



Perinicious Anemia Presenting With Pancytopenia

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ABSTRACT

Pernicious anemia is not encountered commonly as an etiology for B 12 deficiency in Indian population. It occurs frequently in northern Europeans as well as Africans. We highlight a case of B12 deficiency in a male, the etiology being pernicious anemia.

KEYWORDS; B12 deficiency, Pernicious anemia, megaloblastic changes

I. INTRODUCTION

Pernicious anemia is a disease of insidious onset, that generally begins in middle age or later. Pernicious anemia causing pancytopenia is rare¹. Here we discuss a case of middle aged man who presented with pancytopenia. Extensive workup revealed pernicious anemia as the cause.

CASE PRESENTATION

A 56-year-old male with no co morbid illness, non-alcoholic, non-smoker, mixed diet presented to our hospital with nausea and generalized fatigability. At the time of admission, his BP was 110/70 mm Hg, pulse rate was 74 bpm, respiratory rate of 18 breaths/min. There was pallor, but no icterus, cyanosis, clubbing, lymphadenopathy and pedal edema. Jugular venous pressure was normal. Review of systems was otherwise unremarkable. Initial lab results were significant of pancytopenia-total count of 1800 cells/cm³, hemoglobin was 5.3 g/dl and platelet was 58,000/cm³. Blood levels of glucose, electrolytes, renal function test and liver function test were normal. Peripheral smear revealed RBC-anisocytosis, macrocytes, macroovalocytes (Figure 1), tear drop cells, elliptocytes, spherocytes, polychromasia, basophilic stippling, few fragmented RBC's, WBC-count reduced on smear with occasional hyper segmented neutrophils (Figure 2), platelet-clumped and appears adequate on smear. LDH was 5095 U/L. Total bilirubin was 0.9 mg/dl, direct bilirubin was 0.1 mg/dl. HIV, HbsAg and HCV were non-reactive. Serum uric acid was 4 mg/dl. USG abdomen did not show any significant

abnormality. Extensive anemia profile workup was done which revealed serum ferritin-269 ng/ml, transferrin saturation was 48%. Vitamin b12 level was less than 100 pg/ml and folic acid was 8.6 ng/ml. Patient was found to have Vitamin B12 deficiency. Fundus examination was done which revealed no evidence of optic atrophy. Bone marrow examination was done to identify the etiology of B 12 deficiency. Bone marrow examination showed hypercellular marrow with trilineage dysplasia as scattered immature cells (<4%) (Figure 3). Thus we proceeded with MDS fish panel (cytogenetic studies) which showed negative. Still the cause for B12 deficiency is unknown. Upper GI endoscopy was done which showed pale gastric mucosa, mildly inflamed antrum-features suggestive of atrophic gastritis. Biopsy from gastric antrum showed atrophy of the glands, foci of intestinal metaplasia and lymphoplasmacytic infiltrate. Giemsa stain was positive for H. Pylori (Figure 4). Suspecting pernicious anemia, parietal cell antibodies and antibodies to intrinsic factor were sent and both turned out to be positive. Patient was started with daily intramuscular injection of 1000mcg of methyl cobalamin for one week followed by the same dose once weekly for one month. Patient was also started on H. Pylori Kit for 2 weeks. Patient was discharged with advice to take same dose once every month and follow up every 6-month interval. Two months' later patient was followed up which showed total count of 7000 cells/cmm³, hemoglobin was 11.6 g/dl and platelet was 2,95,000/mm and complete recovery of all symptoms.



Figure 1. Peripheral smear showing a macrocyte and macroovalocyte (arrow).

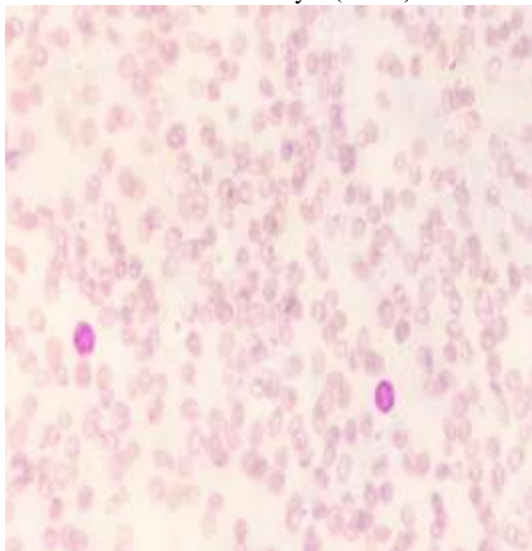


Figure 2. Peripheral smear showing a hypersegmented neutrophil.

