
Reticulated rash on the anterior thighs

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A 38-year-old Asian woman who worked as a prison nurse presented with a 6-month history of a worsening reticulated rash on the anterior aspect of her thighs (Fig 4). While there was bilateral involvement, it was noted to be more prominent on the left leg. On closer examination, there were several telangiectases interspersed throughout the reticulated macule. The patient denied any systemic symptoms and noted local symptoms of only mild pruritis and burning. She mentioned no recent changes in personal habits or hygiene, except the added stress of her employer introducing a new electronic medical record approximately 1 year earlier.

9. What is the most likely diagnosis?
   a. Cutis marmorata telangiectatica congenita
   b. Leukocytoclastic vasculitis
   c. Livedo reticularis
   d. Erythema ab igne
   e. Reticulated erythematous mucinosis

10. The cause of the rash is:
    a. Cryoglobulins
    b. Chronic infrared heat
    c. Antibodies to nuclear Ag
    d. Drug reaction
    e. Congenital

11. On physical examination, the rash is:
    a. Blanchable with pigment
    b. Blanchable without pigment
    c. Nonblanchable with pigment
    d. Nonblanchable without pigment

12. Long-term risk involves:
    a. Squamous cell carcinoma
    b. Merkel cell carcinoma
    c. Lupus
    d. None
    e. a and b

13. First-line treatment is:
    a. Prednisone
    b. Topical steroids
    c. Dialysis
    d. Removal of the heat source
    e. 5-fluorouracil

Discussion
Erythema ab igne (EAI) occurs following prolonged exposure to an external infrared heat source. The typical rash presents with a persistent and reticulated pattern of erythema and hyperpigmentation and occurs more often in overweight, middle-aged women. Often, telangiectases are also found within the area of involvement. In recent years, this rash has become less common because of the introduction of central heating to the majority of homes in the United States. Before central heating, EAI was seen at higher rates because of concentrated heat sources, such as woodstoves and fireplaces. Today, many cases of EAI can be traced to sources such as laptop computers and heating pads used for chronic pain relief. Cooks and bakers can even have facial EAI related to their exposure to stoves and ovens. In the above case, when the patient’s employer introduced an electronic medical record, she also began to frequently use a laptop computer, which over time led to the development of EAI on the anterior surfaces of her thighs.

The persistent rash seen in this case does not develop immediately. Initial exposure to infrared radiation usually causes a transient reticular erythema that will regress after the heat source is removed. However, with repeated exposures, the reticulation will begin to persist and hyperpigmentation will emerge. Upon palpation, the rash will be blanchable. This is in contrast to dermatologic conditions like leukocytoclastic vasculitis and livedo reticularis, which are nonblanchable, and cutis marmorata telangiectatica congenita (CMTC), which is partially blanchable and has more swelling. CMTC is also a disorder that is seen at birth or shortly thereafter, whereas EAI can occur at any time in child or adulthood when there is exposure to an infrared
radiation source. With EAI, the involved area can even become atrophic or transform into a bullous form in which subepidermal bullae and crusts can be seen on a reticulated erythematous base.

Histologically, the epidermis in EAI can show squamous atypia suggestive of actinic keratosis. An increased amount of dermal elastic tissue may also be seen, which is also noted in skin that has been damaged by ultraviolet radiation. For this reason, squamous cell carcinoma has been known to arise in areas of long-standing EAI. The neuroendocrine tumor Merkel cell carcinoma has also been documented to occur in conjunction with EAI. While squamous cell carcinomas tend to be less aggressive, Merkel cell carcinoma has a 2-year survival rate of only 50% to 70%.

Because of the malignant potential of EAI, immediate removal of the infrared heat source is the mainstay of treatment. If the heat source is not removed, permanent hyperpigmentation and atrophy may result, with the possibility of future squamous or Merkel cell carcinoma. If the EAI is advanced enough, removal of the heat source may not be adequate treatment. In one case report, EAI with epithelial atypia was treated with topical 5-fluorouracil therapy for 2 weeks. Repeat biopsies at 6 weeks and 5 months both showed complete regression of the atypia.

EAI is an entity that can usually be confirmed by a careful history of exposure to a heat source. Other disorders in the differential diagnosis include livedo reticularis, cutis marmorata telangiectatica congenita, reticulated erythematous mucinosis, and leukocytoclastic vasculitis. It is important for clinicians to remember that EAI is not a benign rash and can have implications similar to ultraviolet light exposure.

For this series, the recommended choices are: 9, d; 10, b; 11, a; 12, e; 13, d.

BIBLIOGRAPHY