IDCases 36 (2024) e01983

Contents lists available at ScienceDirect

IDCases

journal homepage: www.elsevier.com/locate/idcases

Case report

Anterior mediastinal mass in HIV patient with disseminated tuberculosis – An atypical case report

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ARTICLE INFO

Keywords:
Anterior mediastinal mass
HIV
Tuberculosis
Pericardial effusion
Immunocompromised
Case Report

ABSTRACT

We report an atypical case of an anterior mediastinal mass in a 36-year-old female with HIV and previous hospitalization due to left-side chest pain and breathlessness. The patient presented with a cough, expectoration, shortness of breath, chest pain, and fatigue. Laboratory tests revealed relevant findings, including low hemoglobin, low CD4 count, and a hyperechoic lesion in segment 5 of the liver. USG-guided aspiration of fluid from the mass was negative for fungal elements, but AFB culture showed acid-fast bacilli. Surgical excision of the mass was denied due to the patient's unfit status, and she died two weeks later due to pericardial effusion associated with tuberculosis and HIV. This case highlights the importance of considering tuberculosis as a potential complication in immunocompromised patients with anterior mediastinal masses.

Introduction

The mediastinum, a central compartment in the thoracic cavity, is home to vital structures such as ligaments, adipose tissue, and parenchymatous organs such as the thymus, thyroid, and parathyroid glands. It is bordered by pleural cavities on the sides, a thoracic inlet on the top, and a diaphragm on the bottom. This compartment is further divided into three compartments: anterior, middle, and posterior [1]. Of all the masses that occur within the mediastinum, 50 % arise from the anterior compartment, including thymoma, teratoma, thyroid disorders, and lymphoma [2]. Congenital cysts are commonly found in the middle compartment, while neurogenic tumors are frequently seen in the posterior compartment [3].

Tuberculous pericarditis is a complication that occurs in 1–2 % of individuals with pulmonary tuberculosis. The prevalence of this complication has decreased in the United States due to a decrease in tuberculosis prevalence. However, the incidence of extrapulmonary tuberculosis, including tuberculous pericarditis, varies widely among countries with high immigrant populations from TB-endemic areas. Tuberculous pericarditis is more common in individuals with HIV and those who are poor and marginalized, as evidenced by various studies [4]. Here, we present an atypical case of anterior mediastinal mass in an immunocompromised patient.

Case report

A 36 years old female presented to the hospital with a cough with expectoration for the past 4 months and shortness of breath for the past 2 months. She had left side chest pain for 6 weeks and heaviness in the chest for the past 1 month. she also complained of loss of weight and fatigue. The cough was insidious in onset, gradually progressive, intermittent in nature, no diurnal variation was present and postural variation is present more in the supine position. Cough was associated with expectoration which is whitish, mucoid, non-fowl smelling, and not blood-stained. Shortness of breath was insidious in onset, gradually progressive from grade 2 to grade 3, with no postural variation, no history of orthopnea or paroxysmal nocturnal dyspnea, and no history of pedal edema. There was one episode of chest pain which was sudden in onset, pricking type, the center of the chest, non-radiating, and relieved with pain killer. She was a known case of HIV infection (At the time of presentation, the patient's CD4 count was 120 cells/mm^3, indicating significant immunocompromised) and had been receiving antiretroviral

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https://doi.org/10.1016/j.idcr.2024.e01983
Received 10 December 2023; Received in revised form 16 April 2024; Accepted 3 May 2024
Available online 8 May 2024

therapy since the past thirteen years and using empirical anti-tubercular therapy (rifampicin, isoniazid, pyrazinamide, and ethambutol) since 3 months. She had similar experience in the past and hospitalized due to left side chest pain and breathlessness.

On examination, her appearance was mildly ill, pallor and edema were present. There was no generalized lymphadenopathy, clubbing, cyanosis, or icterus. But the rashes were a prominent feature. On inspection, the nose, paranasal sinuses, ear, throat, and tonsils were normal but ulcers were found in oral cavity. Tachypnoea (24/min) was present, palpation showed tenderness over intercostal space (ICS). On percussion dull note was heard in the left infraclavicular and mammary area. On auscultation, vesicular breath sounds were heard. Precordial auscultation showed distant heart sounds.

The laboratory tests reported relevant findings i.e, hemoglobin (Hb) – 8 g/dL, Total Leukocyte Count (TLC) – 6600 cells/mcL, AEC (Absolute Eosinophil Count) – 150 cells/mcL, Serum Bilirubin – 0.4 mg/dL, CD4 count is 68 cells/mm^3 and Sputum CBNAAT didn't detected any MTB. The ECG showed sinus tachycardia with non-specific ST segment changes. TROP I levels, LDH levels & PRO BNP levels were within normal limits. There is a very mild elevated creatinine level of 1.2 mg/dL and a urea level of 27 mg/dL. The HRCT thorax revealed extensive mediastinal lymphadenopathy, mild & diffuse bilateral pulmonary infiltrates characterized by ground-glass opacities and nodular densities. Additionally, moderate pericardial effusion with circumferential fluid accumulation around the heart was observed.

