AAD
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directions in residency
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Five things residents need to know about hair loss

By John Meisenheimer, MD, Lauren Sulochana Mohan, MD, MSc, and Ronda Farah MD, FAAD

Be savvy about general scalp health

Scalp health is fundamental to treating hair and scalp disease. Within our clinics, we begin the discussion by reviewing the patient's shampoo and conditioning regimen. The purpose of shampoo is to remove sebum, dirt, sweat, scale, and other irritating chemicals from the scalp.[1,2] Given this, the most important ingredient in shampoo is often surfactants, which reduce the surface tension between the scalp and the contaminants above, allowing for their removal.[1,3] Effective surfactants alter the pH of the surrounding environment and strip the hair of moisture, which may contribute to hair shaft damage.[1,3] Therefore, when applying shampoo, the focus should be on massaging the product into the scalp with the finger pads. We counsel patients to avoid applying shampoo to the hair shaft to help prevent dry, brittle hair.[2] Thoroughly rinsing after applying shampoo allows for the removal of scalp irritants and harsh surfactants.

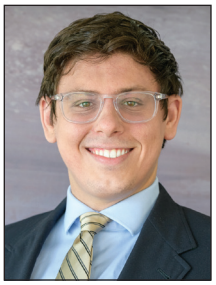
Shampoos and conditioners

Most patients will require conditioner after shampooing to avoid hair shaft damage. The hair shaft is naturally negatively charged, and the alkaline environment created by anionic surfactants in most shampoos is thought to contribute to frizzing and fraying due to the increase in the static charge of the hair. The cationic particles in conditioners help counteract this static charge.[1,3] Additionally, polymers are often included in conditioners, which are thought to coat the hair, improve the physical appearance of the hair shaft, capture moisture stripped from the hair by shampoos, and reduce breakage.[1,3] Therefore, conditioners do not need to be massaged into the scalp, unlike shampoo. Conditioner should be applied along the hair shaft, focusing on the distal ends where frizzing, breakage, and damage are most likely.[2]

Pay attention to the lab workup

The alopecia workup is complex and patient-specific. However, a typical initial lab workup may include complete blood count, ferritin level, iron and total iron binding capacity, vitamin D, and zinc level. Vitamin D and iron insufficiency have been suggested to be contributors of alopecia. Therefore, we check these levels to confirm optimization. Of note, zinc levels have been associated with non-scarring alopecia, including pediatric alopecia areata, with lower levels linked to treatment-resistant disease.[4,5] From an endocrine perspective, thyroid-stimulating hormone levels are checked to rule out hypo- and hyperthyroidism, which are linked to both hair quantity and quality.[6] In female patients with notable hirsutism, menstrual irregularities, or signs of virilization, dehydroepiandrosterone and free and total testosterone levels are checked.[7]

see HAIR LOSS on p. 3



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DecisionDx-SCC

Will your patient benefit from adjuvant radiation therapy (ART)?

Squamous cell carcinoma (SCC) patients who are at high risk of metastasis may benefit from ART. While clinicopathological factors long used in stage-based risk assessment of disease progression are used to determine ART eligibility, they do not reliably identify which of these high-risk patients will benefit from the treatment.

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- Is your patient likely to benefit from ART?

