



Ketotic Rash After VLCD: A Rare But Increasing Complication

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Introduction

Prurigo pigmentosa, also known as "keto rash," is a rare inflammatory dermatosis increasingly recognized in patients undergoing ketogenic diets or very-low-calorie diets (VLCD), commonly used in preoperative weight-loss protocols. This was first described by Nagashima et al in 1971 [1].

Case Report

We present a case of prurigo pigmentosa in a 19-year-old female patient of Middle Eastern background following a VLCD prior to laparoscopic sleeve gastrectomy. The patient presented with erythematous, pruritic papules in a reticulated pattern, consistent with the typical presentation of keto rash. This rash was centrally located predominantly on the anterior chest wall and back (Figures 1 and 2). This dermatosis emerged within a few weeks of initiating the diet. The patient was treated with oral doxycycline and topical steroids as well as high carbohydrate diet.

Discussion

Prurigo pigmentosa is reported to occur most commonly in young females, particularly those of Asian (32%) or Middle Eastern (32%) descent, aligning with our case report findings[1]. It has often been linked to metabolic derangements that result in ketosis, such as the initiation of very-low-calorie diets (VLCD), as seen in our case, as well as conditions like diabetic ketoacidosis and anorexia nervosa [2,3]. With the rising popularity of ketogenic diets, it is essential for clinicians to recognize "keto rash" as a possible side effect to facilitate prompt diagnosis and management.

The exact pathogenesis of prurigo pigmentosa remains unclear. Potential triggers include mechanical irritation (e.g., friction and rubbing) and metabolic disorders, such as diabetes mellitus and anorexia nervosa[1]. There is also a case reported post-bariatric surgery, indicating that this condition may arise outside of the preoperative period [4]. Current hypotheses suggest that circulating



Figure 1: Rash present on back

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Figure 2: Rash on anterior chest wall

ketone bodies may provoke perivascular inflammation, predominantly mediated by neutrophils [1,4]. In our case, the patient's rash showed a favourable response to tetracyclines, which exert an antineutrophilic effect, supporting this proposed mechanism. Nevertheless, further research is needed to clarify the underlying pathophysiology.

Conclusion

This case adds to the growing body of literature associating ketogenic diets with prurigo pigmentosa, particularly in the context of preoperative dietary protocols [1,5]. Increased recognition of the association between ketosis and prurigo pigmentosa and the patient characteristics that are associated with this rare but alarming side effect will enable healthcare providers to offer more informed dietary guidance and treatment options. This, in turn, can reduce patient discomfort and improve adherence to preoperative weight-loss regimens.

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