



Case report

Vitamin B12 induced acneiform eruption

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ARTICLE INFO

Keywords:

Acneiform eruption

Acne

Vitamin B12

ABSTRACT

A 47-year-old, north african, male patient, has recently been diagnosed with pernicious anemia, treated with weekly intramuscular hydroxocobalamin. 6 weeks after its initiation, the patient presented a sudden, extensive and monomorphic eruption of inflammatory papulo-pustules and nodules, affecting the face, and the trunk. The eruption was pruritic, and comedones were also present, on the chest. The patient was diagnosed with vitamin B12-induced acneiform eruption. Levels of vitamin B12 were normalized. Hydroxocobalamin was therefore stopped and lymecycline was started, allowing a complete resolution of the lesions within 3 months. Drug intake, sudden and uncommon age of onset, pruritus, a monomorphic pattern and an involvement of extra-seborrheic areas are features that distinguish acneiform eruptions from acne vulgaris.

1. Introduction

Acneiform eruptions, are a group of skin disorders resembling true acne, however certain features can help distinguish them, especially the relationship between the introduction of the drug and the onset. They are usually induced by corticosteroids, anti-tubercular drugs, anticonvulsants, antipsychotics and some anti-cancer agents [1]. Only a few cases due to vitamin B12 have been reported in the literature.

We present a case of a severe vitamin B12-induced acneiform eruption occurring in a male patient.

2. Case description

A 47-year-old, north-african, male patient, has recently been diagnosed with pernicious anemia, treated with weekly intramuscular hydroxocobalamin 5000 µg. 6 weeks after its initiation, the patient presented a sudden, extensive and pruritic eruption. Physical examination revealed monomorphic inflammatory papulo-pustules and nodules, affecting the face, chest, abdomen and back, along with comedones on the chest (Fig. 1). There were no features of rosacea. Systemic physical examination was normal.

The adverse Drug Reaction Probability Scale, was rated at 7, so the reaction to vitamin B12 was probable. Based on this scale, the drug intake, the sudden onset and the dermatological examination, the patient was diagnosed with vitamin B12-induced acneiform eruption. Levels of vitamin B12 and hemoglobin were normalized. Therefore, hydroxocobalamin was stopped and lymecycline 300 mg per day was started, allowing a complete resolution of the lesions within three months. The patient didn't relapse within a nine months follow up, but he later presented with keloid scarring mostly on the chest (Fig. 2).

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3. Discussion

Several drugs have been known to provoke acneiform eruptions or aggravate acne, including corticosteroids, anti-tubercular drugs, anticonvulsants, antipsychotics, some anti-cancer agents, and others. However, vitamin B12-induced acneiform eruptions have rarely been described in the literature with more reports in females than males [2–4].

The most frequent adverse reactions associated with vitamin B12 are transient chromaturia, increased blood pressure, nausea, and headache. Skin adverse reactions were also reported, such as injection site pain, pruritus, rash, and urticaria, but only a few cases of acneiform eruptions [5].

Supplementation with high doses, extended periods of supplementation, or the combination of vitamin B12 with vitamins B1, B2, or B6, were suggested as possible causal factors of acneiform eruptions [5,6].

The exact pathogenically mechanism is not well known. Recent studies have shown high levels of vitamin B12 in the pilosebaceous follicle, and demonstrated that Vit B12 supplementation in *Propionibacterium acnes* colonies promotes the production of porphyrins which undergo a process of oxidation on the skin surface, release pro-inflammatory substances that ultimately favor the development of acneiform lesions [7].

Features that distinguish acneiform eruptions from acne vulgaris are: a positive time relationship between the introduction of the drug and the onset, a sudden and uncommon age of onset, pruritus, a monomorphic pattern and an involvement of seborrheic and extra-seborrheic areas such as the face, the neck, shoulders, arms, chest, and back [1,8]. Comedones and microcysts are usually absent, but when present, they are secondary lesions [1]. Histopathological examination is not necessary.

The lesions usually tend to resolve two to three weeks after the cessation of vitamin B12, and can flare up after its reintroduction [9], which has not been necessary to date for our patient.

4. Conclusion

Acneiform eruptions and acne vulgaris may seem similar, therefore a detailed pharmacological history and a thorough physical examination are essential to distinguish them.

The remarkable aspects of this case are its rather impressive clinical presentation and its occurrence in a male patient, which have rarely been described.

Author contribution statement

All authors listed have significantly contributed to the investigation, development and writing of this article.

Data availability statement

Data included in article/supplementary material/referenced in article.

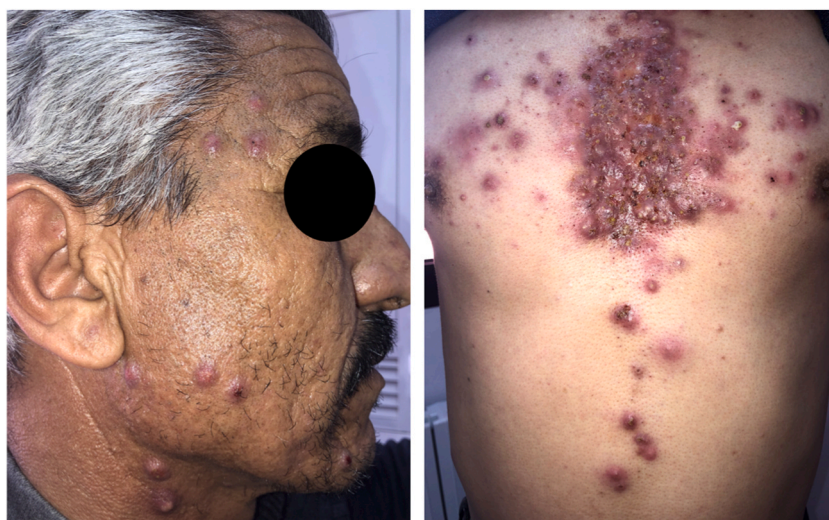


Fig. 1. Monomorphic eruption made of papulo-pustules and inflammatory nodules involving the face and the chest, along with a few comedones on the chest.

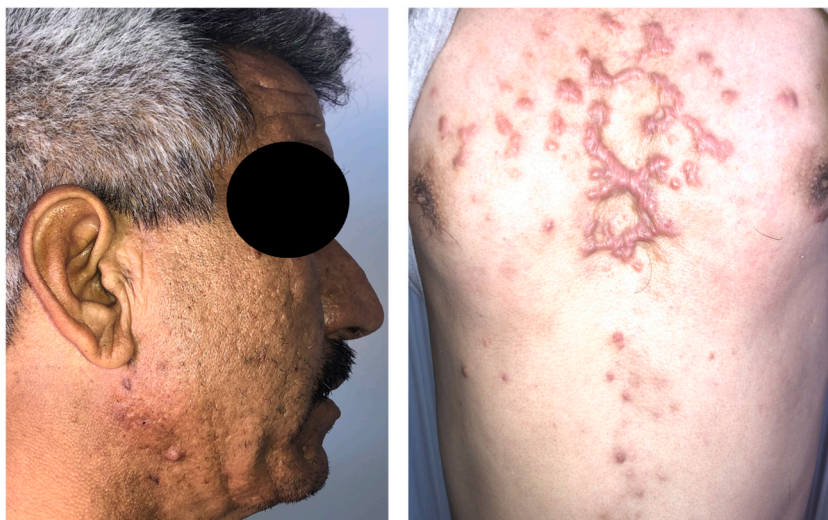


Fig. 2. Improvement after six months, with keloid scarring mostly on the chest.

Patient consent

An informed consent was obtained from the patient.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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