

VITAMIN B12 DEFICIENCY: A CASE REPORT OF BONE MARROW SUPPRESSION

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BACKGROUND

Vitamin B12 (Cyanocobalamin) is a water soluble vitamin which is required for formation of hematopoietic cells.

Its deficiency can present with a range of clinical manifestations, including fatigue, sensory neuropathy, macrocytosis or hyper segmented neutrophils to severe disorders including combined sclerosis of the spinal cord, hemolytic anemia and even pancytopenia.

Most common causes of deficiency are due to pernicious anemia, an autoimmune condition, and non-immune disorders of the stomach or small intestine that interfere with B12 absorption (bariatric surgery).

This is a case of B12 deficiency presenting as severe pancytopenia due to bone marrow suppression.

PATIENT PRESENTATION

Introduction:

A 61-year-old female presented to the Emergency Department (ED) with generalized weakness.

Past medical history was significant for chronic anemia and had received blood transfusions in the past.

Denied any melena, easy bruising or neurological symptoms.

Physical exam- Frail appearing elderly female with pallor noted in the conjunctiva. Neurological exam was normal.

Work up:

Initial work up showed significant pancytopenia with Hgb 4.3 g/dl (12-15 g/dl), WBC 0.5 K/mcl (4.2-11.0 K/mcl), RBC 1.00 mil/mcl (4- 5.2 mil/mcl), PLT 37 K/mcl (140-450 K/mcl).

MCV was elevated at 123, peripheral blood smear showed hyper-segmented neutrophils.

She received 2 units of packed RBCs and was admitted for stabilization.

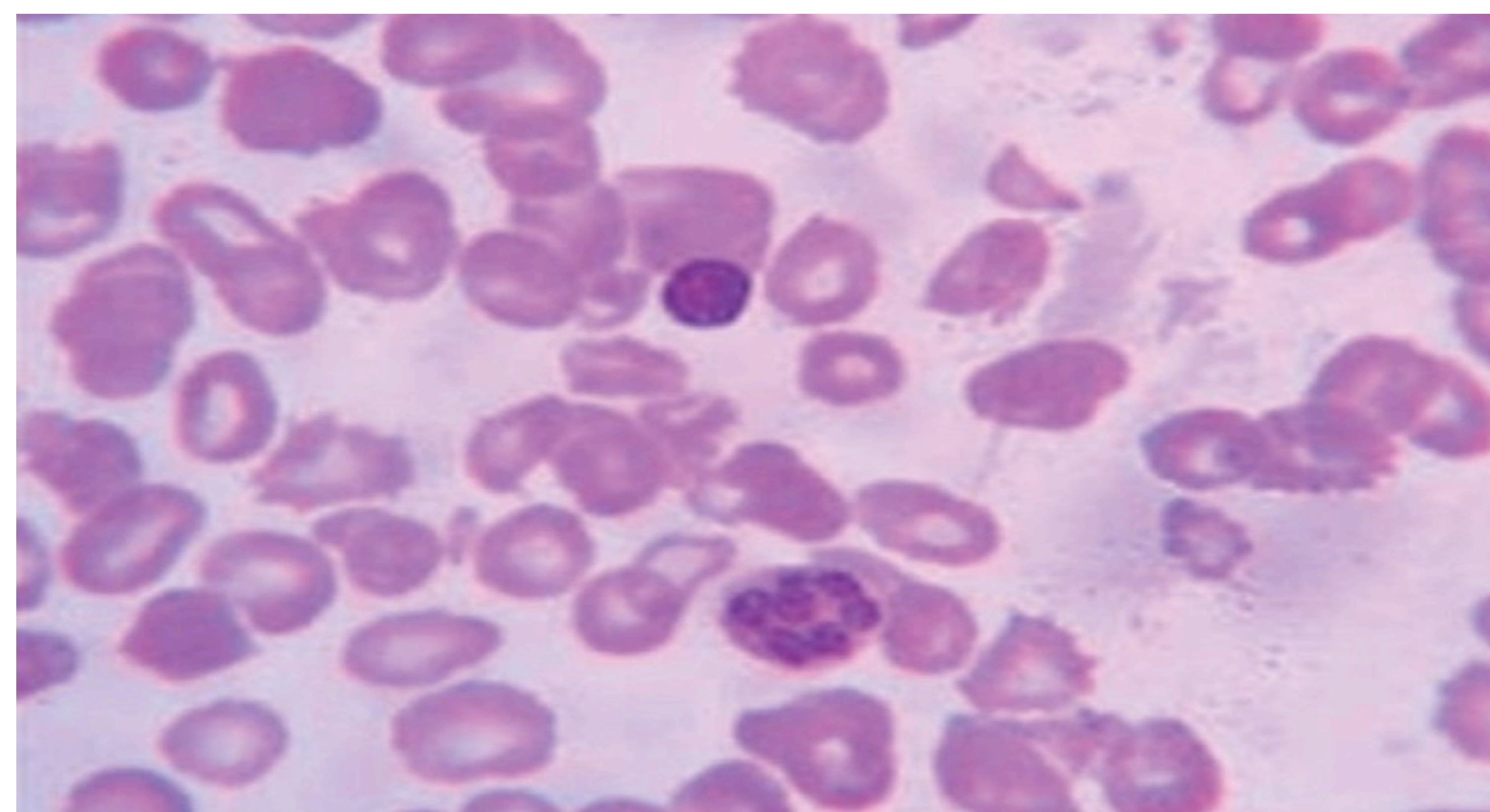
Hematology was consulted for further work up given significant pancytopenia.

Pathology:

Bone marrow biopsy was pursued which showed markedly hyper cellular bone marrow consistent with megaloblastic anemia in the setting of vitamin B12 deficiency.

No obvious myelodysplasia or malignancy was noted.

Figure* : Peripheral smear showing macrocytic anemia with hypersegmented neutrophils (Leishman, ×1000)



* http://www.jlponline.org/viewimage.asp?img=JLabPhysicians_2011_3_1_15_78555_f9.jpg

Clinical Course:

B12 level was found to be <45 pg/ml (normal levels-211-911 pg/ml), folate level was normal.

Patient had no symptoms of mal absorption and did not follow a vegetarian diet.

Work up for pernicious anemia, including both parietal cell and intrinsic factor antibodies was negative.

Patient was treated with a course of intramuscular injections of vitamin B12.

Follow up with Hematology as outpatient showed significant improvement in the cell count and clinical symptoms.

CONCLUSION

This case illustrates the presentation of a common vitamin deficiency with rare manifestation of pancytopenia that can cause higher morbidity in otherwise healthy patients.

Including it in the differential diagnosis, work up of pancytopenia is essential for the early diagnosis and management.

REFERENCE

- Schrier, Stanley L., MD “Clinical Manifestations and Diagnosis of Vitamin B12 and Folate Deficiency.”, *UpToDate.com*, 2018
- Emmanuel Andrès, Josep Vidal-Alaball, Laure Federici, Nouredine Henoun Loukili, Jacques Zimmer and Georges Kaltenbach “Clinical aspects of cobalamin deficiency in elderly patients”, *clinicalkey.com*, 2007