CASE REPORT

Tuberculous mediastinal lymphadenopathy in an adult

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SUMMARY

We describe a patient who presented to us with fever, decreased appetite, weight loss and dry cough for 1 month with no abnormalities on examination. A chest radiograph showed a mediastinal shadow. CT of the chest revealed multiple mediastinal lymph nodes. Bronchoalveolar lavage was negative for acid-fast bacilli and cytological examination did not show malignant cells. Serum ACE levels were high (93 U/L). Bone marrow aspiration and biopsy did not reveal any pathology. Mediastinoscopy-guided mediastinal lymph node biopsy showed features of granulomatous lymphadenitis. This case report summarises an unusual presentation of tuberculosis in an adult.

BACKGROUND

Tuberculosis is a major health problem in India. According to the annual report of WHO, India contributes to one-fifth of all the cases in the world. It is also one of the major opportunistic infections associated with HIV. This patient did not present with typical signs/symptoms of tuberculosis. Isolated mediastinal tuberculosis without lung parenchymal lesion is usually seen in children; it is a rare form of disease in adults. It is important to know and thoroughly understand the typical as well as atypical presentation of the disease in order to administer an appropriate treatment.

CASE PRESENTATION

A 32-year-old woman was admitted with 1-month history of low-grade intermittent fever associated with dry cough, weight loss and decreased appetite. She was treated for similar symptoms at other health centres and as the fever did not subside she was evaluated by our team. On examination, she was in a relatively good physical condition and blood pressure was 130/80 mm Hg. There were no skin lesions. Systemic examination was unremarkable.

INVESTIGATIONS

The laboratory reports were within normal limits except for high erythrocyte sedimentation rate (34 mm/h), and HIV serology by ELISA was negative. Chest X-ray showed bilateral hilar shadows (figure 1). A contrast-enhanced CT (CECT) of the chest revealed multiple homogeneously enhancing enlarged symmetric hilar, precarinal, subcarinal, pretracheal and paratracheal lymph nodes (figure 2). Mantoux was negative. A fibre optic bronchoscopy was performed and the tests from bronchoscopy,

including the acid-fast bacilli culture and malignant cells were negative. CD4/CD8 ratio in the bronchoalveolar lavage fluid was 1.8. Serum ACE levels were 93 U/L. Based on the clinical, laboratory and radiological features, possibilities of sarcoidosis or a lymphoma were considered. Bone marrow aspiration revealed a reactive marrow and a biopsy did not show granulomas/abnormal cells. The result of bone marrow culture for mycobacterial species was negative. Mediastinoscopy-guided lymph node biopsy was performed. The histopathology revealed epithelioid cell granulomas with necrosis consistent with tuberculosis (figure 3).

DIFFERENTIAL DIAGNOSIS

Bilateral hilar shadows on chest X-ray, mediastinal lymphadenopathy on CT scan and high serum ACE levels lead to strong suspicion of sarcoidosis. Unresolving fever and multiple mediastinal lymph nodes on CT scan suggested the possibility of lymphoma.

TREATMENT

The patient was started on isoniazid 300 mg, rifampicin 450 mg, ethambutol 1000 mg and pyrazinamide 1500 mg, which she tolerated without any incident and was discharged.

OUTCOME AND FOLLOW-UP

At 1 month follow-up, she was asymptomatic with weight gain and remained afebrile.

Figure 1 Chest X-ray showing bilateral hilar shadows.

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Figure 2 Contrast-enhanced CT of the chest showing multiple homogeneously enhancing enlarged mediastinal lymph nodes.

DISCUSSION

Tuberculosis can have varied presentations and can involve any part of the body. Involvement of the mediastinal lymph nodes in tuberculosis (TB) is a common condition in developing countries. The occurrence of isolated mediastinal lymphadenopathy decreases with increasing age and occurs rarely in adults. It usually occurs in association with parenchymal lesions.¹ TB, sarcoidosis, lymphoma, histoplasmosis and neoplasia are the common causes of mediastinal lymphadenopathy. It may be very difficult to differentiate radiologically one from the other.² CT chest usually reveals right-sided adenopathy, and specifically, right paratracheal lymph node enlargement in tuberculosis. Bilateral hilar lymph node enlargement is much less common in tuberculosis than in sarcoidosis. Involvement of pretracheal and prevascular nodes is common in patients with Hodgkin's lymphoma. The combination of bilateral hilar and paratracheal node enlargement usually allows the differentiation of sarcoidosis from lymphoma. The combination of (1) right paratracheal, (2) right hilar and (3) left hilar node enlargement is termed the 1-2-3 pattern and is typical of sarcoidosis.³

