

Interventional dermoscopy



Sidharth Sonthalia, MD, DNB, MNAMS,^{a,b} and Rajesh Khurana, MTech (Biomedical Engineering)^c
Gurugram and New Delhi, India, and Graz, Austria

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TECHNICAL CHALLENGE

Focused ablation of tiny lesions often results in some scarring/deformation of the surrounding skin owing to the collateral damage sustained from inadvertent spread of ablative energy. Although dermoscopy allows magnified visibility and appreciation of substratal structures, dermoscopic visualization of the lesion(s) and high-precision treatment cannot be done simultaneously.

SOLUTION

Universal serial bus video dermatoscopes provide high magnification and have a circular acrylic rim that is rested over the skin during dermoscopy. Large polygonal windows that have been neatly cut out in the frame of this rim can allow insertion and maneuvering of different treatment probes (Fig 1). In addition to the magnified image of the tiny target lesion, the image screen of the video dermatoscope facilitates viewing and maneuvering of the inserted probe for focused ablation (Fig 2). The dermatosurgeon operates with his or her hands adjusting the probe(s) with eyes on the video screen and can give an excellent cosmetic outcome. The windows also provide space for dissipation of smoke and/or vapors.



Fig 1. The terminal ends of 2 identical universal serial bus (USB) video dermatoscopes (E-scope video dermatoscope, Timpac Healthcare Pvt Ltd, New Delhi, India). The USB video dermatoscope on the left shows the original acrylic rim, the edge of which rests on the skin during dermoscopy. The video dermatoscope on the right has been simply engineered by cutting out polygonal windows in the rim through which interventional probes can be inserted and maneuvered.

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Correspondence to: Sidharth Sonthalia, MD, DNB, MNAMS, SKINNOCE: The Skin Clinic & Research Center, C-2246,

Sushant Lok-1, Block-C, Gurugram-122009, India. E-mail: sidharth.sonthalia@gmail.com; drsidharthsonthalia@gmail.com. J Am Acad Dermatol 2019;81:e129-30.

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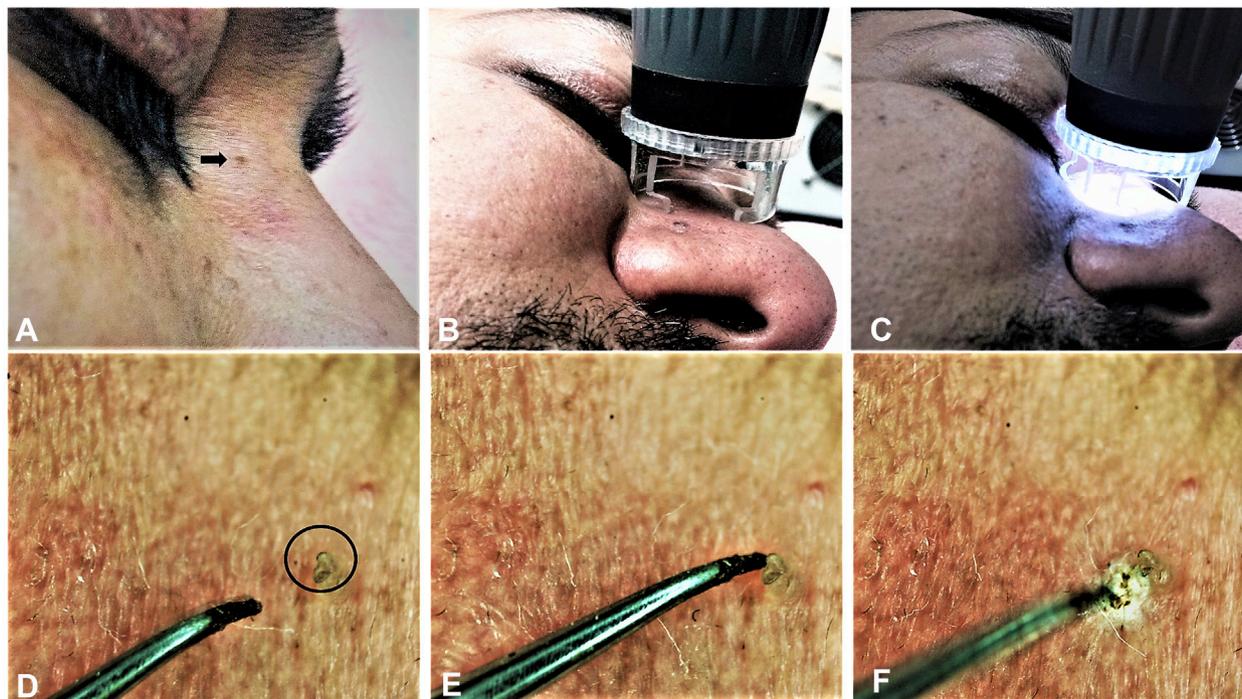


Fig 2. Interventional dermoscopy. **A**, Close-up view of the lesion to be ablated (*black arrow*). **B**, Placement of the engineered interventional dermatoscope over the lesional field. **C**, Dermatoscope emanating light after being plugged into a laptop. **D**, Fine tips of the electrocautery probe seen in the dermatoscope video screen on insertion through the window. **E**, Tip focused precisely over the lesion under real-time dermoscopic guidance. **F**, The ablated lesion after delivery of a focused single, low-power level thermal shot. (Escope USB video dermatoscope, $\times 50$, polarized [E-scope video dermatoscope, Timpac Healthcare Pvt Ltd, New Delhi, India].)

Probes for standard electrocautery, radiofrequency ablative lasers, and cryotherapy units can be conveniently inserted within this dermoscopic field of treatment; larger probes may need more improvisation. Dermoscopy-guided biopsy may be conducted in real time. Laser ablation or sclerotherapy of broken vessels, intralesional injections in tiny lesions, and surgical procedures involving the nail may all be done with high precision by using interventional dermoscopy. One must ensure that the entire dermatoscope-video unit conforms to the required norms of procedure room disinfection/sterilization. In thermal ablative treatments, insulated tips would be essential to prevent accidental thermal damage to the rim.