



## ACUTE PSYCHOSIS WITH PANCYTOPENIA IN PREGNANCY – A RARE OBSTETRIC EMERGENCY BY COBALAMIN DEFICIENCY!

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### ABSTRACT

We report a rare case of vitamin b 12 deficiency presenting with anemia with pancytopenia with acute psychosis. Vitamin b 12 deficiency in pregnant females are very common and are mostly asymptomatic. They may sometimes present in form of psychosis whose basal cause would remain undetected. A case of acute psychosis in pregnant females should be managed vigilantly and this case strongly suggest to rule out vitamin b12 deficiency. Following case report shows how a pregnant female may present with such symptoms and how keeping this condition in mind ,a near miss case was avoided.

### KEYWORDS :

#### Introduction:

Nutritional anaemia is common in pregnancy .with increasing demand poor intestinal absorption pregnant women develop nutritional anemia at times in severe grade. Patients of cobalamine deficiency may develop neurological syndrome in presence or even absence of megaloblastic anemia<sup>1</sup>. Along with hematological manifestations that megaloblastic may have many cerebral symptoms, notably cognitive and emotional changes As anemia worsens ,peripheral nucleated erythrocytes appear,and bone marrow examination discloses megalblasticfeatures. The fetus and placenta extracts folate from maternal circulation so effectively that fetus is not anemic despite severe maternal anemia. We report a case of a multigravida who presents with pancytopenia as a result of vitamin B12 deficiency with psychosis.

#### Case Summary:

A 30-year old gravida 5 para 2 death 1 living and 1 death was admitted at 31 weeks gestation with pancytopenia and generalized body weakness past one month. On examination she was a petite malnourished woman who was well oriented and normal in behaviour. Examination revealed normal blood pressure, tachycardia ,severe pallor, periorbital edema. Obstetric examination revealed a well grown fetus corresponding to gestational age. On investigation her haemoglobin level was 2.7 g/dL,platelets of 6,000/cumm and WBC 200/cumm. Hemogram with indices showed MCV-119.9 fL, MCH-35 pg and MCHC-31 g/dl. Diagnosis of megaloblastic anemia was made. B12 levels were 139 pmol/l (Normal 200–800 pmol/l).CSF examination, MRI brain and electrolytes blood sugar were within normal limits.

Patient was given cyanocobalamine in dose of 1000 µg I.M daily after improving of platelet count . Marked clinical improvement started appearing on day 3. Patient was discharged on day 5 on B12 supplementation. No antipsychotics were given. In follow up patient is doing well.

She was managed in HDU (High dependency unit) under interdisciplinary care of obstetrician and physician. Rest, propped up position ,oxygen inhalation , whole blood and platelet transfusions were mainstay of treatment to improve pancytopenia in short span. Intravenous vitamin supplements was received along with oral supplement The MCV was high(112 fl) ,at day 4 of admission she had an attack of psychosis for which psychiatrist call was done and was advised to rule out all organic causes of psychosis. MRI and MR venogram reports were normal which were done to rule out cavernous venous thrombosis. As shown in **image1** peripheral smear showed predominantly macrocytic normochromic RBCs with occasional normocytes with platelets

reduced with no clumping ;at places hypersegmented neutrophils too were seen. **with impression of macrocytic anemia and pathologist asked to do biochemical and bone marrow aspiration to rule out megaloblastic anemia.** The results of serial haematological parameters are shown in Subsequently normalisation of white cell count, platelet count and MCV was seen and there was sustained improvement in the haemoglobin level. She was discharged on her request and was treated with cobalamin injection weekly till end of pregnancy.

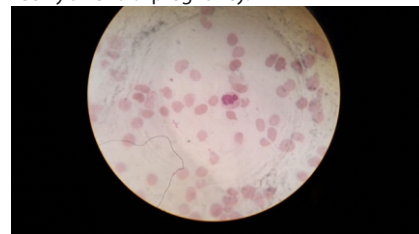
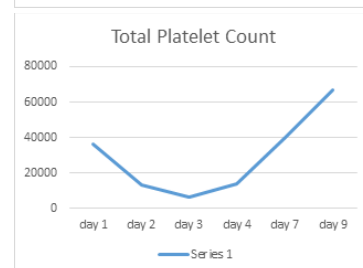
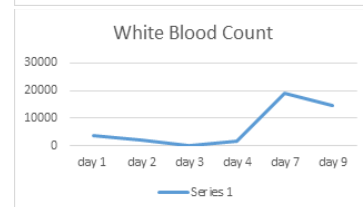
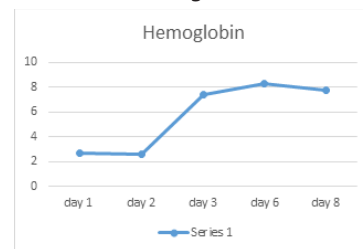


image 1



In view of past two caesareans and preterm labour at 36 weeks caesarian section was done. The baby weighed 2700g and was vigorous at birth with normal Apgar score. Tubal ligation was done. Post partum period was uneventful. She was discharged on multivitamin and iron and calcium tablets with advice to take monthly injectable cobalamin. At 6 months follow-up, the patient and infant are well with no evidence of neurological sequelae and had normal developmental milestones.

