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Case Report and Brief Review: A Case of Erythema Ab Igne Due to a Space Heater

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Abstract:

A 35 year old male presented to the Emergency Department (ED) with a rash of his left lateral lower leg of a 2 months duration. The patient had been using an electric space heater and the affected area was the closest part of his body to the heater. A diagnosis of erythema ab igne was made. Here we discuss erythema ab igne in reference to the medical history of the diagnosis, pathophysiology, modern causative heat sources such as laptop computers and treatment.

Introduction:

Erythema ab igne translates from the Latin as "redness from fire" and relates to the fact that the first reported cases of erythema ab igne date from an era of the predominant use of wood-burning fireplaces for indoor heating. The diagnosis had become less common and appears to have re-emerged with more modern sources of localized heat. (Tan)

Case Presentation:

A 35 year old male presented to the Emergency Department (ED) with a rash of his left lateral lower leg of a 2 months duration. The rash had worsened in the last 3 weeks prior to presentation, prompting his wife to insist that he be evaluated. The patient had no other complaints. He stated that the rash was not pruritic in nature and that he had no fever or chills. He denied trauma to the affected area. He had not significant past medical history and was not taking any medications. He had no known allergies. On physical exam, the patient looked well with normal vital signs. The patient was noted to have a reticulated rash with a slightly purple discoloration, in the area of his posterior and lateral left lower leg. There was no tenderness to the area. His physical examination was otherwise unremarkable. Iterative questioning led to the additional fact that the patient had begun a new job as a security guard approximately one month prior to the appearance of the rash. His security area seemed to be uncomfortably cold and he purchased an electric space heater. The heater was placed on the floor in the left corner of his security booth. The physical appearance of the rash was consistent with erythema ab igne and the local heater supported the diagnosis. The patient stated that he had been looking for an indoor security position and that he was due to start his new position in two weeks--and that he would immediately stop using the space heater. He was referred to dermatology. At two week telephone follow-up, the patient noted that his rash was resolving. At six week telephone follow up, he noted that Dermatology confirmed the diagnosis of erythema ab igne and that no biopsy was indicated. The rash at that time had almost completely resolved.



Figure 1: Erythema Ab Igne Bing.com)



Figure 2: Erythema Ab Igne Bing.com

Discussion:

In the modern era, sources of heat leading to erythema ab igne have moved from wood burning fireplaces to electric space heaters and laptop computers. (Tan) It has also been called "toasted skin syndrome." This heat is below the level of thermal radiation that creates a discreet burn. (Baruchin) It was first described in the medical literature in the early 1900s in association with peat stoves in Ireland and England. (Miller) The rash is reticulated and hyperpigmented. Helm et al present the case of erythema ab igne from a car heater. They note that heater car seats have caused the condition. (Helm). Miller et al note that erythema ab igne has been described in association of the use of hot water bottles, heating pads and laptop computers. (Miller) A case of erythema ab igne is association with a space heater was described by Haleem. Laptop computers can generate a temperature of 44 degree C when placed on a leg, especially when the fan exhaust is blocked. Such presentations of erythema ab igne tend to be on the anterior surface of one of the upper thighs. (Arnold) Erythema ab igne has been described on the arms of bakers. The laptop related erythema ab igne has been reported in a number of patients, including adolescents. (Arnold) Histologically, the condition is like an actinic keratosis but may show some squamous cell atypia.

Discussion: (continued)

Repeated elevations of skin temperature to the 43 to 47 degree C range can cause keratinocyte and small blood vessel damage, leading to increased deposition of hemosiderin and melanin. (Goorland) The reticulated pattern is hypothesized to be caused by the involvement of small blood vessels in the superficial subcutaneous plexus, found in the dermis, which results in the web-like pattern. If exposure to the heat source continues, there is the risk of conversion of the rash to squamous cell carcinoma. This conversion may take as long as 30 years. This phenomenon of thermally induced squamous cell carcinoma was observed in ancient times according to Arnold. "Kang cancer in China and Tibet is a result of large brick-heated platforms called Kangs." He also notes that Kangri cancer of Kashmir is caused by wearing a Kangri, which is a pot of coals surrounded by a wicker basket that was traditionally carried inside garments for portable warmth in winter. (Arnold, Mohr)

Conversion to Merkel-cell carcinoma has been reported. Hyperpigmentation can be treated with tretinoin. 5-fluorouracil has been used. (Goorland) Prolonged and continuous heat source exposure can lead to significant skin atrophy. Patients with prolonged erythema ab igne may require and skin biopsy and skin surveillance by dermatology.

Conclusion:

A 35 year old male presented to the Emergency Department (ED) with a rash of his left lateral lower leg of a 2 months duration. The patient had been using an electric space heater and the affected area was the closest part of his body to the heater. A diagnosis of erythema ab igne was made. Here we discuss erythema ab igne in reference to the medical history of the diagnosis, pathophysiology, modern causative heat sources such as laptop computers and treatment.

References:

1. Miller K, Hunt R, Chu J, Meehan S, Stein J. Erythema ab igne. *Dermatol Online J*. 2011 Oct 15;17(10):28. PMID: 22031654.
2. Helm TN, Spigel GT, Helm KF. Erythema ab igne caused by a car heater. *Cutis*. 1997 Feb;59(2):81-2. PMID: 9040977.
3. Goorland J, Edens MA, Baudoin TD. An Emergency Department Presentation of Erythema Ab Igne Caused by Repeated Heater Exposure. *J La State Med Soc*. 2016 Mar-Apr;168(2):33-4. Epub 2016 Apr 15. PMID: 27383852.
4. Baruchin AM. Erythema ab igne--a neglected entity? *Burns*. 1994 Oct;20(5):460-2. doi: 10.1016/0305-4179(94)90043-4. PMID: 7999279.
5. Mohr MR, Scott KA, Pariser RM, Hood AF. Laptop computer-induced erythema ab igne: a case report. *Cutis*. 2007 Jan;79(1):59-60. PMID: 17330624.
6. Arnold AW, Itin PH. Laptop computer-induced erythema ab igne in a child and review of the literature. *Pediatrics*. 2010 Nov;126(5):e1227-30. doi: 10.1542/peds.2010-1390. Epub 2010 Oct 4. PMID: 20921068.
7. Haleem Z, Philip J, Muhammad S. Erythema Ab Igne: A Rare Presentation of Toasted Skin Syndrome With the Use of a Space Heater. *Cureus*. 2021 Feb 17;13(2):e13401. doi: 10.7759/cureus.13401. PMID: 33754117; PMCID: PMC7971733.
8. Tan S, Bertucci V. Erythema ab igne: an old condition new again. *CMAJ*. 2000 Jan 11;162(1):77-8. PMID: 11216204; PMCID: PMC1232235.