Knuckle Pigmentation as an Early Cutaneous Sign of Vitamin B12 Deficiency: A Case Report

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ABSTRACT

Vitamin B12 deficiency can present with variable hematological, neuropsychiatric, and mucocutaneous changes. Hyperpigmentation, specifically involving the knuckles, has been described in vitamin B12 deficiency, but usually, these patients are symptomatic with systemic manifestations like megaloblastic anemia, pancytopenia, or neurological deficits. Here, we are reporting a case of nutritional vitamin B12 deficiency, who presented with isolated knuckle pigmentation and was successfully treated with oral therapy. This case also highlights the importance of recognizing this cutaneous sign as an early marker of vitamin B12 deficiency; thereby enabling the clinician to treat the disease before it leads to irreversible neurological complications.

INTRODUCTION

Pigmentary changes have been described in several cases of vitamin B12 deficiency. These changes often occur in association with systemic features such as megaloblastic anemia, pancytopenia, and neurological deficits. Here, we report a case of vitamin B12 deficiency who presented to the dermatologist with the sole complaint of hyperpigmentation over knuckles. She was not found to have any associated systemic abnormality; thereby highlighting the importance of this cutaneous sign in early detection and treatment of this deficiency.

CASE REPORT

A 29-year old female presented to the dermatology clinic with complaints of pigmentation over the dorsa of both hands for the past two months. There was no history of any preceding eruption, drug intake, topical application, or excessive sun exposure. She had been on a strictly vegetarian diet since childhood. There was no history of diarrhoea, weight loss, or other gastrointestinal complaints. On examination, well-demarcated areas of pigmentation localized to knuckles of both hands were noticed (Figure 1).

Figure 1. Localized hyperpigmentation over the knuckles.

Neurological examination was within normal limits. On laboratory evaluation, serum vitamin B12 level was

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were most of these cases presented
In the present
2. REFERENCES
We could not order for antibodies directed against
and neurological complications; some of which can lead
to permanent disability.
Considering the dietary habit, she has been advised to
to continue with oral supplementation of vitamin B12 in a
dose of 5 μg daily along with iron and folic acid.

discussion

The deficiency of vitamin B12 often manifests as
hematological and neurological findings. Pigmentary
changes in the form of pigmentation of knuckles, oral
mucosa, and Addisonian pigmentation have also been
described. However, most of these cases presented
with systemic manifestations like anemia, pancytopenia,
malabsorption, and variable neuropsychiatric
disorders. Our case, however, presented with isolated
knuckle pigmentation, and no systemic changes
were found on detailed evaluation.
The deficiency of vitamin B12 is defined as a plasma
vitamin B12 level of less than 200 pg/ml. 1 In the present
case, since vitamin B12 level was slightly below the
cut-off, it can be labeled as a relatively mild or early
stage of deficiency, due to which no systemic changes
had developed. But, if it is not detected and treated at
this stage, it can inevitably progress to hematological
and neurological complications; some of which can lead
to permanent disability. 4
We could not order for antibodies directed against
parietal cells and intrinsic factor in view of poor socio-
economic background of the patient. Also, since she
had a strict vegetarian diet and had no gastrointestinal
complaints, it was more likely to be due to nutritional
deficiency rather than malabsorption. The diagnosis
was further supported by excellent clinical response to
oral vitamin B12.
We chose oral therapy for the patient as there was
no neurological involvement. It also helped to improve
patient compliance as it was convenient for her to take
treatment at home and avoided the loss of daily wages
on account of coming to the hospital for injections.
It has been demonstrated in several studies that oral
supplementation is as effective as intramuscular
injections, and oral therapy can be utilized even in
cases of pernicious anemia. 5 It also reduces the cost of
therapy. 5 However, it must be noted that patients with
severe neurological deficits or critically low levels of
vitamin B12 should be treated with parenteral therapy,
to ensure rapid replenishment of body stores to prevent
irreversible consequences. Such patients can later be
shifted to oral therapy. 5
The majority of the Indian population is at high risk of
developing nutritional vitamin B12 deficiency, due to
strict vegetarian food habits. Knuckle pigmentation
is an easily visible and early sign of vitamin B12
deficiency. It may occur even before the development
of hematological and neurological complications.
Therefore, clinicians especially dermatologists must be
aware of this sign so that such cases may be diagnosed
and treated early. Further, these cases can be treated
successfully with oral therapy, which reduces the cost
and discomfort associated with injections.

Consent: JNMA Case Report Consent Form was signed
by the patient and the original article is attached with
the patient’s chart.

Conflict of Interest: None.

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