

## Working from home during and after COVID-19:

watch out for *erythema ab igne* when using laptops

COVID-19 has forced enormous numbers of workers into home office and students into remote learning worldwide. Modern laptops are sufficiently equipped and cheap enough to support this being a sustainable project. Thus, with the feasibility of home office demonstrated during the pandemic for many, this transition to working more at home is unlikely to be reversed for many post-pandemic. Just as the pandemic has led to changes in general practice,<sup>1</sup> so too has it led to a change in the exposures of the patients. For instance, increased laptop usage can come at a possible price for skin health due to emitted infrared radiation.

### EXPOSURE CAN GO UNNOTICED

The infrared radiation emitted can cause *erythema ab igne* (EAI) — sometimes known as hot water bottle rash — which is a hypo- or hyperpigmented, reticulated rash that may cluster on laps,<sup>2</sup> on the stomach,<sup>3</sup> or even on the breast,<sup>4</sup> depending on where people may place laptops extensively. It hits below the limits of heat pain or acute damage, and only warmth is felt (on rare occasions, pruritus or itchy skin has been reported), thus, exposure can go unnoticed. In some instances, especially following extended exposures across years, EAI can develop into pre-cancerous lesions, squamous cell carcinoma, or Merkel cell carcinoma.<sup>5</sup> Treatment of EAI is primarily exposure avoidance but the reticulated rash may persist for a long time afterward.<sup>4</sup>

### REPORTS ARE INCREASING IN NUMBER

So far, EAI diagnoses are scarce and, as such, epidemiological insights are limited. Historically, it has been associated with working and cooking near or at open fires and stoves, but this is much less common nowadays. However, sporadic reports are increasing in number — easily evidenced



*“In contrast to what the name laptop suggests, working ergonomically at a table or at least placing a tray between laptop and lap should be encouraged to prevent skin damage from the emitted infrared radiation.”*

by a simple search of the scientific and medical literature — with laptops frequently identified as the source of infrared radiation in such cases.

Case reports may become a case series soon with increased, repeated, and prolonged laptop usage in the home during and after the COVID-19 pandemic. Even children spending prolonged periods indoors playing with or using laptops to study may be at increased risk.<sup>6</sup>

### PRUDENT AVOIDANCE OF DIRECT EXPOSURE IS RECOMMENDED

In terms of guidance, experimental literature is difficult to translate as studies vary in terms of wavelengths, intensities, and durations of exposure from different infrared radiation sources, in addition to different clothing and skin types at different exposure sites. How old a laptop is or, more importantly, how well it can dissipate heat innocuously and in what direction can be important for individual situations, but cannot be a source for developing general advice. Indeed, for now and the future, guidance is unlikely to be provided in terms of *what* doses of laptop use and *where* are safe. Rather, users and doctors should be aware of possible EAI and prudent avoidance should be pursued where possible. In contrast to what the name laptop suggests, working ergonomically at a table or at least placing a tray between laptop and lap should be encouraged to prevent skin damage from the emitted infrared radiation. When EAI is identified, follow-up is necessary in case the damaged skin develops into pre-cancerous or cancerous lesion.

EAI is infrequently encountered in general practice, but the number of cases is likely to increase during and after the COVID-19 pandemic. Therefore, increasing awareness now may prevent case occurrence or save time and stress later for both patient and doctor when EAI is encountered.

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#### Competing interests

The authors have declared no competing interests.

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