

The patient with hair loss invariably complains “I am losing my hair,” which can mean vastly different things in different patients. Every patient with hair loss should have the following baseline lab studies: CBC, TSH, ferritin, and vitamin D 25OH because you do not want to miss other possible contributing factors of hair loss.

Listen to the patient carefully. A common feedback from patients with cicatricial alopecia is that they have seen many doctors who listened only half heartedly and then sent them on their way. Tailor the consultation to uncover the chronology and specifics of each patient. It will vary depending on the problem and the patient.

The clinical examination begins as soon as you enter the room. Note the patient’s hair style. Position all patients with hair problems in a chair, not on the exam table, in order to see the hair and scalp from above (unless you are a giraffe!). Good lighting is essential; ideally have a magnifying light and a dermatoscope. Before taking the full history, it often helps to look at the patient’s scalp briefly to establish whether follicular ostia are present or absent. Diminished or absent ostia are the hallmark of cicatricial alopecia, and this helps to guide the history taking. If a cicatricial alopecia is suspected, a

scalp biopsy is the essential first step in assessing the patient.

If Time Is Limited On the Initial Visit, Take the Scalp Biopsy On the First Visit, and Complete the Evaluation at Next Visit

Scalp Biopsy

Select an active hair-bearing area with positive anagen pull test (preferred but not essential); avoid old, bare, late-stage areas. Infiltrate biopsy site with 1% lidocaine with epinephrine, and *always* wait 10 min for maximum vasoconstriction. Position the patients sitting down, leaning over the examination table, and bracing their head with their hands (like The Thinker) (Fig. 2.1). If an assistant is available, have her hold gauze squares and Q-tip to help with hemostasis. Sample down to subcutis. Take one deep 4-mm punch biopsy in the direction of hair growth for horizontal sectioning and H & E staining, or two 4-mm punch biopsies for both horizontal and vertical sectioning (depending on the preference of your dermatopathologist). Close with 3-0 blue suture (helps in finding the site).



Fig. 2.1 Positioning for scalp biopsies and scalp injections. Have patients sit on a stool or a chair and lean over the exam table while bracing their chin or forehead with their hands (“The Thinker” position). If a biopsy is to be done on the occipital scalp, the patient may rest their head down on the table (“taking a nap on a school desk” position)

Evaluation of the Patient

History

- Establish the date of onset of the problem, rate of progression
- Assess symptoms: itching, pain, tenderness, burning
- Previous treatments?
- Has there been hair regrowth: this makes cicatricial alopecia unlikely
- Past health: document notable illnesses and infections prior to the onset
- Medications, including exogenous androgens, lipid-lowering drugs
- Diet – adequate protein? adequate calories?
- Hair care (chemicals, heat), hair cosmetics (more details in “Central Centrifugal Cicatricial Alopecia” in Chap. 6)
- Family history of similar problem: cicatricial alopecias rarely occur in family members except for CCCA. It is useful to establish whether androgenetic alopecia or alopecia areata exist in the family because more than one diagnosis may exist.

Examination

Have the patient remove hair pieces, pins, clips, braids, and note presence of hair extensions. A careful evaluation of the hair and scalp needs to be done (and is expected by the patient!). A thorough exam can be accomplished by serially parting the hair starting at the center part using the fingertips, or with a disposable comb, or with the wooden end of a Q-tip. The following assessment becomes automatic with practice:

Extent and Distribution of Hair Loss

- Is the scalp visible? Is the hair thinning apparent across the room?
- Diminished or absent ostia?
- Pattern and distribution: Focal patchy, patchy all over, or diffuse? central?
- Is the frontal hairline intact or is there frontal hairline recession with demarcation by photo-damage below the original hairline?
- Is there hair thinning above the ears? Does it extend posteriorly to the occipital hairline?
- Distinguish traction hair loss from hairline recession due to frontal fibrosing alopecia and from alopecia areata. Take note if hairs outline the outer margins of the original hairline; this “fringe sign” is characteristic of traction alopecia (more details in Chap. 6: FFA and CCCA).
- Are there bare areas “bare as a baby’s bottom”? (characteristic of alopecia areata)
- If the affected area is not completely bare, are the residual hairs terminal hairs, or fine textured and miniaturized (as in AA and AGA)?
- Eyebrows: Present or diminished?

