CASE REPORT

Primary pulmonary cryptococcosis

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SUMMARY

Here, we report a case of primary cryptococcal pneumonia in a 25-year-old woman who presented with several weeks' history of cough, dyspnoea and night sweating. These symptoms started in the third trimester of her pregnancy. She was being treated for infertility and got pregnant with in vitro fertilisation. On chest imaging, there were bilateral air space consolidation and cavitory lesions. Fungal pulmonary infection was diagnosed after surgical lung biopsy. She received fluconazole 400 mg per day orally for 6 months and recovered completely.

BACKGROUND

Primary cryptococcal pneumonia is a rare cause of community-acquired pneumonia (CAP) that most commonly occurs in immune compromised patients following antigenaemia and meningitis. However, with more advances in technical diagnosis, fungal infections such as cryptococcosis are increasingly being recognised as the cause of CAP. In immune competent host, cryptococcal pneumonia is often asymptomatic and rarely become disseminated. It is an airborne infection and symptom development in an immune competent host largely depends on the burden and virulence of pathogen. Nodular infiltrates and mass lesions are more common on chest imaging in primary pulmonary cryptococcosis. Mediastinal lymph adenopathy and pleural effusion are less common. Here, we report a case of primary cryptococcal pneumonia in a 25-year-old woman with a history of infertility and IVF whose symptoms developed initially in the third trimester of her pregnancy. Chest imaging revealed bilateral air space consolidations and cavitory lesions. Cryptococcosis was not in the differential diagnosis unless the open lung biopsy revealed the fungal infection. The degree of pulmonary infiltrates and cavitory lesions were mimicked alternative diagnoses, such as tuberculosis. Probable association between IVF and fungal infection prompted us to report the patient.

CASE PRESENTATION

We report the case of a 25-year-old woman, the mother of a healthy 2-month infant. She noticed exertional dyspnoea initially on the last trimester of her pregnancy that was accomplished by IVF. Despite the worsening of dyspnoea with the age of pregnancy, it was attributed to her pregnancy and not further worked up. After Caesarean section, she also developed gradually productive cough, fever, night sweating and anorexia. Chest imaging showed cavitory lung lesions. She was assumed to have tuberculosis. However, neither sputum analysis nor

bronchoscopic lavage revealed mycobacterial infection. The results of mycobacterial culture assays were pending, so she underwent antituberculosis treatment with isoniazide, rifampin, pyrazinamide and ethambutol. After 2 weeks, there was no clinical response and she was still febrile. Antimycobacterial drugs were discontinued and she was referred to our hospital to undergo surgical lung biopsy.

INVESTIGATIONS

On physical examination, she appeared ill and emaciated. Her temperature was 38.6 °C and pulse rate was 130 bpm. Lung sounds were diminished bilaterally, especially over the lower lung fields. Otherwise, the whole examination including heart, abdomen, musculoskeletal and neurological examinations were normal.

She was hypoxaemic and had only 84% oxygen saturation at rest without supplemental O₂.

The blood assay showed white cell count: 11 500/μL (47% polymorphonuclear cells), haemoglobin 13.1 g/dL and platelet 289 000/μL. The erythrocyte sedimentation rate was 60 mm/h. Tests of renal function, liver function and blood sugar were all normal. Skin test with purified protein of *Mycobacterium tuberculosis* was negative. Sputum and blood samples grew no bacteria.

On chest radiography and CT scanning, there were widely scattered air space consolidations and also cavitory lesions (figures 1 and 2).

She underwent surgical lung biopsy. Histological examination of the samples obtained from the right lower lobe initially revealed hypersensitivity pneumonitis (HP) and bronchiolitis obliterans with organising pneumonia (BOOP). The cavitory lesion on the right lower lobe was not justified by HP or BOOP, so the samples were reviewed by another expert pathologist who discovered the presence of

Figure 1 Chest X-ray revealed scattered air space consolidations.

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Figure 2 CT scan revealed consolidations, nodules and cavitary lesions.

cryptococcal infection. Blood test for the cryptococcal antigen was negative. Since the extent of pulmonary involvement was not consistent with a primary pulmonary cryptococcosis in an immunocompetent host, cell-mediated immune deficiency was considered. Blood assays for human immune deficiency virus were negative and CD4 cell counts were normal. She took no steroids or immunosuppressive drugs. The only culprit was par-enteral progestinal agents that were administered frequently during pregnancy.

DIFFERENTIAL DIAGNOSIS

Pulmonary tuberculosis and chronic necrotising pulmonary aspergillosis were the differential diagnoses.

TREATMENT

She had no evidence of disseminated cryptococcal infection and her neurological examination was normal, so lumbar puncture test was not performed. She was treated with oral fluconazole 400 mg/day orally for 6 months.

OUTCOME AND FOLLOW-UP

Fever subsided within the first month of antifungal treatment. By the end of 6 months, she had no respiratory or constitutional symptoms. There was no desaturation on rest or with exertion. She declined to undergo follow-up chest imaging.

DISCUSSION

Pulmonary cryptococcosis can occur in immunocompetent persons and it is in the differential diagnosis for nodular lesions in the lung field. In the literature review, we found a case of

pulmonary cryptococcosis in a 74-year-old female patient with a large consolidative mass and multiple nodular consolidations and small nodules that mimic primary lung cancer. This case of cryptococcosis was also confirmed by lung biopsy.¹ Definitive diagnosis of pulmonary cryptococcosis can be made by histological identification of the fungus in lung biopsy specimens.² Cryptococcal antigen titre can be measured in serum. A high titre of this antigen suggests invasive disease, but a negative titre does not rule out the diagnosis.³ In another case, a 31-year-old man was admitted to the hospital because of cough and bilateral patchy infiltrates in the chest X-ray. In the chest CT scan, there were patchy consolidation and adjacent ground-glass opacities, suggestive of BOOP. The titre of serum cryptococcal antigen was high and decreased after treatment. Therefore, pulmonary cryptococcosis should be considered as a differential diagnosis of combined air-space consolidation and groundglass opacities in the chest CT scan.⁴

Learning points

- Cryptococcal pneumonia must be considered in the differential diagnosis of severe community-acquired pneumonia (CAP) with cavitary lesion.
- Primary cryptococcal pneumonia may mimic more common opportunistic infections such as tuberculosis and aspergillosis.
- High-dose progestinal agents may negatively affect cell-mediated immunity.

Contributors MAG and SFA were involved in the writing of the manuscript.

Competing interests None.

Patient consent Obtained.

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