

# Evaluation and diagnosis of the hair loss patient

## Part II. Trichoscopic and laboratory evaluations

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##### Learning Objectives

After completing this learning activity, participants should be able to describe how to perform trichoscopy and interpret relevant laboratory investigations for the diagnosis of hair disorders.

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The use of trichoscopy for evaluating a number of hair and scalp disorders is gaining popularity. It is a simple and noninvasive in vivo tool for visualizing hair shafts and the scalp. Recently, alopecias have been classified according to their trichoscopic findings. The second part of this 2-part continuing medical education article reviews recent advances in this field and describes a systematic approach for using the differential diagnostic findings of trichoscopy in alopecia. (J Am Acad Dermatol 2014;71:431.e1-11.)

**Key words:** alopecia areata; androgenetic alopecia; dermatoscopy; dermoscopy; discoid lupus erythematosus; dissecting cellulitis; lichen planopilaris; patterned hair loss; trichoscopy; videodermoscopy.

## TRICHOSCOPY

Trichoscopy is dermatoscopy of the hair and scalp.<sup>1</sup> This is a noninvasive, in-office technique that can be performed with a handheld dermatoscope or a digital videodermoscopy system.<sup>2</sup> Trichoscopy allows for magnified observation of the following: (1) hair shafts, (2) hair follicle openings, (3) the perifollicular epidermis, and (4) blood vessels. Abnormalities in the appearance of these 4 structural components of the scalp aid in the differential diagnosis of hair loss.<sup>3,4</sup>

## Equipment

### Key points

- **Trichoscopy is based on hair and scalp evaluation by an expert dermatologist**
- **For some applications, software is available to aid expert evaluation**

Any handheld dermatoscope or videodermatoscope (digital dermatoscope) may be used to perform trichoscopy (Fig 1).<sup>5</sup> Most handheld dermatoscopes allow for observation of the skin surface at 10-fold magnification, while digital dermatoscopes have working magnifications ranging from 10- to 50-fold and higher.<sup>3,4</sup> Handheld dermatoscopes have the advantage of being both time- and cost-effective, while digital dermatoscopes allow for easier

## CAPSULE SUMMARY

- Any dermatoscope (handheld or digital) may be used to perform trichoscopy.
- Trichoscopy is a quick, noninvasive, cost effective, bedside technique that provides key physical diagnostic information to assist in the accurate diagnosis of alopecia.

photography and higher working magnifications. The choice of a particular device is a matter of individual preference.<sup>3,4</sup>

Some digital videodermatoscopes are multitask devices, while others—such as the Folliscope (LeadM Corporation, Seoul, Korea)—are primarily intended for hair evaluation. The Folliscope is an USB connection–based device that is equipped with software that allows the assessment of hair shaft thickness using trichoscopy images.<sup>6</sup>

The Trichoscan (Tricholog GmbH, Freiburg, Germany) was developed to analyze hair growth in consecutive trichoscopy images. Although the Trichoscan has found support among many dermatologists,<sup>7</sup> it has been criticized by others for its requirement to shave and dye hair in the analyzed area.<sup>8,9</sup>

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## TRICHOSCOPY STRUCTURES AND PATTERNS

### Hair shafts

#### Key point

- **Structural abnormalities of the hair shaft may provide diagnostic clues for multiple causes of hair loss beyond genetic hair shaft defects**

A normal terminal hair is uniform in thickness and color throughout its length.<sup>10,11</sup> However, up to 10%

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