Fig. 2.2 The Hair Card is a quick and easy way to distinguish new growth from broken or cut hair. In the figure shown, the distal ends are tapered (like the ends of eyelashes) indicating new growth. If the distal tips are blunt, this indicates the ends have been broken or cut. If some of the new short hair is thinner in diameter than the rest of the hair, it indicates miniaturization and may help to diagnose androgenetic alopecia



- Loss of hair at other sites: eyelashes, limbs, axillae, pubic area?
- Individual hairs in an affected area may be notably curly or kinky due to dermal fibrosis and subsequent follicular torsion.
- Photographs and measurements of the affected areas (if practical) are important for following the extent of hair loss. Photographs should include both close-up views and global views to identify nearby landmarks.
- The patient may have more than one condition. Assess the scalp for other conditions such as androgenetic alopecia and alopecia areata, which may coexist.
- Is there erythema? Is it perifollicular, in patches, all over?
- Scaling present? Is it perifollicular, in patches? all over?
- Are there pustules, crusts?
- Telangiectasia? atrophy?
- Hypo-, hyperpigmentation?

Hair Shaft Assessment

- The Hair Card¹: Hair shafts and tips should be held against a contrasting white or black background, depending on the color of the hair, otherwise they may be difficult to see (Fig. 2.2 and Table 2.1).

Scalp Assessment

- Follicular ostia are key: are they present, diminished, or absent? Are ostia patulous (distended) or dusky?
- Color of the affected scalp? Pink? Peach-colored? Skin-colored?
- “Fringe sign”?

Pull Test

- First, tell the patient that you are going to pull the hair.
- With the thumb and forefinger grasp a small swatch of hairs (about 30–40 hairs) close to the scalp. Gently but firmly slide the fingers away from the scalp at a 90° angle along the entire length of the hair swatch (Fig. 2.3). Do not tug or jerk.
- Negative pull test = 1–4 telogen hairs
- Positive pull test = 5 or more hairs

¹The Hair Card that we use refers to a 3 × 5 in. index card that is white on one side and black on the other side with a centimeter rule along one edge.

Table 2.1 The Hair Card

To assist in the examination and visualization of hair on the scalp, brows, and eyelashes, or elsewhere

What the Hair Card does:

Demonstrates miniaturized hair

Demonstrates new hair growth

Demonstrates broken hair and differentiates it from new growth

The ruler portion is used for:

Measuring length of new growth

Measuring temporal recession

Measuring dimensions of area of hair loss

How to use the Hair Card:

A good light source directed at the hair is essential when using the Hair Card

The black or white side is used to contrast with the color of the hair:

If dark hair is examined, use the white side

If blonde or white hair is examined, use the black side

To visualize the hair, place the blank (without any writing) portion of the card under or behind the hair to be examined.

(The larger the blank portion of the card, the more useful it is)

Always place the Hair Card on the skin or as close to the skin surface as possible.

To demonstrate miniaturized hairs in androgenetic alopecia:

Select a thinning site on the scalp

Part the hair with your fingers

Place the Hair Card on the part you have created, directly on the scalp surface

A good light must be directed at the selected site

New short growth will be apparent against the contrasting color of the Hair Card, and miniaturized (thin) hair is easily identified and contrasted with new short growth of normal width (girth)

To differentiate new hair growth from broken (or cut) hair:

Place the Hair Card under the distal ends of the hair in question

New growth is easily identified because the distal ends are tapered or pointed

Broken hairs are easily identified because the distal ends are blunt or straight

To measure temporal recession:

Using the ruler side of the Hair Card, measure the distance from the lateral end of the brow to the apex of the temporal recession. In a male without temporal recession, the distance is approximately 6–6.5 cm

**Fig. 2.3** How to do a pull test

- Where to pull?
- At the margin of a patch to see if the patch is active and about to progress
- In an unaffected scalp area to see if there is pending activity
- Pull on new growth to see if the new growth is “serious”
- Are the hair bulbs in a pull test anagen bulbs (A) or telogen bulbs (T)? The only time normal anagen hairs are easily extracted in a pull test is in active scarring alopecia. Normally, anagen hairs are not pulled out easily with a slow, firm pull. In primary cicatricial alopecia, the anagen/total ratio (A/T) is a useful indicator of active disease and of response to therapy.

