



MEGALOBlastic ANEMIA PRESENTING AS PANCYTOPENIA IN A PRIMI

General Medicine

Prema	Department of Obstetrics and Gynaecology, Chettinad Medical College, Kelambakkam.
Sultan Nawahirsha*	Department of Medical Gastroenterology, Chettinad Medical College, Kelambakkam. *Corresponding Author
Bala Kasi Naik	Department of Medical Gastroenterology, Chettinad Medical College, Kelambakkam.
Babu Kumar	Department of Medical Gastroenterology, Chettinad Medical College, Kelambakkam.

ABSTRACT

Vitamin B12 deficiency is prevalent in the general population in India. It can present with anemia, but rarely as pancytopenia during pregnancy. Presenting a 29-year-old Primi, who presented with pancytopenia as the initial presentation. Peripheral smear showed features of macrocytosis and hyper segmented neutrophils, which are consistent with megaloblastic anemia. Serum Vitamin B12 and folic acid levels were very low, thus confirming our diagnosis. Patient was started on parenteral Vitamin B12 and oral folate medications, following which an increase in the counts were noted. Patient delivered a live healthy girl baby, weighing 2.6kgs and discharged.

KEYWORDS

Pancytopenia, Primi, Vitamin B12 deficiency, Folic acid deficiency, Hyper-segmented neutrophils, Macro-ovalocytes.

INTRODUCTION:

Prevalence of vitamin B12 deficiency in the general population is high in India¹. During the first visit to the antenatal clinic, nearly 51% of the mothers were found to be deficient for vitamin B12². Low economic status and religious customs have been attributed to the low vitamin B12 deficiency in pregnant mothers in India³. Infants born to mothers with low Vitamin B12 levels have increased risk of developmental delays and neurological defects^(4,5).

Case Report:

A 29-year-old Primi in 32 weeks of gestation presented with complaints of swelling of the face and legs for 2 days. Patient was able to perceive fetal movements. History of generalised fatigue and breathlessness on exertion were present. No history of bleeding manifestations like hematemesis or melena noted. No history of altered bowel habits was noted. No comorbidities were noted. No history of drug abuse, smoking or alcohol abuse were noted. Patient is a non vegetarian by diet.

On examination she was moderately built and nourished. Severe pallor, B/L pitting pedal edema and facial edema were noted. Her blood pressure was 110/70 mmHg, pulse rate was 80 bpm, temperature 37°. Abdomen examination revealed uterus corresponding to 32 weeks of gestation, abdominal wall edema present, FHS good, FHR was 142 bpm.

Other systemic examinations were normal.

Routine investigations revealed Pancytopenia (Table 1). Peripheral smear revealed Pancytopenia with macrocytes and hyper-segmented neutrophils, (Table 2), (Figure 1). Anemia profile revealed Iron, Ferritin, TIBC to be in the normal range, with severely low levels of Vitamin B12, Folic acid confirming Megaloblastic anaemia (Table 3). Dengue and malaria serology were negative (Table 3).

Patient was started on Vitamin B12 injections (1000 mcg Per day for 1 week, followed by 1000mcg once a week for 4 weeks and then 1000mcg every month for 6 months), with oral folate supplementation (5 mg OD). Following which a serial rise in her counts were noted (Table 1).

On Day 2 of admission, patient was taken up for elective LSCS due to failed induction and Oligo-hydramnios. Patient was transfused with PRBC during the surgery. A live baby girl was delivered, weighing 2.60kgs. Patient was discharged with parenteral vitamin b12 and oral folic acid medications, and advised to follow up.

Table 1:

Investigation	Day1	Day2	Day3	Day4	Day6	Normalrange
HB(G/DL)	4.6	8	7	7.3	8.5	12-15

PCV(%)	1300	23.7	20.2	21.4	26.2	36-46
PLATELET(LAC/C.MM)	0.48	0.55	0.25	0.38	0.83	1.54.1
TOTALCOUNT(/CMM)	2300	2800	5200	5900	8400	4000-10000
MCV(FL)	109					77-95
RDW(%)	13					11.6-14

Table 2:

PeripheralSmear	Impression-Pancytopenia.
RBC	Sparselydistributed,macrocytes,macro ovalocytes, mildanisopoikilocytosis,teardropcells.
WBC	Reduced,Hyper-segmentedneutrophils
PlateletCount	Reduced

