Scientific Research Publishing

Journal of Tuberculosis Research, 2023, 11, 62-66
https://www.scirp.org/journal/jtr
ISSN Online: 2329-8448
ISSN Print: 2329-843X

Pancytopenia and Pulmonary Tuberculosis: A Case Report

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How to cite this paper: Kashongwe, I.M., Penge, O., Obel, B.K., Fueza, S.B. and Munogolo, Z.K. (2023) Pancytopenia and Pulmonary Tuberculosis: A Case Report. *Journal of Tuberculosis Research*, **11**, 62-66.
https://doi.org/10.4236/jtr.2023.112006

Received: April 11, 2023
Accepted: June 17, 2023
Published: June 20, 2023

Abstract

Background: Hematopoietic system is seriously affected by tuberculosis. It exerts a dazzling variety of hematological effects involving both cell lines and plasma components [1]. Anemia and leukopenia are not unusual with tuberculosis (TB), but pancytopenia is rare [2]. Findings: In this report, we described a case of a 42 years man presenting bleeding and pancytopenia; bacteriological pulmonary TB was established by genotypic rapid test and treatment following the WHO guidelines on drug-sensitive TB treatment. Patient recovered entirely with the WHO recommended regimen associated with general and local treatment of the bleeding. Conclusion: This case report emphasizes the importance of always suspecting tuberculosis in a tuberculosis-endemic area, even when the clinical manifestations are atypical, like pancytopenia and also of properly investigating the differential diagnosis. Even though prognosis seems to be less good, actual treatment regimen is still effective.

Keywords

Pancytopenia, Pulmonary Tuberculosis, Treatment, Case Report

1. Introduction

Various hematological disorders have been reported as associated with tuberculosis [2] [3] [4] [5]. But pancytopenia is not common [6]. Different mechanisms have been suggested, among hypersplenism, maturation arrest, hemophagocytic lymphohystiocytosis, bone marrow infiltration by caseating or non caseatinggranuloma causing reversible or irreversible fibrosis of bone marrow [7] [8]. In some cases, pancytopenia is associated with underlying diseases like leukemia [8].

In case of military, myelosuppresive effects of Tuberculosis have been also suggested [3] [6]. In some cases, multifocal tuberculosis was revealed by pancytopenia and diagnosis was made by bone marrow biopsy [8].

We report a case of epistaxis as major symptom with pulmonary tuberculosis and pancytopenia in a 42 years old man.

2. Case Report

A 42 years old man complained of recurrent epistaxis for one week, associated with fever, cough with mucus sputum, dyspnea, right chest pain, weight loss, weakness and headaches. He was non smoker and took occasionally paracetamol.

On admission, he looked ill, with blood pressure: 100/79 mmHg, pulse rate 120/minute, body temperature: 36.2˚C, respiration rate: 28/minute, S_aO_2: 95%. Biological investigation is as below Table 1.

Physical examination fund: pallor, crackles in the two lungs, tachycardia.

Anterior rhinoscopy noted active hemorrhage in the Kisselbach area.

There was also lingual apex ecchymosis, and blood behind the uvula.

Chest x-ray: showed bilateral alveolar syndrome and nodular shadows in both lungs suggesting bilateral bronchopneumonia. The diagnosis initially evoked was a suspicion of medullary aplasia.

Bone marrow analysis (medullogram):

- Good cellularity
- Plasmocytes: 6.55%
- Lymphocytes: 2.56%
- Blasts: 1.2%
- Promyelocytes: 2.84%
- Promyeloblasts: 2.84%
- Myelocytes: 22.22%
- Metamyelocytes: 20.22%
- Neutrophilic Polynuclear: 15.22%

Table 1. Biological investigation is as below.

Hematological parameters	Result
Hemoglobin	6.9 g/dl
White blood cells (WBCs)	2010/µl
Red blood cell (RBCs)	3,000,000/µl Differential count: Neutrophile: 10%, Lymphocyte: 85%, Monocyte: 5%
Eosinophile	0.1%
Platelets	121,000/µl
Erythrocyte sedimentation Rate (ESR):	115 mm/1sthr
CRP	34 ng/l

- Eosinophil linea: 0.56%
- Basophile polynuclear: 0.85%
- Pro-crythoblastes: 1.13%

Tuberculosis investigation:

- Sputum Smear (Ziehl-Neelson strain): negative
- Genotypic test: Xpert® MTB/RIF (Cepheid, Sunnyvale, CA, USA): positive for *Mycobacterium tuberculosis*, rifampicin sensitive

Final diagnosis:

Bacteriologically diagnosed pulmonary tuberculosis, rifampicine sensitive associated with pancytopenia.

Management:

To treat tuberculosis, the patient received a six month regimen with rifampicin (10 mg/kg), isoniazid (5 mg/kg), ethambutol (20 mg/Kg), and pyrazinamide (30 mg/kg) for two months followed by four months of Rifampicin and Isoniazid [12]. To correct anemia and bleeding, three RBCs units and one concentrated platelets unit were administered. Local compression and drops of argyrol 2% were also applied. Follow up after two months, the patient recovered all blood parameters: Hb: 13.2 g/dl RBC: 4,950,000/µl, WBC: 4800/µl, Platelets: 183,000/µl. On the Chex-ray follow up, lungs resolved entirely after the six months treatment. No other pathology was associated.

3. Discussion

Tuberculosis can be associated with various hematological disorders [1] [2] [3] [8] [9]. In case of extra pulmonary forms or fever of unknown origin, diagnosis can be delayed because of atypical presentation [10] [11].

If pancytopenia and fever are present without evident cause, TB must be considered in differential diagnosis [8].

The case we report had respiratory and general symptoms advocating TB in a high burden country unless main symptom was epistaxis. Physical examination and chest x-ray revealed lung involvement, genotypic rapid test confirmed the diagnosis according to the Who guidelines [12]. In cases reported by Bafinger J. J. *et al.* [13], Nabil Tiress *et al.* [8] and Hunt B. J. *et al.* [6], bone marrow biopsy allowed the diagnosis. Other authors emphasized the place of TB in pyrexia and cytopenia in case of fever of unknown origin [11] [13]. Bone marrow analysis and biopsy allowed to exclude another origin.

Overcome under TB treatment with recommended short regimen was favourable. We observed total recovery of clinical and hematological features. Hunt B. J. *et al.* [6] emphasized a high risk of mortality.

This can be due to disseminated forms.

4. Conclusion

Tuberculosis can seriously affect hematologic system with involvement of all the cell lines. These hematologic changes act as a marker for the diagnosis and the

prognosis. Bone marrow biopsy seems to give a more likely diagnosis. But all the other tests used for the TB diagnosis remain available. Treatment follows the current guidelines for TB management.

Even though prognosis seems to be less good, actual treatment regimen is still effective. Hematological screening and follow up, including complete blood count and coagulation, both at the diagnosis and during treatment are indicated in order to monitor tolerance and recovery.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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