PedsCases Podcast Scripts

This is a text version of a podcast from Pedscases.com on "**Pediatric Alopecia.**" These podcasts are designed to give medical students an overview of key topics in pediatrics. The audio versions are accessible on iTunes or at www.pedcases.com/podcasts.

Pediatric Alopecia

Developed by Brenden Kunimoto and Dr. Mel Lewis for PedsCases.com.
July 10, 2019

Introduction

Heyo! This is Brenden Kunimoto coming at you with a podcast on pediatric alopecia! I'm currently a third year medical student at the University of Alberta. Thank you to Dr. Mel Lewis who provided guidance and input! While not particularly common among the pediatric population, alopecia can really hurt patients' quality of life and can lead to permanent hair loss if not treated. Therefore, it is important to recognize and be able to treat this condition. Knowing the causes of alopecia is also key, since management will change depending on the etiology.

Objectives

After listening to this podcast (once for some, many times for others, but hey, you do you), my hope is that are able to:

1. Differentiate between and diagnose the 4 most common causes of pediatric alopecia.
2. Manage pediatric alopecia caused by these 4 types.
3. And recognize when to refer a patient to a dermatologist for pediatric alopecia.

Case 1

Five year old Kerry has come in with her mom to see you at your outpatient pediatric clinic. She's a happy and healthy kid who just started daycare a few months ago. Her mother has noticed that Kerry has been scratching her scalp quite a bit over the past month and has recently become aware of a balding spot where Kerry has been scratching. What's going on with Kerry?

Tinea Capitis

This is a classic presentation of tinea capitis, one of the four most common causes of hair loss in kids, with an estimated 4-13% prevalence and the highest incidence in males and females aged 3 to 7. Tinea capitis is caused by a dermatophyte infection, which is basically a superficial fungal skin infection. Many different fungi can

cause this condition but Trichophyton tonsurans is the most common causative species in North America, although the specific species doesn't matter from a management perspective. This condition usually presents with scaly patches as well as hair loss, or with hair loss with black spots, which are damaged hair follicles. The areas of hair loss become larger over weeks to months, and the areas are usually itchy. More seriously, tinea capitis can present as a kerion, or an abscess caused by the dermatophyte, with any remaining hairs in the kerion being pluckable without pain. A third way this can present is as a favus, which is an infection with a different type of dermatophyte called Trichophyton schoenleinii, and presents as cup-shaped yellow crusting. Importantly, not all patients with a dermatophyte infection are symptomatic, as some can be asymptomatic carriers.

So we've figured out that Kerry likely has tinea capitis. What do we do now? INVESTIGATIONS AND TREAT SIMULTANEOUSLY. This is the only one of the four most common causes of pediatric alopecia where we should perform investigations every time. These investigations are scalp scrapings as well as pulling 6-8 hairs for microscopic examination and culturing. You may have noticed I said we needed to do INVESTIGATIONS AND TREAT SIMULTANEOUSLY. That's because we do not want to wait for the results before starting treatment. Hair loss is usually reversible but can become scarring without treatment. So you prescribe any old topical antifungal and save the family some money! Not so fast. Topical antifungals aren't a great choice as they don't penetrate the hair follicles very well and therefore won't get rid of the infection. The best choice is an oral antifungal, with first line being griseofulvin (20-25mg/kg for 6 weeks) or terbinafine. The most common side effects to advise Kerry and her mom about are GI upset, headaches, and rashes.

Be sure to also check Kerry's close contacts and pets for infection. So this means close contacts such as Kerry's 7 year old brother Kian should use an antifungal hair shampoo for 2-4 weeks and be sure not to share hair stuff with Kerry. Now, if Kerry had presented with an abscess (aka a kerion) or yellow-crusting (aka a favus), a dermatology referral would be necessary as systemic steroids would be warranted. But since she didn't, a referral was not necessary! You follow up with Kerry in 4 weeks and she is much improved. At this point you could do a repeat culture, but it is not necessary.

Case 2

Five year old Ariella has come in with her step-dad to see you at your outpatient pediatric clinic. She also just started daycare a few months ago. Her parents have noticed that Ariella has several coin-shaped areas of hair loss all over her scalp, but Ariella doesn't seem to be bothered by them. She is otherwise healthy except for mild eczema. Her step-dad is worried that this could be caused by gluten since Ariella's biological mother was just diagnosed with celiac disease. What's going on with Ariella?

