

i-Fluorescence: Fluorescence photography with a smartphone



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TECHNOLOGICAL CHALLENGE

Diagnosis of skin cancer can be aided by the application of aminolevulinic acid or its methyl ester, with subsequent detection of fluorescence emitted by red protoporphyrin IX. Traditional methods of photo-documentation require expensive equipment. We describe the use of a smartphone camera in combination with a Wood's lamp as a simple, less expensive means of performing high-quality fluorescence photography.^{1,2}

SOLUTION

We used a smartphone camera (iPhone 6 and XS; Apple, Cupertino, CA) to acquire images of lesions through a Wood's lamp (3-diopter lens) to evaluate the diagnostic utility of this technique (Figs 1 and 2). Photos were acquired with the camera resting on the lens of the Wood's lamp, which was positioned 10 to 15 cm from the lesion and set to "flash off" mode. The Wood's lamp was at maximum power (requiring heating for approximately 1 minute before capturing images).



Fig 1. A patient with a Bowen disease lesion on the back of the pinna before undergoing photodynamic therapy.

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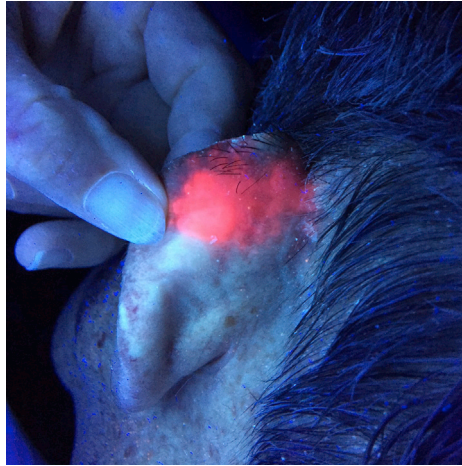


Fig 2. i-Fluorescence photography shows intense fluorescence of the Bowen disease lesion after 3 hours of incubation with methyl aminolevulinate cream.

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