Personalize patient treatment decisions with DecisionDx-SCC

GET STARTED

CASTLE BIOSCIENCES

HAIR LOSS from p. 1

Counseling patients

A *New York Times* article focused on low-dose oral minoxidil for alopecia has led to an influx of patients requesting this medication. This appears to be a game changer for the alopecia world. We want to briefly touch upon how we counsel patients before starting them on minoxidil. Discussing side effects is crucial as the medication has boxed warnings from the FDA for the potential to cause pericardial effusion leading to cardiac tamponade as well as the potential to worsen angina pectoris.[8] Patients should be informed that oral minoxidil may cause or worsen pitting edema, particularly in the hands, feet, and around the eyes.[9] Patients should also be warned about unwanted hair growth on areas such as the face, chest, arms, and legs. Screening for ischemic heart disease, congestive heart failure, pulmonary hypertension, and pericardial effusion is recommended before starting minoxidil.[9] The package insert for minoxidil includes a contraindication for pheochromocytoma and cautions use in patients with cryoglobulinemia due to the potential for rapid blood pressure lowering.[8] We obtain a baseline blood pressure for every patient and periodically monitor blood pressure during follow-up visits. In patients over the age of 65, we often recommend an electrocardiogram. Overall, the medication is very well tolerated, with women typically going up to 2.5 mg and men tolerating up to 5 mg daily routinely in our clinics.

Know the trichoscopic tricks

All newly minted dermatologists should know the trichoscopic tips that aid with differentiating two conditions that often pose a challenge to delineate clinically: frontal fibrosing alopecia (FFA) and traction alopecia (TA). Although there is overlap in features at various stages of these diseases, a key sign of FFA is the presence of "lonely hairs," isolated terminal hairs with the absence of nearby follicular ostia.[10] In TA, miniaturization of hairs may be seen as the disease progresses.[10] Both diseases may present with a perifollicular scale, but the characteristics of the scale may help differentiate the diseases. For example, perifollicular scale in TA will more often have an oblong "flambeau" appearance, resembling a flaming torch due to chronic traction altering the shape of the follicular ostia. When the diagnosis remains unclear, biopsy is indicated for confirmation.[11]

Thank you to Maria Hordinsky, MD, FAAD, for her added expertise in the writing of this piece. DR

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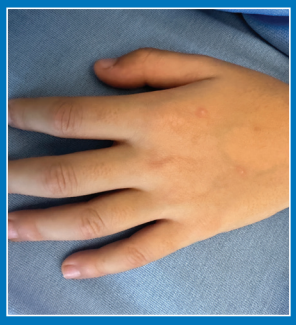
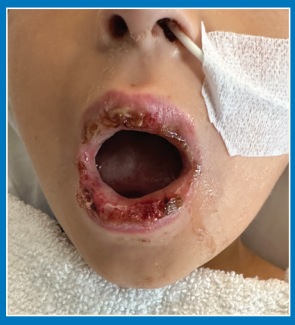
Race for the Case

By Samantha Bizimungu, MD





A 10-year-old boy with no medical history presented to the emergency department for a one-week history of fever, cough, and odynophagia. Upon evaluation, he was found to have bilateral purulent conjunctivitis, hemorrhagic crusting of the vermilion lips, discrete scattered vesicles on the dorsal hands, and significant dysuria requiring urinary catheterization. A chest radiograph showed bronchial wall thickening.

1. **What is the most likely diagnosis, and what is the most likely causal agent?**
2. **What other conditions can be considered in the differential diagnosis of mucositis and rash in a child?**
3. **Name three systemic treatment options in adjunct to antibiotic therapy.**
4. **What is the typical clinical course and prognosis of this condition?**

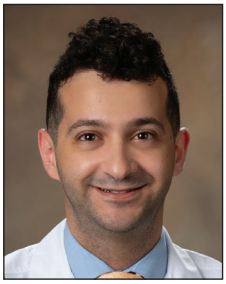
Respond with the correct answers at **www.aad.org/RaceForTheCase** for the opportunity to win a Starbucks gift card!

Race for the Case winner (Fall 2024)

The winner of the fall 2024 Race for the Case is Bryan Daynes, DO, a PGY-3 dermatology resident at Corewell Health-Trenton. Dr. Daynes correctly identified pseudoporphyria in our latest Race for the Case and provided the most accurate responses in the quickest time. Congrats to Dr. Daynes! You can read more about this case online at www.aad.org/race-case-answers. If you can solve the case above, there may be a Starbucks gift card in your future, and you may be invited to contribute your very own Race for the Case. Visit www.aad.org/RaceForTheCase.

