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JEADV - Letter to the Editor

Erythema ab igne after using a virtual reality headset: a new phenomenon to know

Running head: *Erythema ab igne and virtual reality headset*

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Funding sources: This article has no funding source.

Conflicts of interest: The authors have no conflict of interest to declare.

Data availability: The data are stored by the corresponding author and can be shared upon request.

Acknowledgment: The patients' guardians in this manuscript have given written informed consent to the publication of their case details.

Prior presentation: None

Manuscript word count: 597 words

References: 8

Figures: 2

Keywords: erythema ab igne; virtual reality headset; telangiectasia; new technology

This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process which may lead to differences between this version and the [Version of Record](#). Please cite this article as doi: [10.1111/jdv.18371](https://doi.org/10.1111/jdv.18371)

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A 17-year-old patient consulted for asymptomatic erythematous and telangiectatic lesions of the lateral forehead and the eyebrows evolving for one year (Fig. 1a). With this clinical aspect, a facial dermatosis such as an atypical rosacea was initially suggested, but a thorough medical history led us to the diagnosis. Before the appearance of the lesions, the patient started to use intensively a new virtual reality headset (Fig. 2), from 2-3 hours per day to more than 5 hours in the weekend. He noticed that the headset was warm after 4 hours of use. His past medical history was notable for ophthalmological complications using this headset, ranging from recurrent ocular redness, chalazion and blepharitis to marginal keratitis and corneal abscess.

Regarding the anamnesis and the clinical examination with these erythematous, reticulated and telangiectatic lesions of the upper part of the face, a diagnosis of erythema ab igne due to the chronic use of a virtual reality headset was strongly suggested.

Erythema ab igne is a transient reticulated erythema secondary to repeated or prolonged heat exposure to a temperature between 43°C and 47°C, below the threshold to induct a skin burn. The lesions usually appear between 2 weeks and 1 year after the start of the exposure. With chronic heat exposure, the lesions become hyper- and hypo-pigmented due to hemosiderin and melanin deposits and may be associated with atrophy, telangiectasias, and bullae. There are also changes in the elastic fibers and dermal venous plexuses. These lesions are usually asymptomatic, but some patients describe a mild burning sensation or pruritus^{1,2,3}.

Historically, erythema ab igne was mostly associated with older heating methods (woodstove or open fire), affecting women and the elderly on the legs, and sometimes the face of the patients with certain professions like cooks or bakers^{1,3}. Nowadays, the heat sources responsible for this pathology have been modernized with the appearance of new technologies, especially laptops⁴.

Thus, a multitude of new objects can lead to this dermatosis (neurostimulator⁵, telephone, electric heating, tablets, heating blankets, heating patches, etc.). The lesions regress spontaneously in a few weeks or months after removal of the heat source and usually do not require any treatment.

However, in some cases, the lesions may persist over time. In certain more severe or longer lasting situations, a laser treatment⁶ or a topical 5-fluorouracil cream⁷ may be considered. Rarely, some skin cancers, especially squamous cell carcinomas, have been related with long-lasting erythema ab igne⁸.

In our patient, the virtual reality headset was the heat source for the skin changes. The complete cessation of the use of the headset allowed a regression of the vascular lesions (Fig. 1b). However, a complete disappearance was not achieved, despite a treatment with pimecrolimus cream b.i.d. This is probably due to the chronic changes of the wall of the capillaries and small vessels, responsible for

a chronic couperose state. Nine months after the removal of the headset, the patient still experiences episodes of erythrosis during temperature changes, with vasodilatations localized only to the former contact areas with the headset.

To conclude, erythema ab igne is a benign dermatological condition which has been known for years and is currently making a comeback due to the proliferation of new technologies with heat sources. The initially described characteristics of this dermatosis are changing in terms of localization and frequency, as well as the affected population. It is important to consider this diagnosis and to conduct a thorough medical anamnesis in the presence of chronic vascular lesions of atypical distribution. The lesions usually regress spontaneously after removal of the heat source, but some chronic vascular damages could persist.

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Figure legends

Figure 1.

- a) 17-year-old patient presented with asymptomatic erythematous and telangiectatic lesions of the lateral forehead and the eyebrows.
- b) Regression of the lesions after removal of the heat source, the virtual reality headset.

Figure 2. Virtual reality headset used by the patient up to 5 hours per day.



