



## Reticulated erythematous patch on teenager's foot

At first, there was no obvious cause for the lesion on this patient's foot, which had slowly grown over 2 years. However, a more detailed history proved revealing.

AN 18-YEAR-OLD CAUCASIAN MALE sought care for an ill-defined reticulated patch on his right plantar arch (FIGURE 1). The patient said that the lesion had gradually appeared 2 years earlier, had grown slowly, and was occasionally itchy. Physical exam revealed a lacy violaceous, hyperpigmented, reticulated patch that was blanchable and nontender to palpation.

Our patient denied having a history of

trauma to the area or a coagulation or connective tissue disorder. The lesion didn't vary with temperature or season, and there were no known triggers. The patient's left plantar arch was unchanged.

- WHAT IS YOUR DIAGNOSIS?
- HOW WOULD YOU TREAT THIS PATIENT?

FIGURE 1

Reticulated patch on right plantar arch



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*The authors reported no  
potential conflict of interest  
relevant to this article.*

➤ Erythema ab igne with atypical distributions have been linked to the use of laptop computers, car seat heaters, and cell phones.

**Diagnosis:  
Erythema ab igne**

Upon further questioning, the patient acknowledged that he occasionally rested his bare feet around a portable heater under his desk while using his computer for a few hours each day (FIGURE 2). He often kept his right foot on the heater while he let his left foot rest on the ground. A punch biopsy was performed; the findings, when combined with the patient's report of having exposed his foot to heat, supported the diagnosis of erythema ab igne (EAI).

EAI commonly presents as an asymptomatic reticulated erythematous to violaceous patch in an area of the body that has been in contact with heat.<sup>1</sup> It originally was described on the bilateral anterior lower extremities after prolonged exposure to burning stoves or open fires.<sup>1</sup> With the advent of central heating, these presentations have decreased, but there has been a resurgence of EAI with atypical distributions as a result of evolving technology and new heating sources. Reported causes of EAI include heating pads,<sup>1,2</sup> laptop computers<sup>3</sup> (FIGURE 3), car seat heaters,<sup>4</sup> hot water bottles, popcorn bags, cell phones,<sup>5</sup> and space heaters that have resulted in patches on the breast, thighs, arms, and, in our patient, foot.<sup>1-5</sup>

**Blood work, biopsy  
can help narrow the differential**

The differential for EAI includes livedo reticularis, livedo racemosa, cutis marmorata, and

cutis marmorata telangiectasia. Livedo reticularis can be associated with autoimmune conditions and coagulopathies. Livedo racemosa is a typical sign of Sneddon's syndrome and can be seen in up to 70% of patients with antiphospholipid-antibody syndrome and systemic lupus erythematosus. Diagnosis of these conditions is confirmed by elevated coagulation factors, presence of autoimmune antibodies, or history of cerebrovascular accident.<sup>6</sup> These tests would be normal in EAI.

Histopathologic changes observed in EAI include an atrophic epidermis with an interface dermatitis, vasodilation, and dermal pigmentation. Necrotic keratinocytes and focal hyperkeratosis can be noted, along with squamous atypia. Although these changes are nonspecific, they can be used to confirm an EAI diagnosis in patients for whom the affected area has been exposed to a heat source.

Histologically, EAI is similar to actinic keratosis, with epidermal changes showing squamous atypia.<sup>2</sup> Due to the similarities, these lesions are sometimes referred to as "thermal keratosis." Some researchers have suggested that the thermal heat may induce epithelial changes in the same way that ultraviolet light produces epithelial changes.<sup>7</sup>

■ **Rarely, EAI can turn into cancer.** There have been a few reported cases of EAI transforming into squamous cell carcinoma or Merkel cell carcinoma; squamous cell carcinoma is more common, and tends to occur after a long latent period (up to 30 years).<sup>7-9</sup> EAI lesions often begin as a chronic ulcer and tend not to heal. If the lesion continues to evolve (ie, ulcerate), a biopsy may be warranted to rule out a malignant transformation.

**FIGURE 2**  
**The culprit: A space heater**



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**Eliminate heat exposure,  
consider a topical treatment**

Treatment of acute EAI involves eliminating the offending heat source. The hyperpigmentation will slowly resolve over months to years.<sup>4</sup> Persistent exposure to heat sources can lead to chronic EAI, which is more difficult to eliminate.

Because hyperpigmentation can be visually unappealing and emotionally distressing, some patients prefer active treatment. EAI has been effectively treated with 4% hydro-

FIGURE 3

A case of erythema ab igne linked to laptop use



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quinone topical cream twice a day and tretinoin topical cream at night.<sup>2,10,11</sup> Lesions that have epithelial atypia have improved with 5-fluorouracil topical cream.<sup>7</sup>

EAI also has been successfully treated with laser therapy with the 1064-nm Q-switched Nd:YAG laser with low fluence at 2-week intervals.<sup>9</sup>

■ Our patient declined topical therapy. He improved after a few months of avoiding the heater under his desk. **JFP**

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