Common hair trichoscopy structures: Histopathological and clinical correlations

By Mohammad Fardos, DO, Vixey Silva, DO, and Tory Starzyk, DO



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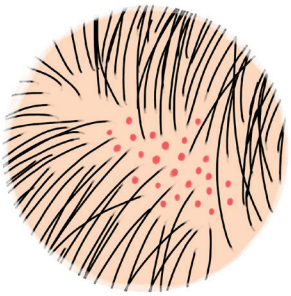
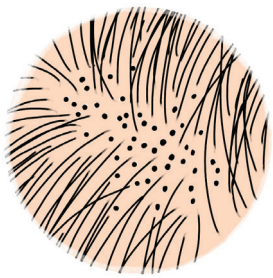
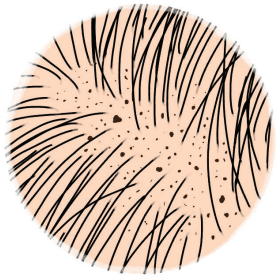
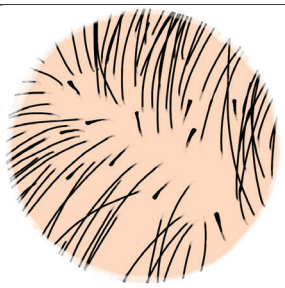
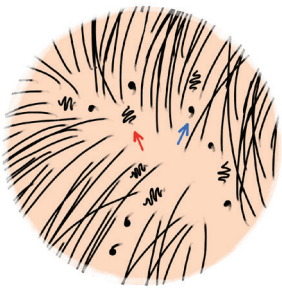
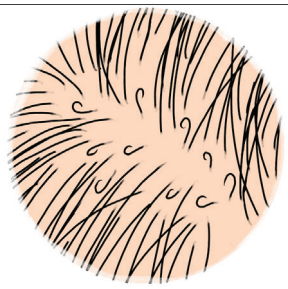
Normal hair findings
Mean hair thickness: **frontal:** > 0.053 mm, **temporal and occipital:** > 0.050 mm Percentage of thin hairs: **frontal and occipital:** < 10%, **temporal**: < 13% Single-hair pilosebaceous units: **frontal:** < 35%, **temporal:** < 40%, **occipital:** < 30% Yellow dots (70x magnification): **frontal:** < 4 in 4 fields of vision, **temporal and occipital:** < 1 in 4 fields of vision Perifollicular discoloration: **frontal:** < 25%, **temporal:** < 20%, **occipital**: < 15% Vascular patterns: **frontal:** Pinpoint vessels in 80% of patients, **temporal and occipital:** thin arborizing vessels

Trichoscopic structure	Definition	Histopathologic findings	Clinical correlates	Image
Yellow dots	Small and round polycyclic structures that are not clinically apparent Represent dilated follicular openings filled with keratotic material or sebum **Pearls:** Not visible in Fitzpatrick skin type IV-VI and prepubertal children	Keratin plugging Sebum accumulation Miniaturized or empty follicles	Alopecia areata (correlates with disease activity) Trichotillomania Tinea capitis Syphilitic alopecia Traction alopecia Central centrifugal cicatricial alopecia	
Red dots	Erythematous, polygonal to concentric structures Represent dilated blood vessels or inflammation	Prominent dilation of blood vessels Perifollicular inflammation Red blood cell extravasation	Discoid lupus erythematosus (specific) Vitiligo Seborrheic dermatitis Psoriasis	
White dots	**White dots:** > 0.3 mm white circular structures **Pinpoint white dots:** 0.2-0.3 mm white circular structures forming a "starry sky" pattern with occasional surrounding hyperpigmentation Pearls: May be more apparent in Fitzpatrick skin type IV-VI	Empty follicular ostia Fibrotic tracts	**White dots:** Alopecia areata Cicatricial alopecia (lichen planopilaris) **Pinpoint white dots:** Regular distribution: normal scalp Irregular distribution: cicatricial alopecia	
Black dots (cadaverized hairs)	Amorphous residue of broken or fractured hair shafts expelled from the follicle **Pearls:** Correlates with disease activity in alopecia areata	Pigmented hair casts Fractured hair shafts Peribulbar inflammation Empty hair follicles	Alopecia areata Trichotillomania Tinea capitis Syphilitic alopecia Central centrifugal cicatricial alopecia Traction alopecia	

