Rare disease

An unusual cause of a pulmonary opacity in a visitor to the UK

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Summary

A 64-year-old man, resident in Arizona for 3 years, presented with a week-long history of a dry cough and 'flu-like symptoms'. He had recently been renovating his house. A chest radiograph showed a left mid-zone opacity. Investigations for lung cancer were performed and he underwent CT-guided biopsy of the lesion. A coccidioidal fungus known to cause 'Valley Fever' was isolated. Treatment with fluconazole led to a complete recovery. This fungal infection is endemic in parts of the USA and Mexico and usually presents with respiratory symptoms. Additional complications include disseminated disease and meningitis.

BACKGROUND

Cases of coccidiomycosis are seldom seen in the UK, and therefore may not be considered as a differential in patients presenting with pulmonary or other symptoms. This could lead to investigations and treatment for an alternative condition, and failure to treat a disease with potential serious complications.

Symptoms and radiographic findings can mimic other diseases, including malignancy or tuberculosis.

CASE PRESENTATION

A 56-year-old American man who had lived in Arizona for 3 years presented to his general physician (GP) with a week-long history of dry cough, malaise and 'flu like symptoms'. He had been renovating his house for the last year, had smoked cigars for 10 years and had no pets. There was no weight loss or night sweats. Medical history included coronary bypass surgery 10 years earlier.

A chest radiograph requested by the GP showed a left mid-zone lesion (figure 1). The patient was told that there was the possibility that this was lung cancer. A CT-guided biopsy of the lesion resulted in a pneumothorax that resolved spontaneously.

The biopsy showed no malignant cells, but isolated a coccidioidal fungus known to cause 'Valley Fever' which is endemic in Arizona.¹

INVESTIGATIONS

In this case the diagnosis was reached through a chest radiograph and microscopy with culture of biopsy material, while also looking for evidence of malignancy. Serological testing for the anticoccidioidal antibody is also available.²

DIFFERENTIAL DIAGNOSIS

In the UK there are several common pathologies that may mimic coccidiomycosis. Clinical and radiological similarities to tuberculosis include pulmonary nodules, cavitating lung lesions, hilar adenopathy and erythema nodosum. Chest x-ray findings may also be indistinguishable from malignancy as in this case.

Coccidiomycosis also causes community acquired pneumonia which does not respond to antibiotics, and the diagnosis should be pursued if there are geographical risk factors.

TREATMENT

The patient was treated for primary coccidiomycosis with 2 months of fluconazole and made a full recovery.

OUTCOME AND FOLLOW-UP

He suffered no long-term complications, and is well 5 years later. There is a 2.5 cm pulmonary nodule which persists on his chest x-ray, and without the patient's history this would be considered suspicious for malignancy.

Figure 1 Chest radiograph showing an oval (2.5 x 2.0 cm) opacity in the left mid zone (white arrows). The patient had undergone previous coronary bypass surgery as indicated by sternal suture wires.

DISCUSSION

Coccidiomycosis is an important differential in patients who reside in or have visited the endemic areas of California, Arizona and Mexico.

It is caused by the fungi *coccidioides immitis* and *coccidioides posadasii*, and is transmitted through inhalation of airborne spores. This occurs when soil is disturbed, for example, during building renovation, as is likely in this case.¹

In 60% of patients infection may be asymptomatic, and the most common clinical presentations are with a mild self-resolving respiratory infection or as a community-acquired pneumonia (CAP).²

Differentiation from other causes of pneumonia may be difficult. In endemic areas, coccidiomycosis may be responsible for up to 29% of CAP.¹ Features suggestive of coccidiomycosis are lack of response to antibiotics, hilar adenopathy, eosinophilia, night sweats, erythema multiforme or erythema nodosum.²

It can also cause diffuse lung disease, cavitating lung lesions, bone infections and meningitis. These serious complications are more common in the immunocompromised.²

Treatment is with prolonged courses of itraconazole or fluconazole. For more severe or disseminated cases, amphotericin B may be required.² The American Thoracic Society guidelines from 2011 suggest no treatment for simple cases of primary pulmonary coccidiomycosis in low risk patients, as it is usually self-limiting. For patients with severe or disseminated disease, treatment is required for at least 1 year. Meningeal involvement requires lifelong antifungal treatment.²

Coccidiomycosis can present with a diverse spectrum of clinical manifestations affecting several systems and may resemble other more common diseases. Complications can

be serious or even fatal. It is an important differential in patients from endemic areas and therefore should be considered by physicians in the UK when investigating these patients.

Learning points

- Coccidiomycosis should be considered in patients with travel from endemic areas such as California, Mexico and Arizona.
- It can present with simple respiratory infection, pneumonia, diffuse pulmonary disease or disseminated disease such as meningitis and osteoarticular disease.
- Chest x-ray appearance can be of consolidation, diffuse pulmonary disease, hilar adenopathy, pulmonary nodules or cavitating lesions and may mimic tuberculosis or malignancy.
- Diagnosis is with serology or fungal microscopy or culture, and treatment is with antifungal agents if indicated.

Competing interests None.

Patient consent Obtained.

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