Original Research Paper

Volume - 13 | Issue - 02 | February - 2023 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

General Medicine

AN UNUSUAL PRESENTATION OF EXTRAPULMONARY TUBERCULOSIS AS FEVER WITH PANCYTOPENIA: A CASE REPORT

Dr. Prudhvi Srujan Kamma* Postgraduate, Department of General Medicine, Anil Neerukonda Hospital, Dr. YSR University of Health Sciences, Andhra Pradesh, India*Corresponding Author

Dr. Aishwarya Badugu Postgraduate, Department of General Medicine, Anil Neerukonda Hospital, Dr. YSR University of Health Sciences, Andhra Pradesh, India

ABSTRACT **Background:** In the developing countries, tuberculosis is a significant health issue. The vague presentation causes extrapulmonary tuberculosis to take longer to be diagnosed. Pancytopenia is one of the haematological symptoms of extrapulmonary tuberculosis. Pancytopenia may result from hypersplenism, maturation arrest, hemophagocytic lymphohistiocytosis, or infiltration of the bone marrow by caseating or noncaseating granulomas causing reversible or irreversible fibrosis. **Case presentation:** We report a case of a 70 year-old man who presented with pyrexia of unknown origin with significant loss of weight and loss of appetite. He had pallor with mild hepatosplenomegaly. He had high inflammatory markers with pancytopenia in a peripheral blood smear. His chest radiograph was normal, and he had a negative Mantoux. The common risk factors such as diabetes, human immunodeficiency virus (HIV) infection, chronic kidney disease, malnutrition, and immunosuppressant therapy which might contribute him to be vulnerable to TB, were not found. The definite diagnosis of disseminated tuberculosis was made on the basis of caseating tuberculous granulomas in the bone marrow. **Conclusions:** Due to its ambiguous and nonspecific presentation, widespread TB continues to be difficult to diagnose. Particularly in places where tuberculosis is endemic, the possibility of disseminated tuberculosis should be taken into account in cases of pyrexia of unknown origin with peripheral cytopenia. In such cases, it is crucial to perform a bone marrow culture and histopathological examination simultaneously because findings of routine diagnostics like chest radiography or Mantoux tests may be negative.

KEYWORDS : Extrapulmonary tuberculosis, Pancytopenia, Bone marrow, Granuloma

INTRODUCTION

Tuberculosis (TB) is an infectious disease caused by Mycobacterium tuberculosis. Clinical manifestations include general symptoms such as low-grade fever, tiredness, and weight loss as well as local symptoms specific to the affected organ. Although M. tuberculosis can infect any organ, the lung is the most common site of infection, and extrapulmonary TB accounts for more than 50% of cases in individuals who are HIV positive and is responsible for about 15 to 20% of cases in immune-competent hosts. And the common sites of extrapulmonary TB include the lymph nodes, the pleura,[1] the bone and joint, the peritoneum, the meninges, etc.

Leukemoid reaction, various kinds of anaemia, and rarely pancytopenia are haematological disorders connected to extrapulmonary TB1. When blood counts present a picture of pancytopenia, bone marrow biopsy has been frequently employed as one of the diagnostic methods[2]. Bone marrow tuberculosis has reportedly been linked to deadly outcomes even though it is thought to be a treatable illness[3].

We describe the case of a patient who showed up with a fever of unclear cause and haematological abnormalities. The goal is to illustrate the significance of correlating the unusual appearance of an illness that is frequently encountered and the fact that the prognosis of bone marrow TB considerably depends on thorough intervention, prompt diagnosis, and prompt treatment commencement.

Case Presentation:

We report a case of a 70-year-old man from the Araku Valley who visited the Anil Neerukonda Hospital after experiencing night sweats and a high-grade fever for 4 weeks. He experienced a noticeable reduction of appetite during this time and over the course of 4 weeks, lost 6 kg of weight. He denied having any other symptoms. He has no unusual medical history. He worked as a daily wagerer, alcoholic and non smoker. No history of TB / contact. He was not icteric and had a slight pallor upon examination. With a temperature of 39.8 °C, he was febrile, no lymphadenopathy. His heart, lungs were normal, and his blood pressure reading was 100/60 mmHg. Per abdominal examination, was soft, non-tender with mild hepatosplenomegaly. Meningism-related symptoms were absent in him. His neurological evaluation revealed no abnormality, including higher functions. His ocular fundus had no notable features.

A full blood count showed leukopenia at 2840/l, anaemia with a haemoglobin of 6 g/dl and a low platelet count of 60,000/l. The patient's blood workup revealed pancytopenia, reactive lymphocytes, profound neutropenia, and thrombocytopenia. His erythrocyte sedimentation rate was 106 mm in the first hour and his C-reactive protein level was 198 mg/L. His urine and blood cultures were both sterile. His chest radiograph (Fig.1) revealed nothing unusual. He had normal renal function.