Common hair trichoscopy structures: Histopathological and clinical correlations

By Mohammad Fardos, DO, Vixey Silva, DO, and Tory Starzyk, DO

Trichoscopic structure	Definition	Histopathologic findings	Clinical correlates	Image
Dirty dots	Interfollicular brown, yellow, or black clumps of less than 0.1 to 0.5 mm Represent particulate debris of exogenous sources	Exogenous s material	Normal scalp of prepubertal children and elderly patients	
Exclamation dot hairs	Thicker distal end with proximal narrowing	Fractured hair shafts Peribulbar inflammation	Alopecia areata	
Comma or corkscrew hairs	Bent or twisted structure	Fractured hair shafts Perifollicular inflammation	Tinea capitis Scurvy Menkes disease	 Red arrow: Corkscrew hair Blue arrow: Comma hair
Coiled hair	Irregular shape and jagged end resembling a question mark	Fractured hair shafts Perifollicular inflammation	Trichotillomania	

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The complete five-page chart, including references, is available online at aad.org/boardsfodder.

More study charts online!

In addition to the full, expanded **Common hair trichoscopy structures: Histopathological and clinical correlations** chart, we have a new **Fat-reduction techniques** chart by Jasmine Humeda, MD, and Natalie Houston Daniels, MD, FAAD.

These and many more charts can be found at **www.aad.org/boardsfodder**.

Jennifer Hsiao, MD, FAAD, is associate clinical professor of dermatology at the Keck School of Medicine at the University of Southern California in Los Angeles.

Clinical Pearls

Clinical Pearls will help prepare residents for the future by providing them with pearls about what they should know about a specific subject area by the time they complete their residency.

Hidradenitis suppurativa

By Jennifer Hsiao, MD, FAAD

1. **Don't forget about "non-classic" presentations of HS.**
   The mean delay to diagnosis for patients with HS is 10 years.[1] Dermatologists can help reduce that delay in diagnosis by having HS high on our radar for any patient who presents with a nodule or abscess in an intertriginous region. Consider checking typical HS-affected sites (axilla, groin, inframammary region, etc.) for clues such as open comedones and background scarring in all patients who report a history of recurrent nodules or abscesses. In addition, keeping in mind that HS can present in any area of the body with hair follicles is helpful to help diagnose patients who may have HS lesions in "non-classic" anatomic areas such as behind the ears, and on the neck, trunk, arms, or legs. Though research in the U.S. suggests that female patients are disproportionately affected, HS can affect people of all backgrounds, and some of the most severe cases of HS that we see in clinic are male patients with advanced gluteal disease. Another tip is to consider screening all your acne patients for HS given the high prevalence of acne among patients with HS, and many patients may not bring up HS symptoms on their own. You could be the one to uncover a diagnosis of HS early and help that patient get treatment sooner rather than later!

2. **Treat early.**
   Breakthroughs in new therapies for HS have shifted the treatment paradigm for HS away from endless cycles of antibiotics and incision and drainages (I&Ds) and toward timely initiation of long-term immunomodulators such as biologics.[2,3] We now have two FDA-approved biologic treatments for HS: adalimumab and secukinumab, and several in the therapeutic pipeline. Don't wait until patients have extensive tunnels and scarring before initiating a biologic. Earlier initiation of a biologic may help mitigate disease progression and prevent further irreversible tissue damage.[4] Just like how we aim to start patients on isotretinoin before there is acne scarring, we should be discussing biologics as a treatment option for patients with HS who have disease recalcitrant to traditional therapies such as topicals, oral antibiotics, and hormonal/metabolic treatments, even if there is no scar or tunnel present yet.