On ultrasound-guided aspiration, 20 ml of opaque, exudative pleural fluid was obtained which reported negative for AFB & fungal elements. Further analysis revealed a lymphocyte predominance (90 %), indicating a likely infectious etiology. Additionally, the adenosine deaminase (ADA) level was significantly elevated at 46.0 U/L, further supporting a possible tuberculous involvement. Importantly, pleural fluid cytology was negative for malignant cells, ruling out cancer as a cause for the effusion. CBNAAT MTB was not detected and culture sensitivity shows pseudomonas sensitive to amikacin, ciprofloxacin, ceftazidime and FNAC shows neutrophil rich, no evidence of TB/Neoplasms. USG of whole abdomen showed a 9 mm hyperechoic lesion noted in segment 5 of the liver. It also revealed the hemangioma and mild splenomegaly. Fig. 1 represents pericardial effusion before aspiration. Pigtail catheterization Fig. 2 was done under fluoroscopy guidance and around 400 ml of dark green colored fluid aspirated and was sent for investigations which were negative for fungal elements Fig. 3. Bacterial culture was sterile, and interestingly AFB culture showed acid-fast bacilli.

The patient was referred for surgical excision of mass but it was denied as the patient was not fit for surgery. The patient was on continuous ART and ATT therapy but unfortunately the patient died after 2 weeks. The cause of death was attributed to pericardial effusion due to tuberculosis associated with HIV.

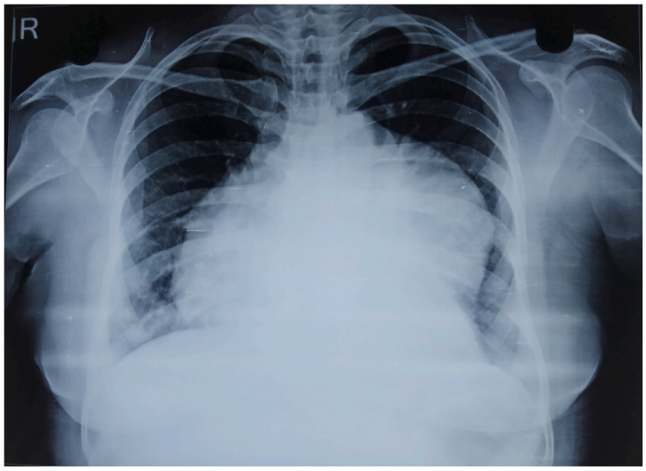

Fig. 1. Pericardial effusion before aspiration.

Discussion

The presented case highlights the atypical presentation of an anterior mediastinal mass in an immunocompromised patient with HIV, which was ultimately diagnosed as pericardial effusion due to tuberculosis. Tuberculosis is a known opportunistic infection in HIV patients, and extrapulmonary tuberculosis accounts for about 50% of tuberculosis cases in HIV-positive individuals [5]. The initial presentation of the patient was with cough and expectoration, which is a common symptom of pulmonary tuberculosis. However, the negative sputum test for Mycobacterium tuberculosis (MTB) and absence of pulmonary infiltrates on chest X-ray indicated that the primary site of tuberculosis infection was outside the lungs. The patient also had left-sided chest pain, shortness of breath, and a mediastinal mass on imaging, which raised the suspicion of a mediastinal tumor. The diagnosis of pericardial effusion due to tuberculosis was made based on the presence of AFB bacilli on culture of the pericardial fluid and the clinical response to anti-tubercular therapy.

Tuberculous pericarditis is a rare complication of tuberculosis, occurring in only 1–2 % of patients with pulmonary tuberculosis [6]. However, in HIV-positive patients, the incidence of tuberculous pericarditis increases up to 10–20 % [7]. The diagnosis of tuberculous pericarditis is challenging, as the symptoms can be nonspecific and may mimic other cardiac or non-cardiac conditions. The clinical presentation of tuberculous pericarditis can range from an asymptomatic pericardial effusion to a severe acute pericarditis with tamponade [8]. TB pericardial effusion is a form of pericarditis caused by mycobacterium tuberculosis that produces an abnormal collection of fluid in the pericardial layer. When pericardial fluid is unobtainable, histological examination becomes crucial, and biopsy tissues should be examined for granulomatous inflammation after staining with acid-fast reagents. Although the sensitivity of pericardial biopsy for diagnosing TB pericardial effusion ranges from 10 % to 64 %, normal pericardial biopsy specimens do not necessarily rule out tuberculous pericarditis. Pericardial biopsy tissue had the highest diagnostic efficacy during the effusive stage [4].