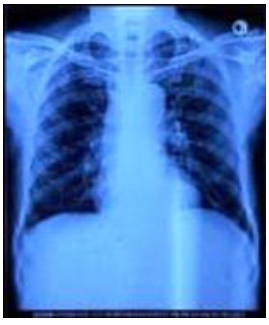
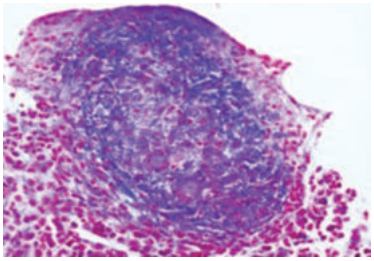


Figure 1 (showing chest x ray)

He exhibited a normal prothrombin time and a low blood albumin level (26 g/dl). His serum bilirubin level was normal, but his liver enzymes were high (alanine aminotransferase 346 U/L, aspartate aminotransferase 407 U/L). He had a lactate dehydrogenase level of 1120 U/L. The patient's cerebrospinal fluid (CSF) study revealed normal protein and sugar levels, as well as five lymphocytes, and the CSF culture was sterile. Melioidosis serology on the patient came out negative. His Mantoux test came back negative. An ultrasound scan revealed a mild hepatosplenomegaly without any other solid organ abnormalities or intraabdominal lymphadenopathy. His 2D echocardiography revealed nothing unusual. Contrast-enhanced computed tomography (CT) scans of chest, and abdomen came back negative. His hepatitis profile, malaria film, and HIV serology were all negative. Following the collection of blood and urine for cultures, the patient was empirically started on iv meropenem 1 g every 8 hours. He continued to have high fevers, and his condition deteriorated.

After a bone marrow biopsy, the tissue was examined histologically (Fig.2). The results of the pathology revealed a diffuse infiltrate of large atypical cells with mild nuclear pleomorphism, focal necrosis, and caseating granulomas. Mycobacterium tuberculosis was not detected using acid-fast staining. Bone marrow adenosine deaminase activity in the patient was 85 U/L. His lipid profile did not indicate higher triglyceride levels, and his serum ferritin level (900 ng/ml) was only marginally raised.

Figure 2 (showing caseous granuloma)



Starting with isoniazid, rifampicin, pyrazinamide, and ethambutol, the patient had the usual antituberculosis therapy. The patient made a quick clinical recovery after beginning the antituberculosis medication, and a week into therapy, he was fever-free. Over the course of one week, his blood counts improved and his liver enzyme levels returned to normal. Few months later, he gained 5 kg in weight, healthy and free of symptoms related to his previous illness. Investigations revealed a white blood cell count of 6800/l, a platelet count of 2,82,000/l, and a haemoglobin level of 12.4 g/dl. He received 9 months of antituberculosis medication and returned to his regular activities.

DISCUSSION:

Early detection and treatment have significantly reduced the incidence rate of tuberculosis, but extrapulmonary tuberculosis has remained unchanged because the disease pattern was not recognized right away because of its unusual presentation[4]. Due to its ambiguous and nonspecific presentation, widespread TB continues to be difficult to diagnose. Particularly in places where tuberculosis is endemic, the possibility of disseminated tuberculosis should be taken into account in cases of pyrexia of unknown origin with peripheral cytopenia. In such cases, it is crucial to perform a bone marrow culture and histopathological examination simultaneously because findings of routine diagnostics like chest radiography or Mantoux tests may be negative. Various haematological symptoms in patients with pulmonary and extrapulmonary tuberculosis were documented by Singh et al[5]. It rarely causes pancytopenia. Pancytopenia in cases of miliary tuberculosis has been attributed to a variety of conditions, including hypersplenism, histiocytic hyperplasia[6], and cell maturation block. There is also a chance that granulomatous pattern infiltration of the bone marrow could result in fibrosis. The incidence, however, is quite low and ranges from 0.4% to 2% [5]. When patients with tuberculosis present with cytopenia, organomegaly, and coagulopathy, HLH should be taken into consideration in the differential diagnosis[5]. On the basis of a constellation of symptoms including fever, organomegaly, cytopenia(s), elevated serum ferritin and triglyceride levels with or without decreased plasma fibrinogen, and evidence of histiocytic hemophagocytosis on bone marrow examination, the diagnosis was made in all previously reported cases8. The differential diagnosis of HLH was taken into consideration in the case of our patient, however he had a modestly raised serum ferritin, normal triglyceride levels, and no signs of histiocytic hemophagocytosis in the bone marrow. Another potential mechanism of pancytopenia in tuberculosis is infiltration of the bone marrow by caseating or noncaseating granulomas that results in reversible or permanent fibrosis[8]. The bone marrow of our patient had a diffuse infiltrate of big atypical cells with mild nuclear pleomorphism and caseating granulomas. In contrast to disseminated/miliary TB patients without granulomas, those with granulomas in the bone marrow had severe anaemia, peripheral monocytopenia, and bone marrow histiomonocytosis[5]. Tuberculosis is one of the most frequent causes of bone marrow granulomas; it constitutes 6–48% of the cases[9,10]. In cases of miliary tuberculosis, mostly the bone marrow biopsy will show granulomas (33–100%); caseation is uncommon (29%), and the presence of acid-fast bacilli detected by Ziehl-Neelsen staining is rare[11].

