Pseudo-haemoptysis – an uncommon presentation of a common symptom
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Introduction

Haemoptysis is defined as expectoration of blood or blood-tinged sputum from the lower respiratory tract. It is a common presenting symptom to Acute Medicine and requires further investigation. The most common causes of haemoptysis in the developed world are bronchitis and lung cancer. Other important causes include tuberculosis and pulmonary embolism. The aim of this case report is to highlight a more uncommon aetiology for this common symptom.

Case Report

A 54 year old Eritrean man was referred to the Ambulatory Emergency Clinic (AEC) following attendance at the Emergency Department the previous night. He complained of breathlessness and haemoptysis over the preceding four days. He also reported around 4kg of weight loss in the last 12 months and three similar, self-limiting episodes.

His medical history was complex, including congenitally correct transposition of the great arteries, VSD, left AV valve regurgitation, stroke, Type 2 diabetes and angina.

He had moved to the UK around 15 years earlier and previously lived in the Netherlands.

On examination, he did not appear breathless at rest. Auscultation revealed coarse crepitations at the right lung base and a systolic murmur with a loud second heart sound.

Bloods showed a chronic microcytic anaemia, raised white cell count and raised CRP (Table 1). Chest x-ray was consistent with a right lower lobe pneumonia (Figure 1).

On review of previous microbiology investigations, he had multiple sputum cultures containing *Serratia marcescens*, the most recent being a fortnight earlier. These also demonstrated the absence of acid fast bacilli. This rather unusual organism prompted a search for information to aid further management. This search established *S. marcescens* as a common cause of pseudo-haemoptysis. He was treated on the basis of this with a combination of ciprofloxacin, linezolid and gentamicin. He was followed up in the AEC at the end of his treatment with resolution of symptoms. Subsequent CT imaging confirmed right basal lung consolidation with no concerning features.

**Table 1 – Initial blood results**

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
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<tbody>
<tr>
<td>Haemoglobin</td>
<td>114 g/dL</td>
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<tr>
<td>White cell count</td>
<td>12.70</td>
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<tr>
<td>Neutrophils</td>
<td>10.62</td>
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<tr>
<td>CRP</td>
<td>83</td>
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**Figure 1 – Chest x-ray showing right basal consolidation**

**Figure 2 – Agar plate showing prodigiosin producing *S. marcescens***

Discussion

*S. marcescens* is an opportunistic, gram negative rod and a member of the Enterobacteria family. It is a fairly common cause of Hospital Acquired Infections, most commonly UTIs and respiratory tract infections. Recent data has shown *S. marcescens* to be responsible for 6.5% of gram negative infections in ICU patients and 3.5% of non-ICU patients with around 2.4% of pneumonias in Europe. It is commonly found in bathrooms and other damp environments where there are fatty substances and phosphorus containing materials (such as soap) for it to feed upon. It appears as pink/orange discolouration and can be very difficult to remove.

*S. marcescens* produces a red pigment called prodigiosin (Figure 2) which is often mistaken for blood and is therefore a cause of pseudo-haemoptysis rather than true haemoptysis. Due to this and its ability to grow on bread, it has been suggested that *S. marcescens* may be responsible for historical phenomena such as the Eucharist miracle at the Mass of Bolensia. Depicted in a fresco by Raphael, this shows theologians disputing transubstantiation (the change in substance of bread or wine into the body and blood of Jesus Christ as per Roman Catholic teachings) whilst a priest consumes bread that appears to bleed.

More concerning from a clinical perspective, *S. marcescens* has a propensity for antimicrobial resistance and can be very difficult to eradicate, often requiring combinations of antibiotics as in this case. Multi-drug resistant, ESBL producing strains of *S. marcescens* are increasingly common and have shown sensitivity to tigecycline and carbopenems. Unfortunately, carbopenemase-mediated resistance has began to emerge.

Learning points

- Common things are common but sometimes there can be an uncommon or unusual aetiology for an everyday presentation.
- Previous (positive) microbiological tests are important and should be reviewed to guide treatment and/or aid diagnosis.

References