The management of tuberculous pericarditis involves a multidisciplinary approach, including anti-tubercular therapy, pericardiocentesis, and corticosteroid therapy. Anti-tubercular therapy should be started empirically in suspected cases of tuberculous pericarditis and continued for at least 6 months [9]. The pericardiocentesis is indicated in patients with large pericardial effusions, cardiac tamponade, or constrictive pericarditis. The corticosteroid therapy is indicated in patients with large effusions, signs of tamponade, or evidence of constrictive pericarditis, as it can reduce inflammation and prevent complications [10].

Conclusion

In conclusion, the presented case highlights the importance of considering tuberculosis as a possible cause of mediastinal mass in immunocompromised patients. Tuberculous pericarditis should be considered in patients with pericardial effusions, especially in those with a history of tuberculosis or HIV infection. Early diagnosis and prompt management with anti-tubercular therapy, pericardiocentesis, and corticosteroid therapy can prevent complications and improve outcomes.

Declarations

Written informed consent was obtained from the patient(s) for their anonymized information to be published in this article.

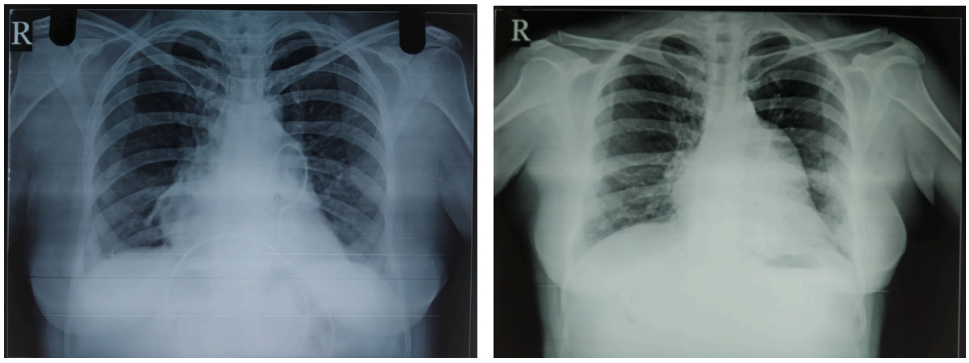

Fig. 2. a) Aspiration done with intact pigtail catheter, b) aspiration done and pigtail catheter removed.

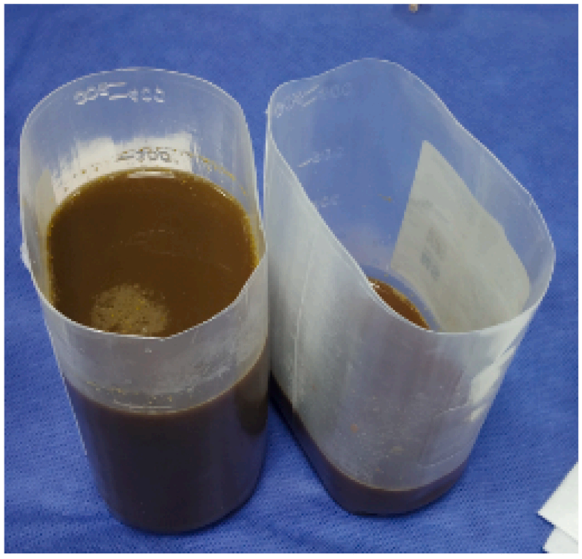

Fig. 3. Jar containing hemorrhagic pericardial fluid.

Author contribution

Please specify the contribution of each author to the paper, e.g. study design, data collections, data analysis, writing, others, who have contributed in other ways should be listed as contributors.

Bathula B – Idea, Conceptualization, Supervision, writing draft, approved final draft.

Sathvika MV – writing draft and revision of draft, approved final draft.

Srivastava D – writing draft, revision of draft and approved final draft.

Suvvari TK – Project administration, writing draft and revision of draft, approved final draft.

Conflicts of Interests

None.

Ethical approval

N/A for Case Reports.

Consent

Written Informed consent was taken from patient.

Funding

None.

CRediT authorship contribution statement

Devang Srivastava: Writing – review & editing, Writing – original draft, Visualization. **Bhargavprasad Bathula:** Writing – review & editing, Writing – original draft, Supervision, Investigation, Conceptualization. **Sathvika M V:** Writing – review & editing, Writing – original draft, Resources, Formal analysis. **Tarun Kumar Suvvari:** Writing – review & editing, Writing – original draft, Supervision, Methodology, Investigation.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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