### Discussion:

Aim of reporting this case is the unusual presentation of maternal megaloblastic anemia with pancytopenia with acute psychosis. Our patient was a multigravida with no prior ANC visits having severe pancytopenia secondary to vitamin B12 deficiency. She responded to multiple blood transfusions and parenteral vitamin B12 treatment and had a good pregnancy outcome. The diagnosis of Megaloblastic anemia was made based on her clinicopathological correlation, after ruling out all organic causes of psychosis, the presence of low serum vitamin B12 level and normal serum folate. In pregnancy there is physiological fall in serum vitamin B12 as well as red cell vitamin B12 with reports of mean serum vitamin B12 to be 300pg/ml in the first trimester, 250pg/ml in the second and 190pg/ml in the third trimester.<sup>1</sup> This fall in vitamin B12 is attributed to several factors like inadequate intake, infection, intestinal malabsorption, any hemorrhagic state like peptic ulcer, hookworm infestation; any use of anticonvulsant drugs; any associated hepatic disorder, etc. The cause of vitamin B12 deficiency is likely to be nutritional deficiency based on her dietary history. Although she was strict vegetarian, with minimal financial resource. Although pregnancy causes a reduction in serum vitamin B12 level, it alone does not cause vitamin B12 deficiency. Low levels of serum vitamin B12 have been documented among pregnant mothers in India who habitually took small portions of non-vegetarian foods due to religious and socio-economic reasons.<sup>3</sup> Another possible cause is mal-absorption of vitamin B12, which could be due to deficiency of intrinsic factor. Pernicious anaemia is rare in women of reproductive age group.

A spectrum of mental changes, from a change in personality to psychosis as well as peripheral neuropathy can occur both in folate and cobalamin deficiency, peripheral neuropathy present as numbness, pain, tingling sensations and burning in a patient's hands and feet, there may be associated ataxia occurring in SADC (sub acute combined degeneration). The effects of vitamin B12 deficiency in pregnancy depends largely on the severity of the deficiency. Most pregnancies proceed uneventfully but spontaneous abortion, intra-uterine death and low birth weight have been reported. Many other similar complication may arise like intra uterine death, multiple spontaneous abortions, developmental defects, increased insulin resistance with delayed milestones. In this patient, since the vitamin B12 deficiency was diagnosed and treated prenatally, the infant is unlikely to suffer from the sequelae of vitamin B12 deficiency. Similar findings were reported by Hector M, Burton Jr in their article on the psychiatric manifestations of vit. B12 deficiency. A. K. Tripathi, P. Verma email, D. Himanshu reported similar findings in a case of acute psychosis which was a presentation of cyanocobalamin deficiency megaloblastic anemia. Hsu YH, Huang CF, Lo CP, Wang TL, Tu MC. Reported characterization of psychometrics and MRI morphometrics.<sup>5</sup> According to their report Vitamin B12 deficiency is associated with a global cognition decline with language, orientation, and mental manipulation selectively impaired. Preferential atrophy in frontal regions is the main neuroimaging feature. Although the frontal ratio highlights the relevant atrophy among patients, the bicaudate ratio might be the best index on the basis of its strong association with global cognition and related cognitive domains, implying dysfunction of fronto-subcortical circuits as the fundamental pathogenesis related to vitamin B12 deficiency. In our case MRI brain was normal.

Treatment of vitamin B12 deficiency in pregnancy is similar to that of non-pregnant patients. Generally, if there is no evidence of

mal-absorption, oral B12 supplementation can be used. However, in this patient, parenteral vitamin B12 was used instead because the status of absorption could not be determined and it ensured better compliance to treatment compared with oral supplementation. An initial dosage of 100 to 1000ug initial dosage of 100 to 1000ug intramuscular injections can be given daily, on alternate days or weekly for 10 to 14 injections, followed by maintenance dose if needed. This patient showed improvement with the dose of 100ug daily for 14 days and subsequent weekly till delivery. Pregnant women with psychosis are at a high risk of obstetric complications including still birth, psychotic relapses and post-natally parenting difficulty.

There is limited data on the prevalence of vitamin B12 deficiency presenting as pancytopenia with psychosis in pregnancy. Most of the reported cases of vitamin B12 deficiency are among the Indian population and attributed to strict vegetarian diet or minimal non-vegetarian products in the diet. Both folate and cobalamin treatment should be given together, if not, folic acid treatment will improve the anemia but neurological complication of cobalamin deficiency will worsen. We recommend that pregnant and lactating women who are at risk of vitamin B12 deficiency to be given vitamin B12 oral supplementation.

### Conclusion:

This case illustrates the clinical presentation of maternal vitamin B12 deficiency and its severe complications demonstrating the importance of detecting and treating maternal vitamin B12 deficiency during pregnancy in at-risk patients. Failure to diagnose and institute treatment may carry significant risks to both mother and child. Oral vitamin B12 supplementation should be considered for patients who are strict vegetarians or consume little animal products in their diet.

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