

“ATYPICAL PRESENTATION OF PELLAGRA MIMICKING BULLOUS DERMATOSES”

Dermatology

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ABSTRACT

Pellagra is a nutritional disorder that results from insufficient intake of niacin (vitamin B3) or the amino acid tryptophan intake. Traditionally characterized by the “four D’s”-Dermatitis, Diarrhea, Dementia, and death-its clinical recognition may be obscured when presenting with atypical features. We report the case of a male patient aged 65 years agricultural worker and chronic alcoholic who presented with blistering lesions on areas of the skin exposed to sunlight, including the outer surface of the hands and feet, accompanied by scrotal erythema, cheilitis, and glossitis. The initial clinical suspicion included bullous dermatose such as bullous pemphigoid. However, the rapid resolution of symptoms following intramuscular niacinamide therapy confirmed pellagra as the underlying diagnosis. Notably, gastrointestinal and neuropsychiatric symptoms were absent, highlighting an atypical presentation. This scenario emphasizes the importance of including pellagra in the differential diagnosis of bullous lesions, especially among high-risk groups such as chronic alcohol users and the malnourished. A high index of suspicion and timely therapeutic intervention can result in rapid clinical improvement, even in the absence of classical systemic features.

KEYWORDS

pellagra, Bullous dermatosis, case report, Tryptophan.

INTRODUCTION

Pellagra is a dietary disease that results from a insufficient intake of niacin (vitamin B3) or its amino acid, tryptophan in the diet.¹ The term “pellagra,” meaning “rough skin” in Italian, was first introduced by Frappoli in 1771 to describe the skin symptoms associated with the disease. However, it was not until 1926 that Goldberger identified a vitamin B deficiency as the underlying cause. The condition is classically recognized by the “four D’s”: Diarrhea, Dermatitis, Dementia, and ultimately, “Death”.² Pellagra was first documented by Gaspar Casal in 1735.³ Niacin plays a key factor in the body by forming two essential coenzymes involved in cellular metabolism: nicotinamide adenine dinucleotide (NAD) and NAD-phosphate.²

Case Report:

Clinical History: A male patient aged 65 agricultural worker presented with raw areas over bilateral hands and feet for three days. Lesions began as blisters filled with fluid, which ruptured to form erosions. The patient had no history of Tuberculosis treatment and did not mention using any medications. No one in his family had similar complaints. Patient is a chronic alcoholic, K/c/o Hypertension and on medication.

On Examination- The patient was moderately built and undernourished. The vitals were stable. Dehydration and pallor were noticed. Few well defined erosions approximately 5x5 cm present over the dorsum of bilateral feet (figure 1), approximately 3x3 cm present over the bilateral dorsum of hands (figure 2). Well defined erythema with scaling present over scrotum (figure 3). The patient also had cheilitis and glossitis (figure 4). The differentials considered were pellagra, Bullous pemphigus and Bullous toe. On admission, patient showed dramatic improvement after administration of Niacinamide Intramuscular injections (100mg three times a day) within four days, hence the diagnosis of pellagra was confirmed clinically.



Figure 1: well defined erosions approximately 5x5cm present over the bilateral feet.



Figure 2: well defined erosions approximately 3x3cm present over the bilateral dorsum of hands.



Figure 3: well defined erythema with scaling present over scrotum.

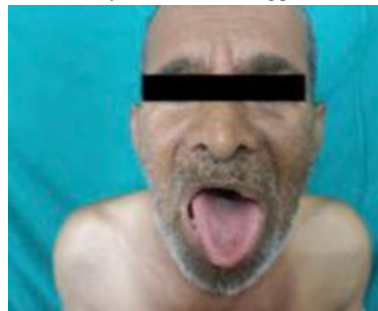


Figure 4: cheilitis and glossitis

DISCUSSION:

Pellagra is a multisystem illness stemming from a shortage of niacin

(vitamin B3) or its precursor, tryptophan.¹ The four D's: dermatitis, diarrhea, dementia, and if left untreated, death: are its traditional characteristics.²

Although the clinical features are well established, pellagra is still often overlooked in today's medical practice, particularly when it presents with unusual symptoms or resembles other skin disorders.

The case presented involves a 65-year-old male agricultural laborer with a long history of alcohol use, whose condition initially mimicked bullous skin disease.

The skin lesions started as blisters that later ruptured to form erosions--signs typically seen in autoimmune blistering conditions like bullous pemphigoid. Nevertheless, the pattern of distribution--affecting areas exposed to sunlight such as the dorsum of the hands and feet--along with signs like scrotal redness, cheilitis, and inflammation of the tongue, suggested a deficiency-related cause. Alcoholism is a well-established risk factor for pellagra due to its effects on nutrition, absorption, and the metabolic conversion of tryptophan to niacin. In this case, the patient's poor nutritional status and chronic alcohol use likely played a central role. Interestingly, the absence of gastrointestinal and neurological symptoms--two key features of classic pellagra--demonstrates how the disease can manifest in a partial or atypical form.

The initial working diagnoses included bullous pemphigoid and bullous toe, both of which are known to present with blistering and skin erosions. However, the patient's rapid improvement after receiving intramuscular niacinamide injections (within four days) provided a clear clinical confirmation of pellagra. In situations where niacin level testing is not readily available, such a therapeutic response can serve both diagnostic and therapeutic purposes.

This case highlights the need to keep nutritional deficiencies in mind when evaluating patients with vague or unusual skin symptoms, especially in under-resourced settings or among high-risk groups like the elderly, chronic alcohol users, and those with prolonged illness. Prompt diagnosis and timely administration of niacin or its derivatives can lead to swift recovery and prevent the disease from progressing to a severe or fatal stage.

CONCLUSION:

Pellagra although a rarity of current clinical practice, shall be considered in differential diagnosis when patients present with Bullous lesions particularly in photosensitive areas. Recognizing and effectively treating pellagra depends on maintaining a heightened level of diagnostic suspicion.

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