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## A 12-Month-Old Infant With Involuntary Movements During Enteral Vitamin B12 Treatment: Case Report

*Umit GULTEKIN<sup>1</sup>, Aysegul ZAIMOGLU<sup>1</sup>, Huseyin TOKGOZ<sup>2</sup>, Umran CALISKAN<sup>2</sup>*

*<sup>1</sup>Necmettin Erbakan University Meram Faculty of Medicine, Pediatrics Department, Konya, Turkey*

*<sup>2</sup>Necmettin Erbakan University Meram Faculty of Medicine, Pediatrics Department, Pediatric Hematology and Oncology, Konya, Turkey*

### Abstract:

Vitamin B12 (cobalamine) deficiency is one of the nutritional deficiencies in children. It can also be seen in infants whose mothers have nutritional deficiency. The involuntary movements is known to be associated with vitamin B12 deficiency. But also this type of movements can be seen in the patients who are on vitamin B12 treatment. We present a patient who had involuntary movements after enteral vitamin B12 treatment, on which reported cases are rarer than parenteral administration. We want to emphasize continuation of treatment is much more important than these involuntary movements observed temporarily.

**Keywords:** *enteral vitamin B12, involuntary movements, infant*

### Introduction:

Vitamin B12 deficiency can be seen in infants born from vegetarian or malnourished mothers, and those who have malabsorption or pernicious anemia. This deficiency may cause weakness, growth retardation, seizures, involuntary movements, tremors, nystagmus and restlessness in infants. Sometimes tremor may occur after enteral vitamin B12 treatment. Vitamin B12 deficiency can cause irreversible cognitive impairment if left untreated. Here is a case report of involuntary movements of the hands and fasciculation of the tongue during enteral vitamin B12 treatment.

### Case report:

A 12-month-old girl was admitted to the pediatric nephrology outpatient clinic with the complaint of stones in both of her kidneys. When pancytopenia was seen in the complete blood count, she was referred to our hematology clinic. Although the case was one years old, she was only breastfed and also her mother was malnourished. She had weakness and paleness, malnutritioned and dehydrated appearance. She could not hold her head upright, could not sit without support, and had no emotional reaction, she also had poor eye contact. Body weight, height and head circumference were less than three percent. Other systemic examinations were unremarkable except for mildly bigger liver size.

Complete blood count was as follows: WBC: 3530 / mm<sup>3</sup>, ANS: 733 / mm<sup>3</sup>, Hb: 7 g / dL, MCV: 99.8, Plt: 91700 / mm<sup>3</sup>. Serum Fe: 145, Iron Binding Capacity: 40, Ferritin: 426 microgram / L. Vitamin B12 was very low at 46 pg / ml. Folic acid level: 10.6 micrograms / L was normal. Urine protein was negative and antigliadin panel was negative.

Peripheral blood smear showed macrocytosis and anisocytosis in erythrocytes, and neutrophils were hypersegmented. Because of pancytopenia, bone marrow aspiration was consistent with megaloblastic anemia and there was no malignant infiltration.

Enteral vitamin B12 treatment was initiated. After the initiation of vitamin B12 treatment, the patient had involuntary movements such as tremor in her hands and fasciculation in her tongue.

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Brain CT was performed to rule out differential diagnosis. Accordingly with vitamin B12 deficiency the scan showed significant increase in frontoparietal atrophy and expansion in subarachnoid space. Electroencephalography was normal.

Clonazepam treatment was initiated, involuntary movements in the arms regressed and fasciculations improved during sleep. When clonazepam was discontinued, her complaints recurred again. Her treatment was planned to continue for a few weeks. During the follow-up, the patient's complaints regressed completely.

### **Discussion:**

Vitamin B12 deficiency usually presents with neurological symptoms such as hypotonia, lethargy, involuntary movements, tremor; These symptoms may be permanent if left untreated until 12-18 months of age (1). These symptoms due to vitamin B12 deficiency may develop after vitamin B12 treatment (2). Vitamin B12 deficiency is seen in infants born from malnutrition or vegetarian mothers (3). Hematologic findings may vary from megaloblastic anemia to pancytopenia. Central imaging is associated with frontotemporoparietal atrophy. Although tremor and myoclonus are present, EEG may be impaired or normal as in our case. Clonazepam, piracetam, biperiden are preferred in the treatment.

### **Conclusion:**

It is known that vitamin B12 deficiency in infants can cause irreversible cognitive impairment if left untreated. It is seen that involuntary movements that develop as a result of parenteral administration of cobalamin can also develop after enteral administration. It is aimed to emphasize once again that continuation of treatment is much more important than these involuntary movements observed temporarily, as the results of vitamin B12 deficiency are more catastrophic.

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