Table 3:

Investigations	Report	NormalRange
IRON	249	50-175
TIBC	267	250-450
Ferritin	232	11-306(female) 23.9-336(male)
VitaminB12	37	180-914
Folicacid	4.68	>.6.59
LDH	799U/L	12Yrsand above(125-220)
APTT	TEST-27.20sec	CONTROL-28.6sec
PT	TEST-11.40sec	CONTROL-10.3-12.3
INR	1.01	
DengueNS1AG	Nonreactive	
DengueIgGELISA	Nonreactive	
DengueIgMELISA	Nonreactive	
QBC	Nonreactive	
LFT		
TotalProtein	4.8g/dl	6.4-8.2
Albumin	2.4g/dl	3.5-5
TotalBilirubin	1.8mg/dl	Upto1.0
DirectBilirubin	0.083mg/dl	Upto0.25
AST	59.U/L	0-46
ALT	15U/L	0-49
AlkalinePhosphatase	100U/L	60-170
GammaGT	12 U/L	15-85
SerumCreatinine	0.38mg/dl	0.40-1.0

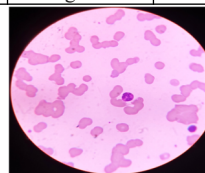


FIGURE 1: Macrocytes and Hyper Segmented Neutrophils Seen in Peripheral Smear

DISCUSSION:

In our patient, pancytopenia was the initial presentation which is relatively rare.

Peripheral smear examination in our patient revealed macrocytosis, macro-ovalocytes and Hyper-segmented neutrophils, which are features of megaloblastic anemia⁶. Our patient has an elevated MCV (109 fl) which further aided in the diagnosis of megaloblastic anaemia

Vitamin B12 and Folic acid levels were also low (Table 3) thus confirming the diagnosis of megaloblastic anaemia. Even though our patient had an elevated LDH with mild indirect hyper-bilirubinemia signifying hemolysis (Table 3). She did not fulfil the Tennessee classification to diagnose HELLP Syndrome, with the absence of transaminitis twice the normal limit and Peripheral smear showing no evidence of microangiopathy⁹. Intrinsic factor antibody is planned during the patients next visit, to evaluate for pernicious anemia.

LEARNING POINTS:

1. Macrocytes and Hyper segmented neutrophils in Peripheral smear are diagnostic of Megaloblastic anaemia.
2. Decreased levels of Vitamin B12 and folic acid are required to confirm the diagnosis of megaloblastic anemia.
3. Vitamin b12 deficiency must be ruled out in any pregnant patient presenting with pancytopenia.
4. Early supplementation of Vitamin B12 and folic acid is crucial in minimising the risk of developmental delay and neurological defects in children

REFERENCES:

1. Singla R, Garg A, Surana V, Aggarwal S, Gupta G, Singla S. Vitamin B12 Deficiency is Endemic in Indian Population: A Perspective from North India. *Indian J Endocrinol Metab.* 2019;23(2):211–214. doi:10.4103/ijem.IJEM_122_19
2. JL Finkelstein et al, Vitamin B12 in pregnancy in India. *European Journal of Clinical Nutrition* (2017) 1046–1053
3. Yusufji D, Mathan VI, Baker SJ. Iron, folate and Vitamin B12 nutrition in pregnancy.:A study of 1000 women from Southern India. *Bull WHO.* 1973;48
4. Muthayya S, Kurpad AV, Duggan CP et al. Low maternal vitamin B12 status is associated with intrauterine growth retardation in urban South Indians. *Eur J Clin Nutr* 2006;60:791–801
5. Refsum H. Folate, vitamin B12 and homocysteine in relation to birth defects and pregnancy outcome. *Br J Nutr.* 2001;85:S109–S113.
6. Farrelly SJ, O'Connor KA. Hypersegmented neutrophils and oval macrocytes in the setting of B₁₂ deficiency and pancytopenia. *BMJ Case Rep.* 2017;2017:bcr2016218508. Published 2017 Aug 17. doi:10.1136/bcr-2016-218508
7. Pruthi RK, Tefferi A. Pernicious anemia revisited. *Mayo Clin Proc* 1994; 69:144.
8. Ditisheim A, Sibai BM. Diagnosis and Management of HELLP Syndrome Complicated by Liver Hematoma. *Clin Obstet Gynecol* 2017; 60:190.