

# Erythema ab igne and its association with cannabinoid hyperemesis syndrome: A Case Report

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**ABSTRACT** The erythema ab igne is an uncommon skin disorder related to repeated heat exposure such as open fires or heating pads. Cannabinoid hyperemesis syndrome is an entity including several symptoms such as nausea, vomiting or frequent abdominal pain following marijuana use. Most of those symptoms can be relieved by hot showering or baths. Recently in the literature, erythema ab igne has been associated with cannabinoid hyperemesis syndrome because cannabis users tend to resort to heating pads to relieve persistent abdominal pain.

We report the case of a patient with recurrent vomiting and abdominal pain attributed to cannabinoid hyperemesis syndrome, whose physical examination revealed an erythema ab igne.

**KEYWORDS** erythema ab igne, cannabinoid hyperemesis syndrome, heat

## Introduction

Erythema ab igne (EAI) is an atypical cutaneous disorder that can occur in various situations, all related to prolonged and repeated heat exposure. This benign condition is characterized by an erythematous and hyperpigmented rash localised in certain parts of the body which have been repeatedly exposed to heat sources [1]. Different heats' origins have been described over time, the most common being the use of heating pads or heated car seats, but far more surprising ones have been highlighted [2,3]. We report the case of a patient who developed EAI in the course of recurrent cannabinoid hyperemesis.

## Patient and Methods

A 25-year-old patient presented to the Emergency Department for 2-days persistent vomiting and abdominal pain. The patient had no significant medical past but reported cyclic vomiting. He explained he frequently smoked cannabis but then suffered from recurrent vomiting and abdominal discomfort, which led him to apply heating pads on his abdomen. At the admission, his blood

pressure was 120/80mmHg; heart rate was 115bpm, oxygen saturation was 100% while breathing room air and he had no fever. Physical examination only demonstrated an erythematous cutaneous rash on his abdomen which was present for weeks (figure 1). The electrocardiogram was normal. Laboratory investigations revealed an impaired potassium level (2.8mmol/l) and no further abnormality. Urine drug screening was positive for cannabinoids. The patient was placed under intravenous hydration, anti-emetics and potassium supplementation. After 24 hours of treatment and monitoring, biological analysis found no abnormality and the patient was asymptomatic. Those symptoms were then attributed to a cannabinoid hyperemesis syndrome complicated by an EAI as the result of multiple heating pads application. The patient was discharged with recommendations concerning the overuse of heating pads and cannabis.

## Discussion

Erythema ab igne, which means "redness from fire", is a skin abnormality typically described as hyperpigmented and reticulated erythema localised in a site exposed to prolonged heat [2].

The disorder's pathophysiology remains unclear. The typical skin lesions occur after exposure to infrared radiations, usually from weeks to years. Those radiations are considered to be sufficient to produce cutaneous damages but without the ability to provoke actual burns. Different skin damages have been described in the literature, mainly related to pathological changes

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**Figure 1:** Erythema ab igne in a patient with repetitive use of heating pads to relieve pain during multiple episodes of cannabinoid hyperemesis.

in elastic fibres and venous plexus of the dermis [2,4]. As regards the typical reticular aspect, it seems to be related to histological findings which characteristically revealed hemosiderin deposits [5].

This disorder is predominantly asymptomatic, but in some cases, pruritus or localised discomfort have been related [6].

EAI is a benign transient condition which is mainly reversible after the identification and withdrawal of the causative agent. However, special attention is required to appropriately diagnose this skin lesions because other more severe conditions share similar appearance and have to be excluded. Indeed, EAI diagnosis is mainly based on anamnestic and clinical findings. Sometimes, skin biopsy is required to exclude underlying malignant diseases [7]. Primary differential diagnoses reported in the literature by Aria et al. are livedo reticularis, livedo racemosa and cutis marmorata telangiectatica congenita [7].

Besides, several pathologic conditions might benefit from the application of heat in localised sites because of persistent unrelieved pain (i.e. inflammatory bowel disease) [8].

Nevertheless, the persistence of repetitive exposure to heat, while the diagnosis of EAI has been made, can secondarily lead to the development of some forms of cutaneous malignancies such as Merkel cell carcinoma (6, 9). Considering those data, diagnosis and etiologies of EAI should consequently not be treated lightly.

Multiple etiologies have been reported in the literature over time (heating pads, laptop computers, heated seat car, etc.). However, EAI was initially described, in the early twentieth century, after exposure to open fires or wood-burning stoves as evoked by its evocative French denomination “dermite des chauffettes” [10].

Cannabis consumption leads to multiple adverse events such as hyperemesis syndrome. This syndrome has a variety of repercussions from benign adverse events (discomfort, nausea, abdominal pain, vomiting) to more serious concerns (dehydration,

electrolytes disturbances, acute renal failure). This syndrome represents up to 6% of US emergency department presentations for vomiting [11]. Most of those symptoms tend to be relieved with hot showering [11].

Because cannabinoid hyperemesis syndrome leads to recurrent abdominal pain, some cases of heating pads use have been reported in the literature to relieve persistent pain. Therefore, EAI tends to be more frequently described in cases of chronic recreational cannabis use inpatient experiencing recurrent cannabinoid hyperemesis syndrome [12].

Treatment of EAI is essentially based on cessation to the exposure of the heat source. In case of heating pads use, some recommendations have been made concerning their proper use and the appropriate duration of exposure (no more than 30minutes consecutively). These guidelines seem to be the most effective methods to prevent the development of EAI [13]. For persistent skin lesions, several authors recommend laser therapy or the use of 5-Fluorouracil [12].

## Conclusion

Erythema ab igne is an unusual and uncommon cutaneous disorder which can be encountered in recurrent cannabinoid hyperemesis. This case report highlights the association between chronic cannabinoid hyperemesis syndrome and erythema ab igne, which has to be recognised as a rare complication of this syndrome. However, this diagnosis has to be precociously made to exclude other underlying severe diseases.

## Competing interests

The authors declare no conflict of interest.

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