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Consumption Consuming the Bones…

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Abstract
Here we present a case of a 29 year old pregnant female who was referred in view of bicytopenia , and on investigation she was diagnosed to have myelodysplastic syndrome, and on further investigations she was found to have sputum positive pulmonary tuberculosis. MDS happens to be a rare manifestation of pulmonary tuberculosis.

Introduction

Tuberculosis is one of the earliest and fatal ailments, a major health risk, a socioeconomic burden that kills approximately 2 million people annually. Complete blood picture is the routine investigation done for every patient irrespective of type of infection that provides much needed information for making decision of the treatment Heamatological manifestation of TB include normocytic normochromic anaemia, leucopenia, lymphopenia, monocytopena, thrombocytopenia and neutrophilic leucocytosis

Other rare manifestations include pure red cell aplasia, myelodysplastic syndrome, macrophage activation syndrome.

Myelodysplastic syndrome is an acquired clonal disorder affecting the haematopoietic progenitor cells, there is dysplasia and increase chance of leukemic transformations. It is classically seen in patients above age of 60. Any patients before diagnosing primary MDS we should consider secondary MDS/ reversible MDS/reactive MDS which is classically seen in young patients with history of exposure to radiotherapy/ chemotherapy/chronic inflammation or infection like TB,HIV, drugs, toxins/ alcoholism.

Case Report

29 year old female with two uncomplicated full term delivery, now four months pregnant, referred as a case of bicytopenia with increased ESR. Patient is a cancer survivor who underwent MRM for carcinoma of left breast at the age of 25.She had taken full term chemotherapy. She was on regular follow up and all investigations including bone scan showed no recurrence. On reviewing

the history patient gives history of fever of 1 month duration, recurrent attacks of cough for 1 month duration. No other significant illness.

On Examination

- Patient is thin built and poorly nourished
- Pallor present
- No lymphadenopathy especially axillary or supraclavicular lymph nodes
- No palpable breast lumps
- Vitals normal
- Systemic examination of respiratory system revealed crepitation of right middle lobe and all other systems were within normal limits.
- So we suspect the possibility of bone marrow infiltration due to underlying solid organ tumor of breast. Even though the possibility of pulmonary tuberculosis and metastasis of lungs were also of concern and was investigated.

Investigations

- Hb - 6.4
- TC - 11,800
- DC - N80 L12 M8
- PLT - 10,000
- MCV- 93.1
- MCH -29.5
- MCHC-31.7
- ESR -110
- Sodium-130
- Potassium- 4.3
- ALP-360
- SGOT-110
- SGPT-136
- Alb-2.5
- Serum B12-normal
- Vit D-normal
- Ferritin-normal

Peripheral Smear

RBC-Anisocytosis with microcytes, normocytes seen, few cells are hypochromic, no nucleated RBC/100 WBC, no parasites

WBC-count within normal limit, predominantly neutrophils seen

myelo1, meta1, band2, N69 L24 E1 M2

mild shift to left present

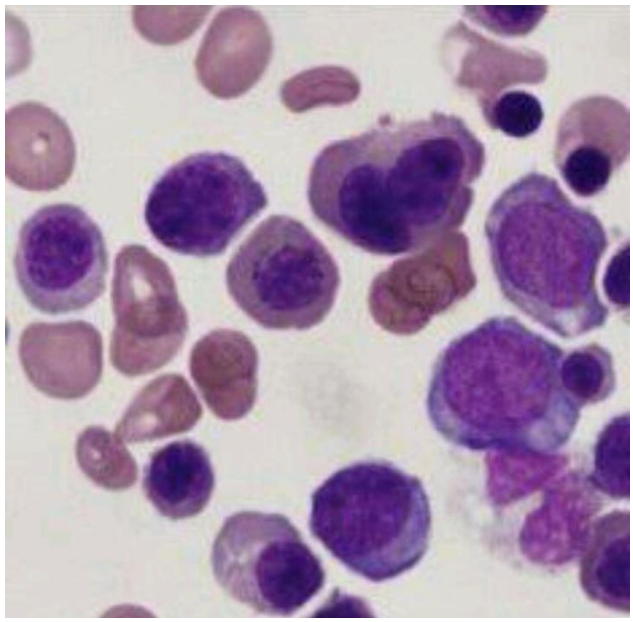
Platelets – count reduced

Impression- Microcytic Hypochromic Anaemia with Thrombocytopenia

- Viral markers, ANA, ANCA -negative
- Serum electrophoresis -negative
- ANA profile -negative
- Anti ds DNA -negative
- Tumor markers - not done due to financial constrains
- X ray chest- Right middle lobe haziness
- Sputum, CBNAAT, Mantoux-positive

Bone Marrow Aspirate

Bone marrow aspirate showed particulate cellular smears- erythroid series shows normoblastic maturation with dysplastic changes. Around 15% immature cells noted. Bare nuclei ++. Megakaryocytes are increased and shows dysplastic changes.



Diagnosis- Marrow shows dysplastic changes more of immature cells

Clinically and on the basis of investigations we came to a diagnosis of pulmonary TB presenting as haematological abnormality in the form of bicytopenia was reached.

Discussion

The mechanism of haematological manifestation in TB are splenic dysfunction, bone marrow infiltration, allergic reactions to tubercular proteins, autoimmune hemolysis. In our patient we strongly suspect it to be due to tubercular protein, because she responded very well to ATT.

Bone marrow infiltration due to underlying malignancy was ruled out because when there is a bone marrow infiltration with or without fibrosis myelopthisic blood smear showing

a) left sided shift of neutrophils
b) tear drop cells
c) nucleated RBC

A blunted erythropoetic response of bone marrow, release of TNF-alpha, and other cytokines by tuberculosis activated monocytes suppressing the erythropoetic production, block in reticuloendothelial transfer of iron in to the nucleus of developing red cells are postulated as cause for anaemia. The occurrence of leucocytosis, neutrophilia, lymphocytosis were due to immune response of tuberculosis. Thrombocytosis is due to increased thrombopoetic factors as an inflammatory response.

Varied mechanisms like drugs immune mechanism, bone marrow fibrosis, granulomatous involvement of bone marrow and hypersplenism have all been put forward as possible causes of thrombocytopenia

When we think about the cancer infiltrating the bone marrow, most common are carcinoma of lung, breast, prostate, colon, thyroid. Disseminated cells from primary solid tumors are considered to be the cause of metastases formation and relapse of disease. Consequently, their detection is of high importance for staging, prognosis. In malignant infiltration of bone marrow, the blood count may be normal, even though pancytopenia may occur and there may be leukoerythroblastic blood picture. In our case even though she had carcinoma breast, recurrence was ruled out and haematological manifestations couldn't be attributed to underlying malignancy

Conclusion

In our part of the world where TB is a major health risk, we should have a differential diagnosis of TB when we come across an abnormal blood picture or bone marrow finding. Even though MDS turning into acute leukemia in a background of TB is rare, we cannot rule it out completely and that part also has to be investigated.