

A Case with Skin Discoloration

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ABSTRACT

Erythema ab igne is a pigmented reticular skin lesion with telangiectasias caused by prolonged exposure to heat. In this report an 11-year-old adolescent boy with erythema ab igne induced by a laptop computer was discussed.

Keywords: Erythema ab igne, skin discoloration, computers, radiation effects

Introduction

Erythema ab igne is a pigmented reticular skin lesion with telangiectasias caused by prolonged exposure to heat. It is also known as erythema a calore.

The term is derived from Latin and means "redness from fire" (1). Although wide use of Central Heating has reduced the incidence, it is still sometimes found in people exposed to heat from other sources like heat packs, laptops, and hot water bottles (1,2).

Case

11-year-old adolescent boy presented to the family medicine clinics with a complaint of patch like pigmentation on the dorsal surface of his left thigh that had been present for the past 2 months. The mother of the patient said that they did not recognised this condition till that time and she did not see similar colour change even in his childhood period. No medical care received before, for this complaint. On physical examination, there was a fairly well-defined, brown, mildly erythematous, reticulated patch on the left anterior thigh (Figure 1 and 2).



Although the rash in the patient had a vascular net-like appearance, it did not blanch as would blood vessels, and there was no superficial thrombophlebitis on palpation of the skin. The lesion was so fade on the right thigh. The patient was asymptomatic except this colour change and we couldn't determined any other abnormal finding except BMI which was 28kg/m². The other tests carried out, including full blood count, C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR), were all within the normal range.

When questioned, the patient reported that around 3-4 months previously he had bought a new laptop and had developed the habit of using it on his thighs several hours in a day.

Discussion

Erythema ab igne is a skin reaction caused by exposure to heat. It was once commonly seen in the elderly who stood or sat closely to open fires or electric heaters. Prolonged and repeated exposure

causes a marked redness and colouring of the skin. The temperature required to induce erythema ab igne ranges from 43 to 47 °C (2).

In this case the lesion was isolated to the left anterior thigh, because the heat source (optical drive) was located on the left base of the computer and it caused exposure to heat for a long time.

Like our case aside from the skin discoloration, erythema ab igne is usually asymptomatic. Erythema ab igne also has been reported in individuals who use hot water bottles for warmth in winter or repeated hot compresses and in patients who strongly prefer warm environments (heating pads applied for pain, car heaters, hot baths, hot popcorn kernels applied for arthritis relief (1,2). It is found more commonly on women's legs, but may also be seen on the buttocks and thighs.

Erythema ab igne often begins as mild localized erythema. Repeated exposures to moderate heat may result in reticulate erythema, hyperpigmentation, telangiectasia, scaling, and atrophy. Histopathological

changes include hyperkeratosis, epidermal atrophy, squamous atypia, and interface dermatitis with necrotic keratinocytes (1).

Currently, the development of new technology in the form of portable computers and accessories means that these devices may be in direct contact with the user's skin for prolonged periods of time, consequently causing damage to the skin (3). So we also have to discuss how important it is for the manufacturers of these devices to warn consumers of the potential hazards that could occur if the equipment is misused. In laptop computers, as in the vast majority of personal computers, cooling is achieved through the use of fans.

Treatment involves eliminating direct contact between the skin and the source of infrared radiation. Topical treatment with tretinoin and hydroquinone has been used for persistent hyperpigmentation, and



epithelial atypia may respond to topical therapy with 5-fluorouracil. In severe cases in which the rash does not resolve, laser treatment may be beneficial (4). Our patient was advised not to place his laptop computer directly on her thighs but had to use a table or another type of support to diminish the possibility of direct contact with the device and to use local photoprotection.

Rarely, in the form of the Koebner phenomenon, psoriasis, lichen planus and lupus may develop at the site of erythema ab igne. Also in rare cases of squamous cell carcinoma and Merkel cell carcinoma arising in lesions of Erythema ab igne have been reported (5). Therefore, it is prudent to monitor patients periodically for changes in the appearance of the rash. Our patient was reevaluated ten days later

and the brownish macules were found to be gradually disappearing.

A biopsy should be performed if there is any evidence of cutaneous malignancy. For the confirmation of the diagnosis a punch biopsy can be performed, which shows epidermal atrophy and flattening of the dermo-epidermal junctions, collagen (Drug information on collagen) degeneration, and an increase in dermal elastic tissue (2).

Other skin lesions which cause skin discoloration should be considered for differential diagnosis; like poikiloderma (actinic keratosis), livedo reticularis, vasculitis and cutis marmorata. A careful history taking and physical diagnosis are the main points for diagnosis. In Table 1, differential diagnosis of skin discoloration was shown.

Table 1: Differential Diagnosis of skin discoloration

Condition	Characteristics
Eritema ab igne	Pigmented reticular skin lesion with telangiectasias caused by prolonged exposure to heat.
Poikiloderma, sun damage (actinic keratosis)	Characterized by red coloured pigment on the skin that is commonly associated with sun damage; mostly seen on the chest or neck.
Livedo reticularis	Reddish blue mottling of the skin found usually on the extremities in a reticular or fishnet pattern. It is believed that the blanched areas of skin are secondary to a vasospasm of the perpendicular arterioles that perforate the skin from the subcutaneous tissue.
Vasculitis	A general term for a group of uncommon diseases that feature inflammation of the blood vessels. Immune system abnormality is common but can also accompany infections, exposure to chemicals, medications, cancers and rheumatic diseases.
Cutis marmorata	Reticular bluish discoloration of the skin. It resolves with warming of the skin. This marbled appearance occurs in 50% of young healthy children and is frequently found in those with trisomy 21 syndrome.

References

1. Belezny K, Humphrey S, Au S (March 2010). "Erythema ab igne". *CMAJ: Canadian Medical Association Journal= Journal De l'Association Medicale Canadienne* 182 (5): E228.
2. Kennedy CTC, Burd DAR. Effects of heat and infrared radiation. In: Burns T, Breathnach SB, Cox N, Griffiths C. *Rook's Textbook of Dermatology*. Hong Kong: Blackwell, 2004. p.22.64-22.65.
3. Giraldi S, Diettrich F, Abbage KT, Carvalho VO, Marinoni LP. Erythema ab igne induced by a laptop computer in an adolescent. *An Bras Dermatol* 2011;86(1):128-30.
4. Tan S, Bertucci V. Erythema ab igne: an old condition new again. *CMAJ* 2000;162:77-8.
5. Iacocca MV, Abernethy JL, Stefanato CM, Allan AE, Bhawan J. Mixed Merkel cell carcinoma and squamous cell carcinoma of the skin. *J Am Acad Dermatol* 1998;39: 882-7.

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