

Low-cost video dermatoscope using an inexpensive clip-on lens



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CHALLENGE

An ideal dermatoscope should be handy and have good magnification and illumination, and it should be easy to store and share its images digitally. Unfortunately, it is still not available at all centers, especially in developing countries, because of financial constraints. Only a few models of dermatoscopes are smartphone compatible, and they require special kits to connect to smartphones, adding to the cost.

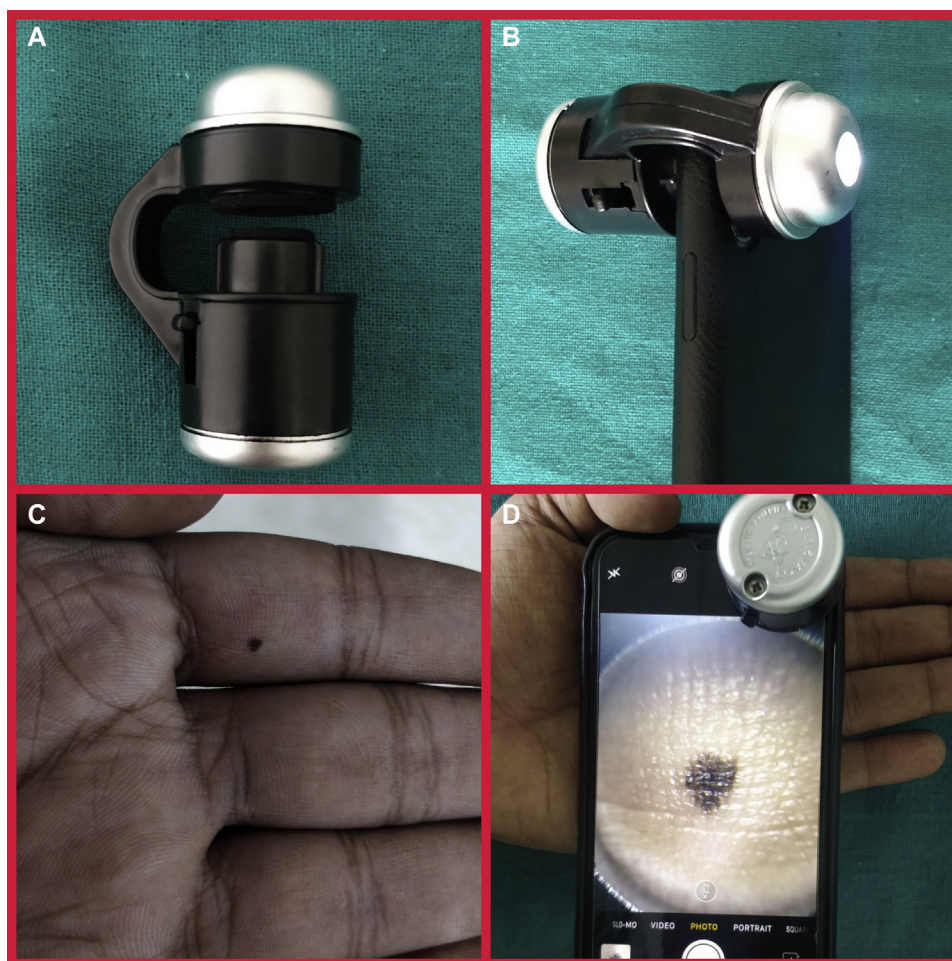


Fig 1. **A,** Clip-on lens. **B,** Clip-on lens mounted on a smartphone. **C,** Macroscopic image of a melanocytic nevus. **D,** Microscopic image of the same nevus.