Alopecia Areata

Ariella likely has alopecia areata, which, although less common than tinea (as it only has a prevalence of about 0.01%), is still considered one of the most common causes of pediatric alopecia. This condition has an autoimmune etiology and is

correlated with eczema, hypothyroidism, and vitiligo, and can be associated with a family history of autoimmune diseases such as type one diabetes, celiac disease, rheumatoid arthritis, vitiligo, thyroid disease, multiple sclerosis, and inflammatory bowel disease. In this case, Ariella has a history of eczema, and has a positive family history for celiac disease.

Alopecia areata has several characteristic presentations. The first is as a nummular or round patch of hair loss with the previously hair-covered skin appearing otherwise normal, which is how Ariella presented. This is creatively called patchy alopecia areata. The areas of hair loss can also be in a reticular or net-like pattern, which also has the imaginative name of reticular alopecia areata. The third presentation is called ophiasis alopecia areata which is where the hair loss happens in a banded pattern. Finally there is total hair loss of the scalp in alopecia totalis and total hair loss of all body hair which is alopecia universalis. Take note of eyebrow and eyelash hair loss. Also make sure to check the kid's nails, as nail pitting and ridging is common with alopecia areata. Treatment for alopecia areata is simple: DERM REFERRAL. This is because high strength topical steroids or immunotherapy are needed. Only about a third to a half of patients with alopecia self-resolve within twelve months, while one out of every four to seven patients will progress to alopecia totalis or universalis without treatment, where they almost never resolve. It's therefore super important that this is treated! With corticosteroid treatment, about 60% of patients completely regrow their hair although anywhere from a third to three-quarters of patients will relapse. So you refer Ariella to her friendly neighbourhood dermatologist and receive no less than six lovely letters back over the course of a year, detailing Ariella's journey towards resolution, and several years later she happily has not had any relapses!

Case 3

Fourteen year old Triana comes into your outpatient pediatric clinic accompanied by her mom. Triana is quite distressed as she shows you several bald spots grouped around the central area of her scalp. She exhorts you to fix it and promptly bursts into tears. She has no other diagnosed medical conditions, but her mom mentions that Triana has been having some troubles in school over the past few months since mom and dad separated. On exam you also notice there are some patches of the eyebrows missing as well. What is going on with Triana?

Trauma

Triana likely has trichotillomania, which is where the patient actively pulls their hair. Trichotillomania, along with traction alopecia (which I'll get to in a bit), are considered trauma to the hair; trauma is the third common cause of pediatric alopecia we'll discuss. The prevalence of trichotillomania is hard to estimate, but is seen more commonly in females than in males and can be a manifestation of an underlying psychiatric problem and other forms of self-harm. It's therefore really important to take a thorough social and/or HEADS history. After talking with Triana alone, you discover that she has been feeling increasingly anxious and guilty since her parents separated.

Physically, trichotillomania classically presents as separate spots of hair loss, with the humorously named Friar Tuck sign sometimes noticeable. If you've never seen

Disney's Robin Hood, I suggest you pause this podcast and start watching it post-haste! Anyways, much like Friar Tuck, this condition can sometimes appear where peripheral hairs along the rim of the scalp can be seen while the missing hairs are more central.

The other type of pediatric alopecia which falls under the trauma category is traction alopecia. Unlike the active hair-pulling in trichotillomania, traction alopecia is caused by prolonged passive hair pulling and is seen with certain hairstyles such as ponytails or braids. Instead of the Friar Tuck sign, traction alopecia can present with the Fringe sign, where hairs can still be seen along the frontotemporal hairline which is the area the alopecia is most commonly the greatest.

In both types of trauma alopecia, the hair shafts can be broken or rough, and treatment is aimed at behaviour modification rather that at the hair itself. Counselling or psychotherapy would be appropriate to consider. You decide to refer Triana to a counsellor and she notices a marked improvement in her anxiety and guilt over the next six months, with resolution of her alopecia.

Case 4

Seven year old Taylyn comes into your walk-in clinic with her adult brother. She's really into ballet and has noticed over the past few weeks that her hair has been thinning and that she'll actually shed hairs when she puts her hair into a bun. She's really worried that something is seriously wrong and that she won't be able to perform in her upcoming ballet competition. On history you find out that Taylyn is otherwise healthy except for having a particularly nasty bout the flu about 3 months ago. What's going on with Taylyn?

Acute Telogen Effluvium

This is a typical presentation of acute telogen effluvium, a self-limiting condition caused by non-physical trauma such as sickness, stress, meds, or poor nutrition. It tends to occur about 3 months after the trauma and generally self-resolves in 3 to 6 months. Hair density will continue to increase over a further six months.

