

## NOTES &amp; COMMENTS

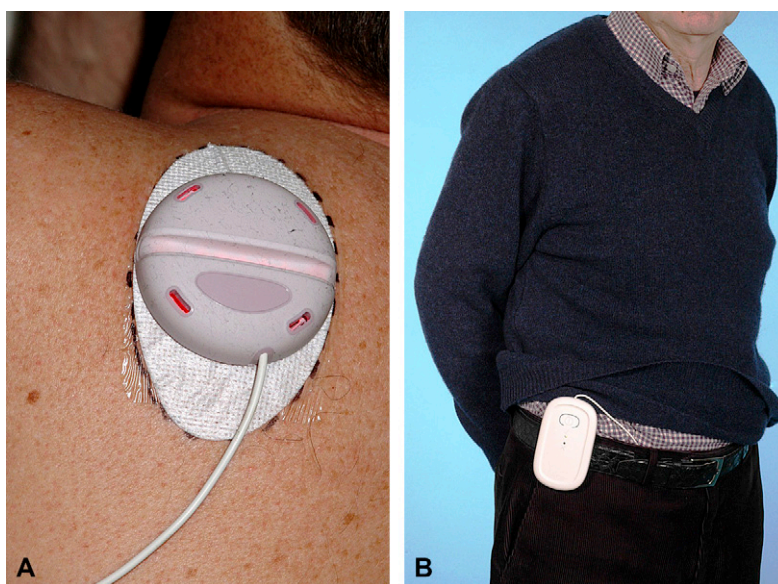
**Irradiance is an important determinant of pain experienced during topical photodynamic therapy**

*To the Editor:* I read with interest the article by Gholam et al,<sup>1</sup> as understanding factors that influence the pain of topical photodynamic therapy (PDT) is of major importance in enabling us to identify susceptible patients and investigate pain prevention and relief. In this retrospective study, the Aktelite LED (Photocure, Oslo, Norway) at a dose of 37 J/cm<sup>2</sup> was used. The authors did not comment on irradiance, although in my experience of this device it is typically around 80 mW/cm<sup>2</sup>. Although the article is of great interest in terms of identifying that PDT-induced pain varies with gender and body site, I was surprised that emphasis was not placed on the influence of irradiation on the pain experienced.

Low irradiance PDT enhances photobleaching efficiency and the PDT effect when compared with higher irradiance light delivery.<sup>2</sup> There is also evidence that low irradiance PDT is less painful than conventional PDT.<sup>3</sup> Certainly, my experience of topical PDT is that at irradiances less than 50 mW/cm<sup>2</sup> pain is greatly reduced. Indeed, this was investigated with very low irradiance (5-7 mW/cm<sup>2</sup>) portable LED sources, and preliminary studies of

prototype devices showed that low irradiance PDT could be effectively used and was significantly less painful.<sup>4,5</sup>

I now report additional experience of low irradiance PDT using a “skin cancer plaster” (Ambulight, Ambicare Health Ltd, St Andrews, Scotland). This is an LED source with a similar emission spectrum (peak wavelength 640 nm, full width at half maximum 25 nm) to the Aktelite device and is programmed to deliver a dose of 75 J/cm<sup>2</sup> at an irradiance of 7 mW/cm<sup>2</sup> over 3 hours, in contrast to the Aktelite source, which will deliver the same dose at an irradiance of approximately 80 mW/cm<sup>2</sup> over 15 to 20 minutes. The source is small, light, compact, and attached to a battery pack, so that the patient can be mobile during therapy (Fig 1). This has been used during Metvix (Galderma, Herts, UK) PDT in 17 patients (9 male, median age 59 [range 39-89] years) with superficial basal cell carcinoma (n = 11), Bowen disease (n = 5), and actinic keratosis (n = 1). In contrast to conventional PDT, the light source was immediately secured over the lesion with adhesive after Metvix (16%) (Galderma) application. The device remained switched off for 3 hours and then automatically switched on for a further 3 hours to deliver 75 J/cm<sup>2</sup>. The patient then removed and disposed of the device at home. Patient recall of the



**Fig 1.** **A**, “Skin cancer plaster” (Ambulight, Ambicare Health Ltd, St Andrews, Scotland) in position overlying basal cell carcinoma on shoulder. Device can be used to treat lesions of 2.4 cm in diameter or less. **B**, Battery pack for device can be attached to belt or put in pocket so that patient can be mobile during treatment.

maximum pain experienced during irradiation was assessed by visual analog scale immediately after treatment. The median pain score was 2 (range 0-7) and this was independent of body site. In contrast, the median pain score for conventional PDT using a historical cohort of patients was 6 (1-10).<sup>5</sup>

Thus, although the findings of Gholam et al<sup>1</sup> were extremely interesting and informative for PDT practitioners, I would also like to highlight the importance of irradiance as a determinant of PDT-induced pain. Increased use of low irradiance PDT may have considerable impact on pain, which currently is the main limiting factor to successful delivery of PDT in some patients.

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#### Proper classification of surgical wounds

*To the Editor:* In their otherwise fine paper on infectious complications of Mohs surgery, Rogers et al<sup>1</sup> perpetuate a serious misunderstanding of the classification of surgical wounds that has appeared in the dermatologic literature and has led to erroneous assumptions about the expected frequency of surgical site infections in dermatologic surgery and the propriety of antimicrobial prophylaxis. They state that among "clean-contaminated" procedures are those with "a minor break in sterile technique including a delay in closure or allowing the wound to heal by secondary intention." Another dermatologic article has asserted that clean-contaminated wounds include incisions involving the axilla or perineum.<sup>2</sup> Neither of these statements is correct. Instead, the proper definition of class II or "clean-contaminated" wounds is those wounds that occur from entry into the respiratory, alimentary, genital, or urinary tracts in which no evidence of infection is present and no major break in technique occurs.<sup>3</sup> In these situations the surgical procedure involves an incision deep to the surface of the skin that enters a tract in which bacteria commonly reside. Inadvertent, minor spillage of these organisms into the normally sterile tissues beneath the skin surface is presumably frequent, leading to significantly higher rates of postoperative wound infections than occur with clean procedures. Although prophylactic antibiotics are often appropriate for clean-contaminated wounds, they are rarely justified for clean ones because both the frequency and severity of infections are very low.<sup>4</sup> With the proper use of terminology, dermatologic surgery can seldom be considered "clean-contaminated." Almost all cases involve "clean" procedures, and the rate of infection in the absence of antimicrobial prophylaxis for both Mohs surgery and other types is in the expected range of less than 3% to 5% for clean wounds, as Rogers et al<sup>1</sup> and others<sup>5</sup> have so nicely demonstrated.

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