

Focal Asymptomatic Hair Loss in an Adolescent: A Case Report

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Background: There are various causes of non-scarring alopecia in the pediatric population. Temporal triangular alopecia is a rare condition that may be easily misdiagnosed without careful history and examination.

Case Presentation: We present a case of asymptomatic hair loss in a pediatric patient and a review of non-scarring causes of alopecia commonly seen in the primary care setting. The patient denied known trauma, life stressors, or hair pulling. Clinical findings included a focal triangular-shaped patch of non-scarring alopecia involving the frontotemporal scalp. He was found to have temporal triangular alopecia and was counseled regarding its non-progressive nature and poor prognosis for hair regrowth.

Conclusion: We believe this case to be relevant to primary care providers and other clinicians in the diagnosis and management of an uncommon cause of alopecia in the pediatric population.

Keywords

Alopecia, Dermatology, Hair loss, Pediatrics.

Background

Diagnosis of hair loss in pediatric patients can be challenging. Temporal triangular alopecia (TTA) is a benign condition characterized by a focal patch of permanent hair loss involving the temporal or frontotemporal scalp regions. It represents a subtype of non-scarring alopecia. Clinical signs of inflammation or atrophy are absent. It typically manifests in infancy or childhood before the age of 9 as children undergo a transition from immature vellus to mature terminal hair. However, similar to our patient, it can present in adolescence and has rarely been identified in adulthood [1-6]. The differential diagnosis for TTA includes other causes of focal or patchy non-scarring alopecia in children such as: alopecia areata (AA), loose anagen syndrome, telogen effluvium, tinea capitis, traction alopecia, and trichotillomania.

Case Presentation

A 13-year-old male presented with focal hair loss involving the right frontal hairline. He reported asymptomatic gradually progressive hair loss thought to have occurred several years ago. He denied history of trauma, hair pulling, pruritus, erythema, scaling in the affected area, or previous similar lesions. Review of systems, past medical history, and family history were noncontributory.

Physical examination revealed a sharply defined solitary unilateral triangular-shaped patch of non-scarring alopecia of the right frontotemporal scalp (Figure 1). White and vellus hairs were scattered throughout the patch, a group of hairs lined the anterior border, and a tuft of hair was present along the inferior border (Figure 2). There were no excoriations, scaling, erythema, atrophy, or scarring in the area. A hair pull test was negative.

A diagnosis of TTA was determined based on the patient's history and physical examination. There was no indication for biopsy or

further testing. Differential diagnoses considered included alopecia areata, however the patient's negative hair pull test and lack of fractured hairs made this etiology much less likely. No therapeutic intervention was required. The patient and family were counseled regarding the diagnosis and poor prognosis for hair regrowth. The patient has remained asymptomatic, and his alopecia has remained stable since his initial presentation.



Figure 1: Photo of patient's patch of alopecia involving the right frontotemporal scalp.



Figure 2: Photo of white and vellus hairs and a hair tuft.

Discussion

TTA primarily affects Caucasians and is considered sporadic. There have been several familial cases reported, which has been considered indicative of possible genetic transmission, specifically via a paradominant trait [1,2,7,8]. TTA has also been associated with genetic syndromes such as phakomatosis pigmentovascularis [9], Down syndrome [10], and Dandy-Walker malformation [11] among others [2,3].

