CASE REPORT

A case of lung mass: a common association between uncommon diseases

Vishal Gupta,¹ Niteen D Karnik,¹ Dhiraj Agrawal,¹ Dhirendra Kumar Tiwari²

¹Department of Medicine, Seth G. S. Medical College & KEM Hospital, Thane, Maharashtra, India

²Department of General Medicine, Seth G. S. Medical College & KEM Hospital, Thane, Maharashtra, India

Correspondence to

Dr Dhirendra Kumar Tiwari, tiwaridhirendra1986@gmail.com

Accepted 6 November 2014

SUMMARY

A young man presented with a history of cough, chest pain and streaky haemoptysis with low-grade fever. Further evaluation revealed a mass in the left hemithorax, which was biopsied to reveal cryptococcoma. The patient was HIV negative. Flow cytometry lymphocyte subset analysis showed reduced CD4+ T lymphocytes. Absolute CD4+ lymphocyte count was only 230 (normal range 530–1300). The patient was started on injectable amphotericin B, which was given for 1 month, and he was discharged on oral fluconazole.

poor appetite. There was no prior history of repeated infection or history of surgery or blood transfusion.

The family history of the patient was unremarkable. He worked as a photographer in a photo studio. His recreational indulgences included chewing tobacco and occasional consumption of alcohol. The patient was married and had no history of high-risk sexual behaviour.

On admission, the patient was afebrile with normal blood pressure (110/80 mm Hg) and regular respiratory rate of 20/min. He was observed to have grade 2 clubbing in both hands. Systemic examination including chest auscultation was unremarkable.

BACKGROUND

Although opportunistic infections are commonly seen in HIV-positive patients with T-cell lymphocytopenia, we treated a patient with cryptococcosis who was not in an immunodeficient state earlier and was HIV 1 and 2 negative.

CASE PRESENTATION

A 31-year-old man presented with non-productive cough and a left-sided dull aching chest pain of 5 months duration. The patient had a history of haemoptysis episodes, a few of which were streaky. He had a headache and low-grade fever, which was elevated at night. In the past few months the patient had lost weight, which was attributed to

INVESTIGATIONS

Basic laboratory evaluation studies showed a leucocyte count of $16.2 \times 10^9/L$ with differential of neutrophils 77% and lymphocytes 16.2%. Biochemistry evaluation values were normal. A frontal view chest X-ray (figure 1) was performed, which revealed a homogeneous radio-opacity with a broad base towards the upper mediastinum in the left upper zone with a silhouette in the arch of the aorta.

Further evaluation by contrast-enhanced CT of the thorax (figure 2) showed a mass that was enhancing heterogeneously and infiltrating the mediastinum. The mass was seen in the left upper

Figure 1 Chest X-ray showing homogeneous opacity in left upper zone.

To cite: Gupta V, Karnik ND, Agrawal D, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2014-205632

Figure 2 CT of the thorax showing cryptococcoma.

lobe encasing the left main pulmonary artery and upper lobe segmental bronchi.

The patient underwent CT-guided left lung mass biopsy, which was sent for histopathology examination, Ziehl-Neelsen staining, culture for tuberculous bacilli and fungi.

The histopathology sampled revealed cryptococcal infection (figure 3). Mucin (figure 4) and Grocott's methenamine silver stain (figure 5) highlighted the *Cryptococcus* organism. The fungal culture also demonstrated the growth of *C neoformans*.

Meanwhile, the patient's headache worsened and he developed neck stiffness. A cerebrospinal fluid (CSF) examination revealed 188 mg% of protein, cells 2460/mm³: all lymphocytes. The cryptococcal antigen was positive in serum (titre 1:100) and CSF (titre 1:10). MRI of the brain revealed meningeal enhancement.

Based on the above findings, an ELISA test for HIV was sent, which came back negative. However, flow cytometry lymphocyte subset analysis showed reduced CD4+ T lymphocytes. Absolute CD4+ lymphocyte count was only 230 (normal range 530–1300).

TREATMENT

The patient was started on injectable amphotericin B, which was given for 1 month. He improved clinically and was discharged on oral fluconazole to be continued for 1 year.

OUTCOME AND FOLLOW-UP

On follow-up 3 months later, the patient was asymptomatic with X-ray of the chest showing reduction in size of mediastinal mass.

Figure 3 Histopathology showing cryptococci.

Figure 4 Mucin stain.

DISCUSSION

Opportunistic infections are commonly seen in HIV-positive patients with T-cell lymphocytopenia. In this reported case, we treated a patient with cryptococcosis who was not in an immunodeficient state earlier and was HIV 1 and 2 negative. He presented with a homogeneous opacity in the chest X-ray, which was suspected to be either malignancy or another infectious process such as tuberculosis. The diagnosis was established on CT-guided biopsy with histopathology and culture.

The Centers for Disease Control and Prevention (CDC) coined the term idiopathic CD4 lymphocytopenia (ICL) for a condition: (1) with persistently low CD4 T-cell levels, (2) no evidence of HIV infection and (3) that prompted the physician to consider HIV infection.¹

ICL is usually considered when a previously healthy patient is diagnosed with an opportunistic infection, although an incidental laboratory finding is also possible.²

In ICL, the spectrum of opportunistic infection is similar to types of infections seen in HIV patients with corresponding CD4 T-cell counts.³

Cryptococcosis is commonly seen in HIV-positive patients. It usually causes meningoencephalitis. Pulmonary infections are also seen. Most cases of non-meningeal non-pulmonary cryptococcosis represent disseminated infection. Pulmonary cryptococcosis may be seen as an isolated infection but subclinical meningitis may also be seen, similar to our patient, who had a history of chronic headache that worsened and prompted a CSF

Figure 5 Grocott's methenamine silver stain.

study. A CSF examination with India ink or antigen test is diagnostic.

Non-immunosuppressed patients with pulmonary involvement with mild-to-moderate symptoms are treated with fluconazole 400 mg orally for 6–12 months.⁴ Patients with severe or central nervous system disease are treated with induction therapy of amphotericin B with flucytosine for 4 weeks followed by consoli-

dated therapy with fluconazole (400–800 mg/day) for 8 weeks and maintenance therapy of fluconazole 200 mg for 6–12 months. Our patient did not receive flucytosine due to non-availability.

Surgical resection can be considered in patients who have persistent focal radiographic changes despite recommended medical therapy. This approach may be curative or may identify the aetiology.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

Learning points

- ▶ An infective cause of lung mass is also an important differential, especially in India and in the immunocompromised.
- ▶ If a person is negative for HIV it does not necessarily mean he or she cannot be immunocompromised.
- ▶ Intravenous and oral therapy for *Cryptococcus* have both been advocated by various authors.

REFERENCES

- 1 Anonymous. Centers for Disease Control and Prevention. Unexplained CD4+ T-lymphocyte depletion in persons without evident HIV infection. *MMWR Morb Mortal Wkly Rep* 1992;41:541–5.
- 2 Zonios DI, Falloon J, Bennett JE, *et al.* Idiopathic CD4+ lymphocytopenia: natural history and prognostic factors. *Blood* 2008;112:287–94.
- 3 Walker UA. Idiopathic CD4 lymphocytopenia. *Curr Opin Rheumatol* 2006;18:389–5.
- 4 Perfect JR, Dismukes WE, Dromer F, *et al.* Clinical practice guidelines for the management of cryptococcal disease: 2010 update by the infectious diseases society of America. *Clin Infect Dis* 2010;50:291–322.

Copyright 2014 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow