

A Case Report of an Interesting Erythema

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Abstract

Erythema ab igne (EAI) is a cutaneous condition characterized by reticular hyperpigmentation resulting from chronic low-grade heat exposure. This case report presents a 30-year-old female with map-like skin lesions on her legs, initially misdiagnosed as livedo reticularis and vasculitis. A detailed history revealed prolonged use of an electric heater, leading to the diagnosis of EAI. The lesions resolved spontaneously after the heat source was eliminated. This case highlights the importance of considering EAI in the differential diagnosis of reticular skin lesions, especially in patients with a history of heat exposure. Early recognition can prevent unnecessary investigations and alleviate patient anxiety.

Keywords: Erythema ab Igne, hyperpigmentation, livedo, vasculitis

Introduction

Erythema ab igne (EAI) is a dermatological condition characterized by red-purple, net-like lesions, most commonly affecting the lower legs and the back. These lesions result from prolonged exposure to low-grade heat sources, such as space heaters, electric blankets, laptops, or hot water bottles (1). Continuous exposure to heat prompts the skin to react, forming these distinctive patterns.

Although EAI is generally not considered a serious medical condition, it can sometimes be mistaken for other skin disorders, underscoring the importance of accurate diagnosis. The net-like pattern of the lesions may resemble other conditions, potentially leading to unnecessary treatments if misdiagnosed.

Several factors can increase the risk of developing EAI. People living in cold climates often rely more heavily on heat sources, increasing their exposure to low-grade heat. Additionally, patients with circulatory problems, musculoskeletal diseases, diabetes, hypothyroidism or anorexia nervosa, sensorineural neuropathy, or cancer-related pain are at higher risk (2, 3). These conditions may lead to prolonged use of heat for comfort or pain relief, inadvertently causing EAI.

Case History/Examination

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A 30-year-old female patient presented with visually concerning map-like hyperemic skin lesions on her legs. Initially believed to have livedo reticularis and vasculitis, she was referred to a rheumatologist by her first doctor.

The patient was first evaluated at the Internal Medicine clinic. She denied experiencing pain, itching, burning, or any other symptoms. Her medical history revealed no signs of oral or genital aphthosis, arthritis, urethritis, urinary or gastrointestinal issues, Raynaud's phenomenon, or other rashes.

Physical examination revealed erythematous skin lesions on the legs and pretibial areas. These lesions were red-purple, reticular in appearance, and did not blanch with pressure (Figure 1). There were no subcutaneous nodules or palpable purpura. Her vital signs were normal (body temperature 36.5°C, blood pressure 120/80 mmHg, pulse 80 beats per minute, rhythmic). No lesions were found on other parts of her body, including the arms or trunk. The systemic examination revealed no abnormalities.



Figure 1. Erythema ab Igne can be seen in the photograph.

Diagnostic Approach and Treatment

After learning that the lesions had been present for the past year, they were determined to be compatible with EAI. Livedo reticularis was not considered. However, a complete blood count (CBC), C-reactive protein (CRP), sedimentation rate, biochemical tests, urinalysis, viral serology, antinuclear antibody (ANA), rheumatoid factor (RF), and cryoglobulins were requested for further evaluation to reassure the patient. All test results were normal.

Upon further questioning, the patient recalled using an electric heater to warm her legs a year before the appearance of the lesions. She was advised to avoid direct exposure to heat sources and was placed on follow-up. When she returned 2 months later, it was observed that the lesions had disappeared.

Discussion

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Erythema ab igne (EAI) is a reticular, hyperpigmented skin condition that typically develops on the lower extremities but can also occur on the arms and abdomen, though less frequently. It results from prolonged exposure to a heat source or infrared radiation (IRR) that isn't hot enough to cause burns, typically when temperatures remain below 47°C (4). In some cases, heat exposure can lead to epidermal atrophy and telangiectasias, though hyperpigmentation was the main feature in this case, with reticular lesions appearing red-purple.

Erythema ab igne was first described as "heat-induced melanosis" by German dermatologist Abraham Buschke in the 1900s. The name originates from Latin, translating to "redness from fire." Various heat sources, such as electric stoves, hot water bottles, heating pads, electric blankets, and, more recently, laptops, cell phones, and virtual reality headsets, can cause this condition. Since the COVID-19 pandemic, there have been reports of an increase in EAI diagnoses, likely due to the increased use of personal electronics for extended periods in home office settings (1, 5). While older studies indicated that EAI was more prevalent among women and individuals between the ages of 40 and 70, recent data suggests it is becoming more common in younger individuals (6, 7), with the average age of EAI presentation now at 28.6 ± 10.4 years (1).

Initially, patients with EAI may present with mildly erythematous skin. However, after repeated heat exposure, classic blue, purple, or brown reticular hyperpigmentation develops. Heat damages superficial vessels, causing dilation and hemoglobin accumulation, resulting in the characteristic hyperpigmented reticular appearance. The diagnosis of EAI is primarily based on patient history and clinical examination. For instance, EAI frequently appears on the lower back, a common site for heating pad use, which may be suspected in cases of underlying musculoskeletal issues. Similarly, the abdomen can be affected due to the use of heating pads or hot water bottles for internal pain, such as in pancreatitis or gastrointestinal malignancies, while the lower legs might be affected due to prolonged laptop use.

A skin biopsy is rarely necessary for diagnosis. In early-stage biopsies, perivascular infiltration, epidermal atrophy, telangiectasias, keratinocyte atypia, and hemosiderin accumulation may be observed. In chronic cases, focal hyperkeratosis, dyskeratosis, and increased elastin fibers might be present.

The differential diagnosis for EAI includes conditions such as livedo reticularis (8), livedo racemosa, livedoid vasculitis, poikiloderma, antiphospholipid antibody syndrome, cutaneous T-cell lymphoma (1), angiosarcoma (9), cutaneous metastasis of intestinal adenocarcinomas (10) and medication exposures like amantadine and memantine (11). A key distinguishing feature in the differential diagnosis is that livedo reticularis often presents suddenly in cold temperatures without a history of heat exposure.

Treatment for EAI primarily involves eliminating the source of heat exposure, and usually, no medical treatment is required. The prognosis for EAI is generally excellent, with lesions typically resolving spontaneously within months to years. In cases where discoloration persists, treatment options such as topical retinoids, topical 5-fluorouracil, or laser therapy may be considered to improve cosmetic outcomes (12, 13). Rarely, complications like ulcers, thermal keratosis, squamous cell carcinoma in situ, squamous cell carcinoma, and Merkel cell carcinoma

International Journal of Basic and Clinical Studies, Tukek N.B and Tukek S.S, 2025; 14(1): 1-6, 14101. can develop (12, 14, 15). Regular follow-up is recommended.

This case of EAI underscores the importance of accurate differential diagnosis in skin conditions that may mimic rheumatic diseases. Misdiagnosing EAI as livedo reticularis can lead to unnecessary and potentially invasive investigations. Interestingly, similar cases have been reported in various journals in recent years, yet some family physicians and even specialists continue to overlook this diagnosis. Early and accurate diagnosis of EAI can prevent unnecessary procedures and alleviate patient anxiety. Raising awareness of EAI and regularly reminding healthcare professionals about this condition is crucial.

Patient Perspective

“I was very scared that it might be a rheumatic disease. I thought the rash would be permanent and would increase. I was very relieved after this diagnosis. But I was surprised that it was due to heat exposure”.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, shareholding and similar situations in any firm.

Authorship Contributions

Nur Beyza Tukek: Design, Control/Supervision, Analysis and/or Interpretation, Literature Review, Writing the Article, Critical Review

Saliha Tukek: Idea/Concept, Data Collection and/or Processing, Writing the Article

Patient Consent

Written informed consent was obtained from the patient before the report was written.

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