	History	Physical Examination	Diagnostic testing	Treatment
Alopecia areata [4,13]	Acute onset	Well circumscribed circular patches, diffuse or complete hair loss Fractured hairs, termed "exclamation point hairs", line the periphery of patch Yellow dots consistent with plugs of keratin and sebum	None required but skin biopsy will reveal 'swarm of bees' lymphocytes around affected hair follicles	Limited disease: topical high potency steroids, topical minoxidil, or intralesional steroid injections Diffuse disease: short course of systemic steroids, systemic immunosuppression, immunotherapy, contact sensitization
Loose anagen syndrome [5]	Lack of hair growth in an infant Typically, female	Diffuse or patchy hair thinning	+/- microscopic confirmation of dystrophic anagen hairs following gentle hair pulling	None Reassurance
Telogen effluvium [6,16]	Hair loss 2-4 months following a major physical or emotional stressor	Diffuse hair thinning Positive hair pull test: >10% of hairs pulled out when grasping a cluster of 40-60 hairs	+/- complete blood count, thyroid-stimulating hormone, iron studies	None Reassurance
Tinea capitis [6,13]	Close contact or pet with hair loss	Patchy areas with possible erythema and scale Broken hair shafts resembling black dots Corkscrew hairs, comma hairs Ipsilateral posterior cervical or post auricular lymphadenopathy	KOH preparation of skin scrapings reveals fungal spores lining or within hair Fungal culture of scalp scrapings	Systemic antifungals (i.e.- griseofulvin, terbinafine) Antifungal shampoos can decrease contagiousness
Traction alopecia [6]	Persistent excessive tension on hair secondary to styling practices (braiding, ponytails, weaving)	Patchy alopecia involving frontotemporal scalp Positive "fringe sign": retained hair at the frontotemporal rim Tiny pustules at edges of affected areas	None required	Behavioral counseling: alter hair styling techniques
Temporal triangular alopecia [5,12-15]	Asymptomatic hair loss that may go unnoticed for months to years	Sharply demarcated patches of alopecia with fine vellus hairs Possible central hair tuft or cluster of terminal hairs at front-edge of lesion	None required	None Topical minoxidil Possible hair transplant or surgical excision of affected area
Trichotillomania [6,13,16]	Self-induced hair loss involving scalp, eyebrow, eyelash, or pubic hair Presence of underlying emotional problem is rare in pediatric population	Irregular coarse-feeling patches "V-sign": two hairs growing from one follicular opening Broken hairs in different stages of growth	None required but skin biopsy can confirm, revealing pigmented hair casts	Behavioral counseling

Table 1: Causes of Non-scarring Alopecia in Children.

TTA most commonly occurs in a unilateral distribution with less than 15% of cases occurring bilaterally [1,2]. It presents with gradual loss of terminal hairs in a triangular, oval, or lancet-shaped pattern [1,2,4]. Occasionally, as seen in our patient, a collection of terminal hairs lines the front edge of the lesion or a tuft of hair is present in the center [7]. Diagnosis can be made based on a complete history and physical examination, however scalp dermoscopy may be beneficial in ruling out other etiologies. Dermoscopic features of the alopecic patch include an absence of mature terminal hairs and the presence of white hairs, vellus hairs, hairs of varying diameters, a normal or decreased hair follicle density, and normal follicular openings [1-3,5,8,12]. Although a biopsy is unnecessary for diagnosis, histologic findings often include “miniaturized” follicles; a feature also present in androgenic alopecia [3].

The differential diagnosis for TTA includes other causes of focal or patchy non-scarring alopecia in children such as: alopecia areata (AA), loose anagen syndrome, telogen effluvium, tinea capitis, traction alopecia, and trichotillomania (Table 1).

TTA is most commonly mistaken for AA [13]. Features specific to AA that are absent in TTA include a positive hair pull, fractured “exclamation point” hairs lining the periphery and yellow dots present throughout the affected area [4,13]. Careful history and inspection is required to avoid misdiagnosis.

Treatment of TTA is limited and considered unnecessary unless a new aesthetic outcome is desired [4,5,8]. Reassurance is often offered since the lesions are non-progressive. Therapeutic options include topical minoxidil [14], hair transplantation [15], or surgical excision of the affected area [1]. Hair regrowth and improvement of alopecia with topical minoxidil treatment has been clinically demonstrated, however hair loss resumed with cessation of therapy [14].

Conclusion

TTA is a benign, non-progressive and permanent non-scarring alopecia. Our case highlights a presentation of TTA in an adolescent with history and clinical findings consistent with what has been previously described in the literature. Although it remains an infrequent cause of alopecia in the pediatric population, correct diagnosis of TTA allows for reassurance for patients and their families regarding its benign and stable nature.

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