

# Toasted Skin Syndrome

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## Presentation

The patient is a 55 year old female with a history of chronic back pain and obesity. She presented to the primary care clinic with concerns due to the development of a rash on her lower back predominantly where she experiences her chronic low back pain.

Patient notable for being sedentary 20-22 hours a day, seated or laying in bed. Approximately 1.5 weeks prior to presentation, patient noted sudden onset of a mid-thoracic to lumbar back cutaneous rash. Patient denies recent trauma, pain, pruritus with the rash, which was overall asymptomatic.

She reports back pain to be increasing in intensity and frequency of episodes. Pain located middle to lower back and does not radiate. Patient admitted to using conservative treatment to treat her back, such as daily use of a heating pad on her back. Reports attempting to only keep heating pad on 15 minutes each session, but often applying the heated pad every hour throughout the day.

Patient is status-post nerve block injection in the affected area 4 months prior and has plans for repeat injection. Patient concerned that rash will prevent her from receiving a second injection for symptom management.

## Diagnosis

Erythema ab igne is a benign skin condition caused by long-term exposure to infrared radiation and/or heat. This condition is typically found incidentally and associated with exposure to heated car seats, space heaters, fireplaces, occupational heat exposure, hot laptops, and hot water bottles.<sup>1</sup> This cutaneous disorder is generally asymptomatic and characterized by erythematous reticulated hyperpigmentation, scaling, and telangiectasias in the affected area.

## Photographs



## Treatment

There is no definitive therapy for erythema ab igne, but eliminating the exposure from the source of heat may reverse the erythema and hyperpigmentation, especially if early in the disease process.<sup>2</sup>

When cosmetic concerns arise in advanced cases, a topical steroids or tretinoin has been used reduce the discoloration. 5-fluorouracil has been shown to help clear atypical cells.<sup>3</sup> An additional agent, mesoglycan with topical flavonoids been shown to reduce the discoloration.<sup>4</sup>

## Discussion

The pathophysiology of the rash has not been fully established, but it is suspected that thermal radiation exposure induces damage to superficial blood vessels that subsequently lead to epidermal vascular dilation. The rash is initially observed as erythema, and blood cell extravasations and deposition of hemosiderin that follows clinically appears as hyperpigmentation which can occur in a reticular distribution.<sup>5,6</sup>

Erythema ab igne can resemble numerous skin conditions including livedo reticularis, livedo racemosa, cutis marmorata, and cutis marmorata telangiectasia.<sup>7</sup> Livedo reticularis, or its physiologic form, cutis marmorata, occurs after exposure to cold temperature and resolves as it rewarms. Livedo racemosa is more widespread, irregular, generalized, and associated with pathological conditions.<sup>8</sup> Cutis marmorata telangiectasia is congenital and sometimes associated with vascular malformation, limb asymmetry, neurologic or ocular abnormalities.<sup>9</sup> It is important to distinguish these various skin conditions from others to prevent the expenses and harm from overtreatment of a benign condition.

Several case studies noted this rash to be associated with possible insidious pathologies such as development of merkel cell carcinoma or squamous cell carcinoma on affected area and as a marker for chronic pancreatitis.<sup>10,11</sup> The increasing use of electronics that produce excess heat, such as laptops, cellphones, etc. will likely increase the incidence of this skin condition. This case illustrates the need to revisit safe practice guidelines for safe use of technologies that generate heat such as seat warmers in cars, laptops, heating pads, and electric blankets.

## References

1. Brzezinski P, Ismail S, and Chiriac A. Radiator-induced erythema ab igne in 8-year-old girl. *Rev Chil Pediatr.* 2014. 85(2): 239–240.
2. Baruchin AM. Erythema ab igne—a neglected entity? *Burns.* 1994. 20(5):460-462.
3. Sahl WJ Jr and Taira JW. Erythema ab igne: treatment with 5-fluorouracil cream. *J Am Acad Dermatol.* 1992. 27(1):109-110.
4. Gianfaldoni S, Gianfaldoni R, Tchernev G, et al. Erythema ab igne successfully treated with mesoglycan and bioflavonoids: a case report. *Open Access Maced J Med Sci.* 2017. 5(4):432-435.
5. Finlayson GR, Sams WM Jr, and Smith JG Jr. Erythema ab igne: a histopathological study. *J Invest Dermatol.* 1966. 46(1):104–108
6. Riahi R and Cohen PR. What Caused This Hyperpigmented Reticulated Rash On This Man's Back? *The Dermatologist.* 2013. 21(1).
7. Morrison M, Cotton J and LaFond A. Reticulated erythematous patch on teenager's foot. *J of Fam Pract.* 2014. 63(9):537-539.
8. Kienast AK, Hoeger PH. Cutis marmorata telangiectatica congenita: a prospective study of 27 cases and review of the literature with proposal of diagnostic criteria. *Clin Exp Dermatol.* 2009. 34:319–323.
9. Sajjan VV, Lunge S, Swamy MB, Pandit AM. Livedo reticularis: a review of the literature. *Indian Dermatol Online J.* 2015. 6:315–321.
10. Miller K, Hunt R, Chu J, et al. Erythema ab igne. *Dermatol Online J.* 2011. 17(10):28.
11. Jones CS, Tyring SK, Lee PC, et al. Development of Neuroendocrine (Merkel Cell) Carcinoma Mixed With Squamous Cell Carcinoma in Erythema Ab Igne. *Arch Dermatol.* 1988. 124(1):110–113

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