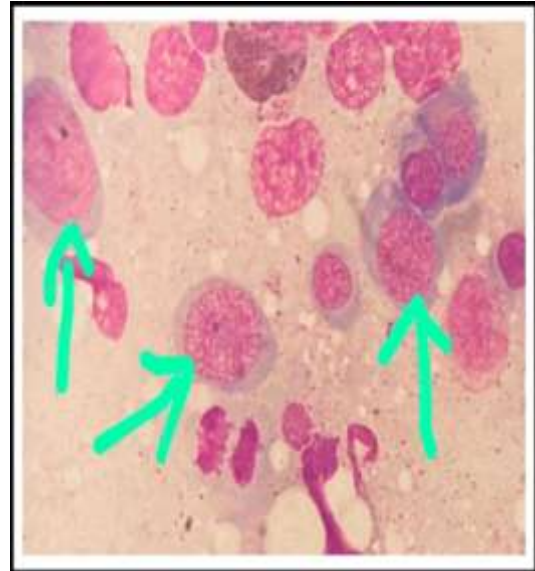


Figure 3. Bone marrow biopsy showing erythroid hyperplasia with megaloblastic changes and giant metamyelocyte(arrow).

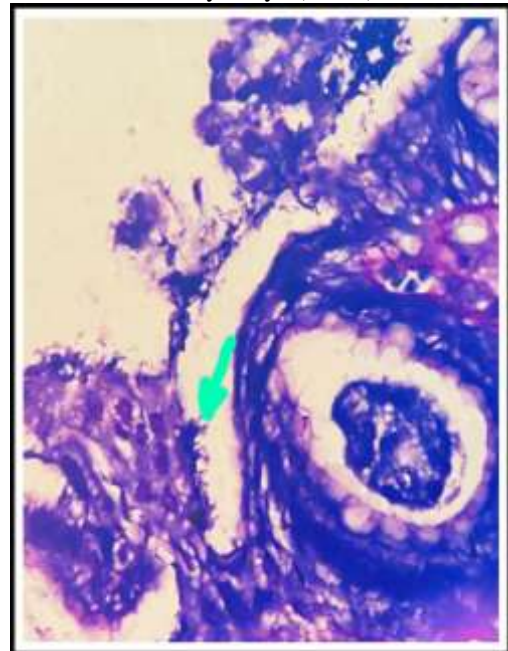


Figure 4. Antral biopsy on Giemsa stain demonstrated H.Pylori(arrow).

II. DISCUSSION

There are vast differential causes of pancytopenia- infection, bone marrow failure, drug induced and autoimmune condition¹. Megaloblastic anemias are disorders due to impaired DNA synthesis. Most common causes are cobalamin deficiency and folic acid deficiency. In Indian population, B12 deficiency is very common and commonly due to poor dietary intake. According to literature, pernicious anemia is not commonly



encountered as an etiology for B12 deficiency in Asian population². It is also associated with other autoimmune disorders, gastric malignancies and H.Pylori infection.H.Pylori infection occurs infrequently in pernicious anemia³.Pernicious anemia is due to deficiency of intrinsic factor, protein which promotes B12 transport in terminal ileum for its absorption.It is characterized by atrophic gastritis as well as gastric parietal cell antibodies and antibodies to intrinsic factor⁴.The mean age of disease presentation is middle age or later (40 years)⁵.Symptoms are nonspecific and include generalized fatigue and headache. There is also overlap in the clinical and pathologic features between megaloblastic anemia and myelodysplastic syndrome.Bone marrow examination in our patient also had trilineage dysplasia with immature cells (<5%). Thus we proceeded to cytogenetic studies which was found to be negative. Also patient improved symptomatically and pancytopenia also recovered after starting b12 supplementation. Pernicious anemia patients should be monitored at least yearly by complete blood count,Serum cobalamin and serum ferritin levels to assess adequacy of replacement⁶.

III. CONCLUSION

Pernicious anemia is an underdiagnosed autoimmune disease because its onset and progression are very slow. Also a high index of clinical suspicion must be maintained in the workup of patients who present with pancytopenia and who have B 12 deficiency, where after treatment if pancytopenia persists⁷.

CONTRIBUTORS

We were all involved in caring for the patient and editing and approving the final manuscript. Written consent for publication was obtained from the patient.

DECLARATION OF INTEREST

We declare no competing interests.

FIGURELEGEND

Figure 1. Peripheral smear showing a macrocyte and macroovalocyte (arrow).

Figure 2. Peripheral smear showing a hyper segmented neutrophil.

Figure 3. Bone marrow biopsy showing erythroid hyperplasia with megaloblastic changes and giant metamyelocyte (arrow).

Figure 4. Antral biopsy on Giemsa stain demonstrated H.Pylori (arrow).

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