Just like Taylyn experienced, acute telogen effluvium presents as a widespread decrease in hair density with an increase in hair shedding. In Taylyn's case, the inciting trauma was likely the viral illness she experienced several months ago. A physical exam manoeuvre called the Positive Hair Pull Test can be performed to help confirm your clinical diagnosis. To perform this test, grab about 50 hairs (and no, please do not count out the hairs) at their base and pull by applying constant pressure while letting your fingers move proximally to distally. More than six hairs coming free indicates active hair shedding which can increase your suspicion of acute telogen effluvium. The chronic form is a more uncommon variant in kids that you should be aware of. If the patient has been having hair loss for more than six months it would be considered chronic, but this is seen more often in females aged thirty to sixty. Only in chronic telogen effluvium is treatment indicated, but treatment options for pediatric patients are not well studied. In cases where patients have been experiencing telogen effluvium for more than three months, refer to dermatology.

Well that was a bit of a spoiler; in Taylyn's case, no medical management is necessary. Really just reassurance and advising Taylyn to avoid triggers are needed.

Sure enough, Taylyn returns in six months with almost complete hair regrowth and a gold medal she proudly shows you from her ballet competition.

Miscellaneous

It goes without saying, but just to be thorough I thought I'd add that for all four of these causes of pediatric alopecia a good history and physical exam should be performed. The hair should be examined by looking down at it with good lighting. Make sure to check scalp hair density, and also check other areas where you'd expect to find hair such as the eyebrows, eyelashes, and so on.

In addition to the management discussed for each cause, it's important to realize that alopecia can be quite hard socially and emotionally on the child and that the psychosocial aspects should be treated as well. Camouflage or cosmetic options such as wigs or false eyelashes can be considered for short-term use.

Referral to a Dermatologist

The last objective is knowing when to refer to dermatology. I will discuss six main indications. If you cast your mind back many minutes ago to tinea capitis you may recall that one indication for referral is if the patient has a kerion (aka abscess) or favus (aka yellow crusting), as systemic steroid treatment is needed in these cases. The second is if the patient has alopecia areata. The third is what we just discussed; if the telogen effluvium lasts for more than 3 months, hit up that dermatologist. Fourthly is if the treatment you give is not working or if the alopecia is not resolving in cases that should be self-limited. Fifthly is if you just don't know what the diagnosis or cause is. And lastly, if you suspect scarring alopecia which usually presents as hair loss with lesions such as papules, pustules, plaques, ulcers, or telangiectasias, refer to dermatology quickly, as scarring alopecia can be irreversible.

Summary

Over the last however long I've been talking, you've hopefully learned or consolidated your knowledge on how to differentiate and diagnose the four most common types of pediatric alopecia, how to manage those types, and when to refer to a dermatologist. Here are a few key points to take away, also known as the TL;DR section:

1. Tinea capitis is a common cause of alopecia and is a superficial fungal infection which should be treated with an oral antifungal.
2. Alopecia areata is another common cause of alopecia and has autoimmune associations. It should always be referred to dermatology.
3. Traction alopecia and trichotillomania are also common causes of alopecia and are when the hairs are pulled. They should be treated by education and for the latter, counselling or psychotherapy for any underlying psychiatric issues.
4. Acute telogen effluvium is another common cause of alopecia and is characterized by an inciting non-physical trauma about three months before the

hair loss. It is usually self-limited and therefore treatment isn't necessary. Refer to derm if the hair loss lasts for more than 3 months.

5. If you suspect scarring alopecia (hair loss with lesions) refer to dermatology!

References

1. Cranwell W, Sinclair R. Common causes of paediatric alopecia. Aust J Gen Pract. 2018;47(10):692-696.
2. Gupta AK, Mays RR, Veersteeg SG, Piraccini BM, Shear NH, Piguet V, et al. Tinea capitis in children: a systematic review of management. J Eur Acad Dermatol Venereol. 2018;32(12):2264-2274.
3. Nationwide Children's. Pediatric Alopecia Areata.
4. Xu, L, Liu KX, Senna MM. A practical approach to the diagnosis and management of hair loss in children and adolescents. Front Med. 2017;4(112):1-13
5. Darwin, E, Hirt PA, Fertig R, Doliner B, Delcanto G, Jiminez JJ. Alopecia areata: epidemiology, clinical features, pathogenesis, and new treatment options. Int J Trichology. 2018;10(2):51-60

Developed by Brenden Kunimoto and Dr. Mel Lewis for PedsCases.com.
July 10, 2019.

Developed by Brenden Kunimoto and Dr. Mel Lewis for PedsCases.com.
July 10, 2019.