

## A CASE REPORT OF VITAMIN B12 DEFICIENCY NEUROPATHY

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### ABSTRACT

To fulfill the vitamin B12 requirement in chronic strict vegetarian or vegan fortified supplement foods are must essential as it is exclusive component of animal based food, potential neurohematological symptoms generally with anemia but could be the one without anemia in some rare cases of vitamin B12 deficiency status. This case report visualizes the common strict vegetarian neurological related complain after long duration of stand-up vegetarian due to cultural reason.

**Keywords:** Vitamin B12, Neuropathy, Anemia.

### BACKGROUND

Vitamin B12 is innately present merely in animal foods including fish, meat, poultry, eggs, milk, and milk products. Vegetarian can take fortified breakfast cereals to fulfill their vitamin B12 needs however if it is not supplemented to them than their homocysteine level will elevate up which could be one of the reason for heart disease, stroke and recurrent abortion [1] also this vitamin strengthen the integrity of nerve cells and erythrocytes. Hence, the consequence is anemia and nerve impairment in serious vitamin B12 deficiency condition. The treatment of this condition is generally made by oral or parenteral route but absorption physiology and compliance issue always raise questions [2]. Though recent study outcomes suggest that in relatively high doses through this route subjects hematological response in vitamin B12 deficiency anemia.

This vitamin B12 is also necessary to aid in the synthesis of DNA, the genetic material of all cells. There is paucity of reliable source; however, they are synthesized by bacteria [3]. New protein formed from fat and carbohydrate sources functions are also accomplished by vitamin B12 neurohematological related symptoms such as neuropathy in autonomic or peripheral nerve also dementia in rare cases is seen. Anemia is generally the early sign of classical hematological abnormalities in the deficiency condition usually if it is chronic [4].

### CASE REPORT

A female of age 63 years complained of urine incontinence, tingling sensation all around the body more focused around pectoris and indigestion, bloating. Her history revealed that she followed religious culture due to which she remained strict vegetarian since 20 years. Her life style was simple with normal living, but she persistently complains by saying that defecation is not under control and frequency of urination is rapid, due to her complain and under the age category her blood pressure was measured and it was normal (110/70 mmHg). Furthermore, she feels tired and gets fatigue with little work.

### Investigation

In suspicion of diabetes, she was recommended to undergo glucose tolerance test (GTT) and hemoglobin (Hb) estimation test. Laboratory investigation report (Tables 1 and 2).

The above test result shows blood sugar level is under normal range and Hb was below normal range 9 g/dl.

### RESULTS

In the suspicion of diabetes, initially, she performed GTT test that was supposed to diagnose diabetes like symptoms frequent urination but the test showed normal result, but her Hb range was below normal therefore in consideration of history of her being strict vegetarian since long period she was prescribed methylcobalamine 500 mg twice daily and folic acid 250 mg for a 21 days, in taking prescribed medicine she felt comfortable with progression of time. On the 21 days again, she was recommended to perform Hb estimation test that was 12.5 g/dl suggesting normal Hb range.

### DISCUSSION

Stringent lacto-ovo-vegetarian is more susceptible to have clinical manifestation after 12-15 years period of exact vitamin B12 deficiency due to slow but progressive depletion and finally complete exhaustion of vitamin B12 [5].

Hematological manifestation is often accompanied that follows neurological manifestation, means neurological symptoms occurs in late in some cases vitamin B12 deficiency anemia may not be present as reported in some studies and peripheral neuropathy may be confused by diabetic neuropathy [6]. However, in our case, we initially found clear anemia along with complain of peripheral neuropathy symptoms such as tingling sensation and urinary dribbling or incontinence frequently [7] as suggested by literature high doses of vitamin B12 through oral route administration do recover anemia in our case also 21 days of 500 mg.

Vitamin B12 deficiency is rarely pronounced in the absence of anemia followed by demonstrating neurological symptoms, in the absence of anemia doubt index toward vitamin B12 deficiency is necessary to be assumed for early diagnosis and for prompt treatment of vitamin B12 associated neurological symptoms as severity and duration of disease is inversely linked [8]. Therefore, it should be the responsible task to relevant food authorities to seek the feasibility to fortify wider range of food product with vitamin B12 targeting to the vegetarian need which will be very much beneficial to alleviate their symptoms though they remains strict vegetarian throughout their life.

### CONCLUSION

This a typical case of vitamin B12 (methylcobalamin) deficiency neurohemato-related symptomatic state that revealed tingling sensation with diminished control over autonomic nervous functions

**Table 1: GTT**

Glucose (F)	80 mg/dl	60-120 mg/dl
Glucose (PP)	110 mg/dl	60-150 mg/dl

GTT: Glucose tolerance test

**Table 2: Hb estimation**

Hb	9 g/dl	12-15 g/dl
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that regulate bladder evacuation reflex and defecation function as well as neuropathic symptoms such as tingling sensation of pectoral muscle, urinary or defecation problem.

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