Three situations in which anagen hairs may be easily extracted or affected:

1. Active primary cicatricial alopecia (Fig. 2.4)
2. Loose anagen syndrome (Fig. 2.5)
3. Anagen arrest during chemotherapy (Fig. 2.6)



Fig. 2.4 The only time normal anagen hairs may be easily extracted in a pull test is in active cicatricial alopecia. This is a useful clinical indicator of active disease



Fig. 2.5 Loose anagen hair is easily and painlessly pulled out in the loose anagen syndrome because the anchoring function of the inner root sheath is disturbed by structural abnormalities. Examination of the proximal shaft and hair bulb with light microscopy shows a distorted anagen bulb, a short twisted segment of the hair shaft immediately distal to the bulb, then a segment of shaft with the characteristic "ruffled" cuticle, and absent sheath



Fig. 2.6 Anagen arrest during chemotherapy. This is often inappropriately called anagen effluvium. Anagen hairs are not shed but are broken because during chemotherapy, mitotic activity in the matrix region of anagen hairs may be decreased resulting in transient narrowing of the hair shaft. When this narrow segment reaches the scalp surface, the hair breaks off



Fig. 2.7 How to do a tug test to demonstrate hair fragility

Tug Test

- Is the hair strong or fragile? Does it pull apart into little bits with a "tug test"? The "tug test" is the best way to demonstrate hair fragility.
- To perform the tug test, grasp a swatch of hairs with the fingers of one hand while the distal ends are plucked (as in plucking feathers) (Fig. 2.7). If the hair shaft is fragile or damaged, the hair will break into small bits. Any hair breakage constitutes an abnormality and should be noted.

Hair Mount

Put a few short segments of hair shaft, or broken bits of hair from the tug test, on a clean micro-scope slide; try to align them parallel to each other. Carefully drop 1 or 2 drops of mounting medium such as Permunt ® or similar mount-ing medium on the hair; place a cover slip over the hairs and try to avoid air bubbles; exam under low power with a light microscope (Fig. 6.27).

**Standardized Patient Flow Chart
(Table 2.2)**

At every visit, a flow chart is used to evaluate symptoms (pruritus, pain, burning), clinical signs (perifollicular scale, perifollicular erythema, ery-thema, pustules, crusting, pull test (anagen/total), and extent of hair loss. The chart is used to follow these three specific outcomes at each visit:

Table 2.2 Standardized flow chart

Name _____	Diagnosis _____			
Date of visit				
A Pruritus				
B Pain				
C Burning				
D Erythema				
E Perifollicular erythema				
F Perifollicular scale				
*Crusting				
* Pustules				
Pull test: Anagen hairs/Total hairs				
Spreading				
Dimensions/Extent				
* Loss of follicular markings				
* Tufting				
* Telangiectasia				
* Atrophy				
* Pigment change				
* Other skin, nail, mucous membrane				
Labs CBC				
AST/ALT/Alk Phos				
G6PD				
Eye exam				
BUN/CR				
Blood Pressure				
Culture & Sensitivities				
Treatment/Comments				
Biopsy				
Photographs				
F/U visit				

Standardized flow chart is used at every visit of a patient with cicatricial alopecia. The flow chart allows easy evaluation of the patient’s course over time, (otherwise who can remember?) and also makes sure that nothing has been omitted. Reprinted from Journal of the American Academy of Dermatology, Vol 62, Issue 3, Chiang C, et al. Hydroxychloroquine and lichen planopilaris: Efficacy and introduction of Lichen Planopilaris Activity Index scoring system, pgs 387–392, copyright 2010, with permission from Elsevier

Scale A–F: negative = -, questionable or mild = +/-, moderate = +, severe = ++
Spreading: Enter No, Uncertain, or Yes
*For these items: enter + or -

severity of symptoms, clinical disease activity including anagen positive pull test, and progression of hair loss. The flow chart allows easy evaluation of the patient's course and response to treatment over time and also makes sure nothing has been omitted during patient visits.

Takeaway Pearls

- › Position all patients with hair problems in a chair, not on the exam table (unless you are a giraffe!).
- › Good lighting is essential; ideally have a magnifying light.
- › Before taking the full history, first look at the patient's scalp briefly to establish whether follicular ostia are present or absent.
- › Diminished or absent ostia are the clinical hallmark of cicatricial alopecia.
- › A history of hair regrowth makes cicatricial alopecia unlikely.
- › If a cicatricial alopecia is suspected, a scalp biopsy is the essential first step in assessing the patient.
- › If time is limited on the initial visit, take the scalp biopsy on the first visit and complete the evaluation at the next visit.
- › Use a Hair Card for easy visualization of new growth, broken or cut hair, miniaturized hair.

- › The only time normal anagen hairs are easily extracted in a pull test is in active scarring alopecia.
- › A standardized flow chart is used at every visit to follow three specific outcome measures: the patient's symptoms, disease activity, and progression of hair loss.
- › The flow chart allows easy evaluation of the patient's course over time (otherwise who can remember?)

Suggested Reading

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