

Case Report

Obsessive Compulsive Disorder as Early Manifestation of B12 Deficiency

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ABSTRACT

B12 acts as a cofactor in synthesis of neurotransmitters such as serotonin and dopamine, thus B12 deficiency affects mood, emotions and sleeping and can lead to psychiatric disorders. Psychiatric manifestations of B12 deficiency are varied. They seldom precede anemia. We want to present a case of B12 deficiency which was presented with obsessive compulsive disorder.

Key words: Anemia, B12 deficiency, obsessive compulsive disorder

INTRODUCTION

B12 deficiency has hematological and neuropsychiatric manifestations. Neuropsychiatric manifestations are included: Peripheral neuropathy, myeloneuropathy, cerebellar ataxia, optic atrophy, mood disorders, psychosis, personality changes, loss of memory, depression, dementia, confusion and more rarely reversible manic and schizoforniform status and obsessive compulsive disorder (OCD).^[1-8] Psychiatric manifestations of B12 deficiency seldom precede anemia.^[6-8] We present a case of B12 deficiency in which OCD precedes anemia.

CASE REPORT

A 29-year-old female came with anxiety and history

of OCD since 11 years ago. She had a history of menorrhagia. Drug history was positive for irregular consumption of ferrous sulfate, Inderal and Fluoxetine. History taking revealed anxiety, changes in mood and OCD. In physical examination she had only pallor. Neurological exam was normal. General blood chemistries including thyroid function tests, liver function tests, renal function tests, CBC diff, hemoglobin level and iron profile had been performed 5 months ago and all were in normal ranges [Table 1], but further investigations in recent visit showed mild anemia (Hb=11.8g/dl, MCV=89 fl) and markedly diminished serum cobalamine level to <30 pg/ml and also iron deficiency with significant decreased ferritin level to 1.28 ng/ml [Table 2].

The association between B12 deficiency and iron deficiency in this case was our explanation to her normocytic anemia. Diagnosis of B12 deficiency with OCD manifestation and concurrent iron deficiency was made and parenteral B12 and oral iron replacement therapy initiated.

RESULT

In this 29-year-old female, OCD was the early manifestation of B12 deficiency.

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Table 1: Laboratory findings of first visit

WBC	3.6×10 ³ /μl
Hb	13.2 g/dl
Plat	153×10 ³ /μl
MCV	93 fl
MCH	32 pg
Cr	1.14 mg/dl
Urea	22 mg/dl
Na	141 meq/l
K	4.2 meq/l
Fe	101 mcg/dl
TIBC	351 mcg/dl
Feritin	25 ng/ml
AST	18 U/L
ALT	10 U/L
AIKPh	111 IU/L
FBS	79 mg/dl
Ca	9 mg/dl
P	3 mg/dl
T4	5 μg/dl
TSH	2.4 mIU/L
T3RIA	0.9 ng/dl

Table 2: Laboratory findings of the recent visit

WBC	3.6×10 ³ /μl
Hb	11.8 g/dl
Hct	36.7%
Plat	145×10 ³ /μl
MCV	89 fl
Total bilirubin	0.4 mg/dl
Direct bilirubin	0.1 mg/dl
LDH	245 U/L
Retic count	0.9%
HIV Ab	Negative
HCV Ab	Negative
HBS Ag	Negative
Ferritin	1.28 ng/ml
B12	<30 pg/ml
Folic acid	6.06 ng/ml

DISCUSSION

Although, it was rarely reported, but psychiatric and mood disorders may be the first manifestation of B12 deficiency and precede anemia.^[6-8] We recommend checking serum B12 and folate level in any case with psychiatric disorder such as OCD, even in the absence of anemia and other hematologic manifestations of B12 and/or folate deficiencies. B12 replacement therapy can resolve symptoms of psychiatric disorders in patients with B12 deficiency. Literature review shows that patients with OCD have dysregulation in serotonergic system and efficacy of serotonin reuptake inhibitors (SRIs) in the treatment of OCD was demonstrated.^[9-12] Neurotransmitters

(dopamine, serotonin and melatonin) are necessary for a normal balanced mood, emotions and also sleeping. Folic acid and Vitamin B12 act as cofactors in synthesis of neurotransmitters such as serotonin and norepinephrine.^[13] B12 deficiency affects level of neurotransmitters and leads to mood disorders.^[14]

Although it is rare but psychiatric manifestations of B12 deficiency may precede anemia as we saw in this case.

REFERENCES

- Durand C, Mary S, Brazo P, Dollfus S. Psychiatric manifestations of vitamin B12 deficiency: A case report. *Encephale* 2003;29:560-5.
- El Otmani H, El Moutawakil B, Moutaouakil F, Gam I, Rafai MA, Slassi I. Postoperative dementia: Toxicity of nitrous oxide. *Encephale* 2007;33:95-7.
- Hutto BR. Folate and cobalamin in psychiatric illness. *Compr Psychiatry* 1997;38:305-14.
- Verbanck PM, Le Bon O. Changing psychiatric symptoms in a patient with vitamin B12 deficiency. *J Clin Psychiatry* 1991;52:182-3.
- Hector M, Burton JR. What are the psychiatric manifestations of vitamin B12 deficiency? *J Am Geriatr Soc* 1988;36:1105-12.
- Gomez-Bernal GJ, Bernal-Perez M. Vitamin B 12 deficiency manifested as mania: A case report. *Prim Care Companion. J Clin Psychiatry* 2007;9:238.
- Lindenbaum J, Healton EB, Savage DG, Brust JC, Garrett TJ, Podell ER, *et al.* Neuropsychiatric disorders caused by cobalamin deficiency in the absence of anemia or macrocytosis. *N Engl J Med* 1988;318:1720-8.
- Evans DL, Edelson GA, Golden RN. Organic psychosis without anemia or spinal cord symptoms in patients with vitamin B12 deficiency. *Am J Psychiatry* 1983;140:218-21.
- Aouizerate B, Guehl D, Cuny E, Rougier A, Burbaud P, Tignol J, *et al.* Updated overview of the putative role of the serotonergic system in obsessive-compulsive disorder. *Neuropsychiatr Dis Treat* 2005;1:231-43.
- Barbarich N. Is there a common mechanism of serotonin dysregulation in anorexia nervosa and obsessive compulsive disorder? *Eat Weight Disord* 2002;7:221-31.
- Jarry JL, Vaccarino FJ. Eating disorder and obsessive-compulsive disorder: Neurochemical and phenomenological commonalities. *J Psychiatry Neurosci* 1996;21:36-48.
- Heiden A, de Zwaan M, Frey R, Presslich O, Kasper S. Paroxetine in a patient with obsessive-compulsive disorder, anorexia nervosa and schizotypal personality disorder. *J Psychiatry Neurosci* 1998;23:179-80.
- Hutto BR. Folate and cobalamin in psychiatric illness. *Compr Psychiatry* 1997;38:305-14.
- Deana R, Vincenti E, Deana AD. Levels of neurotransmitters in brain of vitamin B12 deficient rats. *Int J Vitam Nutr Res* 1977;47:119-22.

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