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SOLUTION

We suggest a clip-on mobile microscope attached to a smartphone camera as a makeshift dermatoscope (Fig 1). Recently, Ramani et al¹ suggested using a jeweler's loupe for nail-fold capillaroscopy, but the devices they suggested either lacked a clip to attach to a smartphone or lacked a built-in light. The device suggested by us is conventionally used for checking currency bills and is easily available online, with magnifications of $\times 30$ and $\times 60$, and it costs approximately \$6. This magnification can be further enhanced by use of a smartphone zoom to $\times 150$ to $\times 600$. A simple search with the key words "clip-on mobile lens" will lead to many purchase options. The quality of images captured by this device is comparable to that of conventional dermatoscopes (Fig 2). This device can be a versatile tool for training, screening, and teledermatology,² especially in resource-limited settings. It is economical, handy, and compatible with all smartphones. It can also be used as a disposable dermatoscope. The only disadvantage of this device is that it does not have polarized light, but this deficiency can be easily overcome by using interface medium.

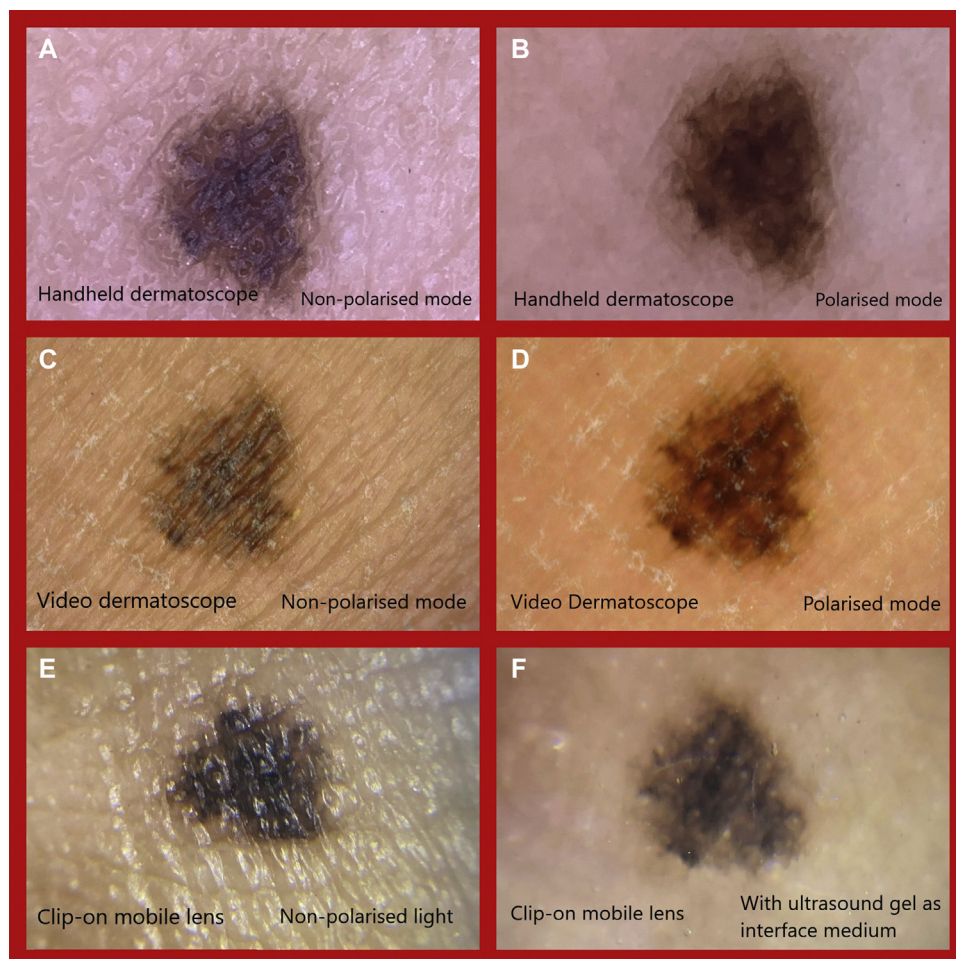


Fig 2. Conventional handheld dermatoscope image, nonpolarized mode (A) and polarized mode (B). Conventional video dermatoscope image, nonpolarized mode (C) and polarized mode (D). Clip-on lens image, nonpolarized mode (E) and with ultrasonographic gel as interface medium (F).

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