CONCLUSION:

Because of the vague presentations, diagnosing widespread tuberculosis continues to be difficult. A normal chest radiograph, cytopenia, and a negative Mantoux test result were all present in our patient. The main cause of the poor prognosis in disseminated tuberculosis is the delay in diagnosis brought on by a lack of distinct clinical characteristics. A mycobacterial blood culture alone is less sensitive than performing both culture and histological examination of the bone marrow to diagnose disseminated tuberculosis, according to Wang et al. [12]. The positive outcome of our patient was most likely brought about by an early diagnosis and beginning of antituberculosis treatment.

There were no conflicts of interest.

REFERENCES:

1. Sharma, S. K., & Mohan, A. (2004). Extrapulmonary tuberculosis. The Indian journal of medical research, 120(4), 316–353.
2. Swami, V., Lalitha, A. V., & Anjan Kumar, T. K. (2020). Tuberculosis and Tumor Lysis Syndrome-Coincidence or Coexistent: A Case Report. Indian journal of critical care medicine : peer-reviewed, official publication of Indian Society of Critical Care Medicine, 24(2), 145–147. https://doi.org/10.5005/jp-journals-10071-23359
3. H., Alghamdi, A. A., Awan, F. S., Maniyar, I. H., & Alghamdi, N. A. (2013, April 28). Unusual Manifestation of Extrapulmonary Tuberculosis. Unusual Manifestation of Extrapulmonary Tuberculosis. https://doi.org/10.1155/2013/353798
4. Le Hô, H., Barbarot, N., & Desrues, B. (2010). Pancytopénie et tuberculose disséminée : penser au syndrome d'activation macrophagique [Pancytopenia in disseminated tuberculosis: Think of macrophage activation syndrome]. Revue des maladies respiratoires, 27(3), 257–260. https://doi.org/10.1016/j.rmr.2010.02.005
5. Singh, K. J., Ahluwalia, G., Sharma, S. K., Saxena, R., Chaudhary, V. P., & Anant, M. (2001). Significance of haematological manifestations in patients with tuberculosis. The Journal of the Association of Physicians of India, 49, 788–794.
6. Avasthi, R., Mohanty, D., Chaudhary, S. C., & Mishra, K. (2010). Disseminated tuberculosis: interesting hematological observations. The Journal of the Association of Physicians of India, 58, 243–244.
7. Le Hô, H., Barbarot, N., & Desrues, B. (2010). Pancytopénie et tuberculose disséminée : penser au syndrome d'activation macrophagique [Pancytopenia in disseminated tuberculosis: Think of macrophage activation syndrome]. Revue des maladies respiratoires, 27(3), 257–260. https://doi.org/10.1016/j.rmr.2010.02.005
8. Feng, J., Zhang, H., & Zhong, D. R. (2009). Zhonghua nei ke za zhi, 48(6), 485–487.
9. Bhargava, V., & Farhi, D. C. (1988). Bone marrow granulomas: clinicopathologic findings in 72 cases and review of the literature. Hematologic pathology, 2(1), 43–50.
10. PEASE G. L. (1956). Granulomatous lesions in bone marrow. Blood, 11(8), 720–734.
11. Kinoshita, M., Ichikawa, Y., Koga, H., Sumita, S., & Oizumi, K. (1994). Re-evaluation of bone marrow aspiration in the diagnosis of miliary tuberculosis. Chest, 106(3), 690–692. https://doi.org/10.1378/chest.106.3.690
12. Wang, J. Y., Hsueh, P. R., Wang, S. K., Jan, I. S., Lee, L. N., Liaw, Y. S., Yang, P. C., & Luh, K. T. (2007). Disseminated tuberculosis: a 10-year experience in a medical center. Medicine, 86(1), 39–46. https://doi.org/10.1097/MD.0b013e318030b605