The diagnostic value of sputum examination is low in patients without parenchymal lesions of tuberculosis, most of whom

require procedures such as bronchoscopy, CT-guided fine-needle aspiration biopsy or mediastinoscopy to establish a definite diagnosis.²⁻⁴ In a study by Ayed AK and Behbehani NA, the incidence of intrathoracic tuberculous lymphadenitis was 2% of 1700 new cases of tuberculosis over a 4-year period. He also reported that bronchoscopy has a low diagnostic yield in isolated tuberculous mediastinal lymphadenopathy in the absence of lung lesions. Mediastinoscopy is a safe but invasive procedure and provides a tissue diagnosis in most of the cases.⁵

Serum ACE (SACE) levels are elevated in only 60% of the patients with sarcoidosis and in less than one-third of the patients with chronic disease. Patients with infectious granulomatous diseases such as tuberculosis and histoplasmosis occasionally have an elevated SACE level.⁶ The false-positive rate of SACE is 9.2% in tuberculosis (38.9% in miliary tuberculosis but 0% in other forms). SACE levels are usually lower than normal in patients with lymphoma.⁷

In our case, we suspected sarcoidosis or a lymphoma as a cause of this bilateral hilar shadow. The final diagnosis of tuberculosis was made on histopathological examination of mediastinal lymph node biopsy. Despite a wide spectrum of differential diagnoses, traditionally, granulomatous lymphadenitis is tentatively diagnosed as tuberculous lymphadenitis because it continues to be the most frequent cause of granulomatous lymphadenitis in many parts of the world.⁸

Our case demonstrates that tuberculosis should be considered as a possible aetiology in an adult with mediastinal lymphadenopathy in the absence of lung parenchyma involvement, even if the patient is HIV negative.

Learning points

- ▶ The granulomatous lesion may be due to tuberculosis, sarcoidosis or fungal infections.
- ▶ Serum ACE levels can also be elevated in other clinical conditions such as tuberculosis and lymphoma apart from sarcoidosis.
- ▶ Mediastinal lymph node tuberculosis can closely mimic sarcoidosis or malignant lesions on radiology but can be treated with better outcome compared with other common mediastinal masses. Therefore, it should always be considered among differential diagnoses of mediastinal mass.

Figure 3 Section from the lymph node showing multiple granulomas with caseous necrosis and Langhans giant cells.

Contributors CUK, KBI and SKN were involved in treating the patient and preparing the manuscript. ACKR was involved in reporting the biopsy specimen.

Competing interests None.

Patient consent Obtained.

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REFERENCES

- 1 Singh S, Pandey D, Ahmad Z, *et al*. Unusual presentation of tuberculosis. *Trop Doct* 2009;39:183-4.
- 2 Khilnani GC, Jain N, Hadda V, *et al*. Anterior mediastinal mass: a rare presentation of tuberculosis. *J Trop Med* 2011;2011:635385.
- 3 Webb WR. The mediastinum: mediastinal masses. In: Webb WR, Higgins CB, eds. *Thoracic imaging: pulmonary and cardiothoracic radiology*. 2nd edn. Philadelphia, PA: Lippincott Williams & Wilkins, 2011:219-85.
- 4 Baran R, Tor M, Tahaoglu K, *et al*. Intrathoracic tuberculous lymphadenopathy: clinical and bronchoscopic features in 17 adults without parenchymal lesions. *Thorax* 1996;51:87-9.

- 5 Ayed AK, Behbehani NA. Diagnosis and treatment of isolated tuberculous mediastinal lymphadenopathy in adults. *Eur J Surg* 2001;167:334–8.
- 6 Lieberman J, Nosal A, Schlessner A, *et al.* Serum angiotensin-converting enzyme for diagnosis and therapeutic evaluation of sarcoidosis. *Am Rev Respir Dis* 1979;120:329–35.
- 7 Ainslie GM, Benatar SR. Serum angiotensin converting enzyme in sarcoidosis: sensitivity and specificity in diagnosis: correlations with disease activity, duration, extra-thoracic involvement, radiographic type and therapy. *Q J Med* 1985;55:253–70.
- 8 Naeini AE, Foroozmehr A, Tabatabae A. Mediastinal lymph node tuberculosis in an adult: a case report. *J Res Med Sci* 2006;11:415–17.

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