3. **Utilize combination treatment strategies for HS.**
   A multimodal approach to HS management is often needed to optimize care. As an example, for a female patient with moderate-to-severe HS, their baseline treatment regimen may consist of an immunomodulator such as a biologic, as well as spironolactone and/or metformin, a topical wash such as chlorhexidine, an oral antibiotic such as amoxicillin/clavulanate (Augmentin) to use prn flare, and deroofing procedures for persistent/fixed HS lesions.

4. **HS procedures: You can do it!**
   Procedural management is an important cornerstone of HS care. Though many therapeutic advances have been made in recent years in terms of medical treatments, our medications are currently not able to resolve HS tunnels, so surgical procedures are needed in these cases. All dermatologists have the skillset to perform HS deroofings or HS excisions. If you can cut out a BCC, you can cut out an HS tunnel. There is high patient satisfaction from these procedures.[5] One great way to learn more about HS procedures is to attend the HS Academy, which is an annual winter conference that is planned by the HS Foundation and specifically designed to equip dermatology residents with the knowledge and skills to provide top-notch HS medical and surgical care (www.hs-foundation.org/events). One procedural tip is to use a 4-6 mm punch tool instead of an 11 blade when performing an I&D on an HS abscess. This helps prevent the HS abscess from recurring by allowing it to continue draining over the next few days. Inject your anesthetic slowly and ensure adequate anesthesia prior to incising to maximize patient comfort. And remember, do NOT pack HS abscesses after draining them, it is so painful for the patient and is not necessary! DR

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Inside this Issue

Anisha Guda, MD, is a PGY-4 dermatology resident at UT Southwestern Medical Center and a member of the AAD Residents and Fellows Committee.

Not another test! Mastering the dermatology exam process

By Anisha Guda, MD

Residency is a journey. The days are long, but the years are short. It can be overwhelming — especially when you are first starting — to keep up with all the new information you are learning daily. With the basic and core exams always looming just around the corner, I wanted to provide some advice regarding how to approach these exams.

In the first year, it is important to take time to develop a strong foundation. This will help you build on your knowledge and skills as you go through the years. You should try to focus each week on learning a new topic. Some programs may have an assigned reading schedule which can be helpful, but if your program does not have this, it will be important to develop your own schedule. Bolognia can be a lot to read in the beginning so it may be helpful to start with Bolognia essentials, more commonly known as 'baby Bolognia.' I would encourage you to read a little bit every day and review the patient cases that you saw during the day. You will take your basic exam in March. For many residents, DermQBank can be a helpful question bank to explore.

In your second year, you will continue to build on the knowledge you have gained in your first year. Starting from February of your second year, you will have the opportunity to take your core exam. You will be tested in four different areas (pediatrics, surgery, medical, and dermpath). You can choose to take as many core exams during that setting as you would like but most residents opt to take one or two during the first testing date. Continue to review topics in Bolognia. Other question banks that residents have found useful include the AAD Board Prep Plus, Derm in Review, and Board Vitals. And make sure to check out all the resources free to residents from the AAD, including more than 100 Boards Fodder charts, at **www.aad.org/member/education/residents**.

In your third year, you will finish taking your core exams and take the applied exam after graduation. Use this time to review various textbooks and atlases, continue to use the previously mentioned question banks, and read up on patient cases daily. By this time, you will have learned about and be exposed to a plethora of skin conditions. Be prepared to diagnose conditions across skin phenotypes. There will be various helpful board reviews held online including Dr. Mariwalla's board review sessions.

Having to continue to take exams can be daunting at times. However, with the right strategy and dedicating time each day, you will be able to master them and become the best dermatologist you can be for your patients. Don't be afraid to reach out to seniors for advice. Remember, you've got this! DR

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