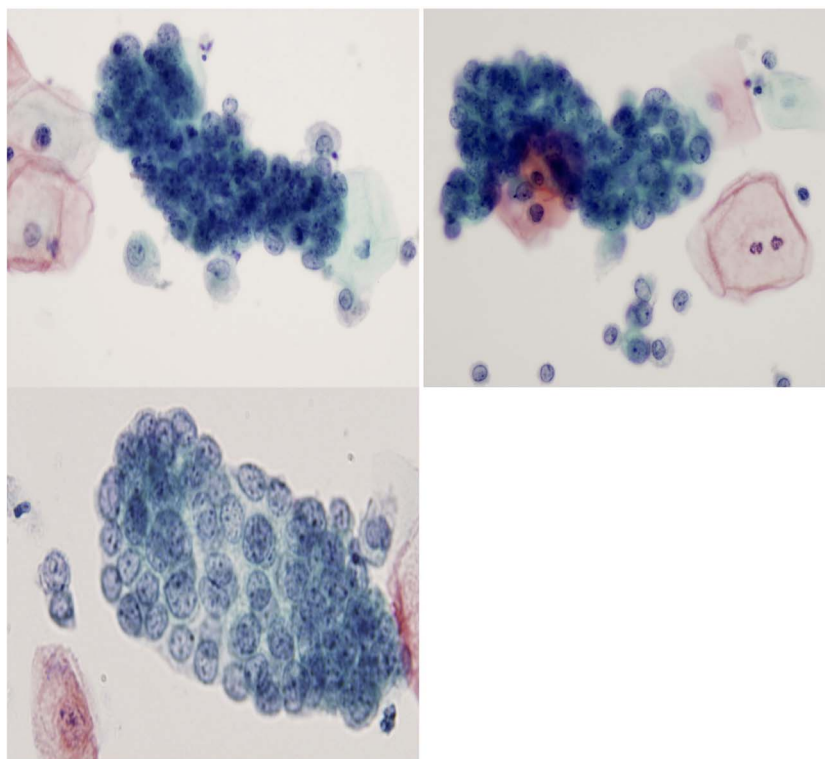
## DESCRIPTION

An 87-year-old woman presented with a 2-day history of dyspnoea, productive cough and right-sided chest discomfort. Having become increasingly lethargic over the preceding fortnight, she also noted unquantifiable weight loss over the prior 3-month period. Physical examination and initial

radiological and haematological assessment was consistent with a community-acquired pneumonia and associated parapneumonic effusion confirmed by pleural aspiration. She was appropriately treated with a full course of intravenous antibiotic therapy however failed to completely resolve. Subsequent bronchoscopy did not reveal an obstructing tumour



**Figure 1** Dense consolidation of right middle and right lower lobes with progression of patchy ground glass infiltrates in the right upper lobes and the left base.



**Figure 2** Malignant sputum cytology: papillary-shaped cell clusters confirm the presence of malignant tumour cells (adenocarcinoma). Also seen are squamous cells (pink) from the oral cavity and alveolar macrophages (green) that confirm that the sample originates from the lower respiratory tract.



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## Learning points

- ▶ Adenocarcinoma, lepidic pattern (formerly known as bronchoalveolar carcinoma (BAC) is a subset of adenocarcinoma that has a variable clinical presentation ranging from solitary or multiple nodules to diffuse parenchymal infiltrates that can mimic a bacterial pneumonia.
- ▶ Sputum cytology can sometimes be diagnostic for malignancy, and is a simple non-invasive initial test in very frail and elderly patients and in those who are high risk for bronchoscopy.
- ▶ Bronchorrhoea is an important symptom in patients with mucinous BAC that can be treated with epidermal growth factor receptor (EGFR) tyrosine kinase (TK) inhibition corticosteroids and macrolides<sup>3</sup> to decrease its associated inflammation.
- ▶ There are a number of molecular abnormalities that vary between mucinous and non-mucinous forms of adenocarcinoma. This has implications in terms of treatment of disease. Mutations in EGFR TK are common in non-mucinous BAC and respond to tyrosine kinase inhibitors (TKIs). Mucinous adenocarcinoma tends to have mutations in the K-Ras oncogene and do not respond to TKIs.

and associated specimens were sent for microbiology. Despite further escalation of antibiotic therapy, limited clinical improvement resulted. Further CT evaluation revealed persistent dense consolidation and progression of ground glass infiltrates (figure 1). With diminishing infective symptoms, a steroid trial was started for possible cryptogenic organising pneumonia. Some limited initial clinical improvement was noted followed by further deterioration with cough and bronchorrhoea. Sputum was sent for further evaluation revealing a well-differentiated adenocarcinoma<sup>1 2</sup> (lepidic pattern; figure 2). The patient opted for a palliative approach to management.

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**Competing interests** None.

**Patient consent** Obtained.

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