Series Editor: Camila K. Janniger, MD

Prevalence of Scalp Disorders and Hair Loss in Children

Evren Sarifakioglu, MD; Ayse Esra Yilmaz, MD; Canan Gorpelioglu, MD; Emel Orun, MD

Hair loss in children can have psychologic effects that interfere with a child's growth and development. In our case series, we evaluated 1003 children aged 0 months to 17 years who presented to the pediatric and dermatology outpatient clinics at Fatih University, Ankara, Turkey, from December 2009 through October 2010. The patients were routinely examined for scalp disorders and hair loss. We documented 69 patients with scalp disorders and hair loss, most commonly seborrheic dermatitis (SD), transient neonatal hair loss (TNHL), alopecia areata (AA), temporal triangular alopecia (TTA), and pityriasis amiantacea (PA).

The clinical presentation of scalp disorders and hair loss in children varies widely and may be attributed to congenital or acquired causes. Hair loss in children can be associated with serious illness. Therefore, hair examination by a pediatrician or dermatologist is an important part of the physical examination.

Cutis. 2012;90:225-229.

Alopecia is the considerable loss or absence of hair due to congenital and acquired causes. Alopecia clinically manifests as scarring or nonscarring types that may be localized or diffuse. Hair loss results in cosmetic concerns and may lead to psychologic consequences that interfere with a child's growth and development.[1] Approximately 90% of hair loss in children is nonscarring and acquired. The most common causes of hair loss reported from the Western world are alopecia areata (AA), tinea capitis, and trichotillomania. The causes of pediatric hair loss vary by ethnic group and hair type.[2] In our case series, we evaluated congenital and acquired scalp disorders and hair loss that commonly occur in the pediatric population.

Materials and Methods

Study Population—Our study was a descriptive and analytic investigation conducted over 10 months (December 2009–October 2010). Children who visited the pediatric and dermatology outpatient clinics at Fatih University, Ankara, Turkey, with other dermatologic or pediatric concerns were evaluated. The study population consisted of 1003 children (457 girls and 546 boys). The patients were categorized into 4 groups according to age: 0 months to 2 years (562 [56.0%] patients); 3 to 6 years (269 [26.8%] patients); 7 to 11 years (133 [13.3%] patients); and 12 to 17 years (39 [3.9%] patients). The following data were obtained: age; gender; gestational age; delivery type; weight-for-age percentile; length-for-age percentile; dermatologic, systemic, or genetic disease diagnosis, if any; medication usage; and scalp disorder or hair loss diagnosis. Hair loss alterations were classified as congenital/hereditary, localized congenital/hereditary, diffuse congenital alopecia or hypotrichosis, or acquired alopecia.

Statistical Analysis—Statistical analysis was conducted using SPSS version 11.5 for Windows. Descriptive statistics and frequencies were given for all categorical data. Statistical significance of the relationship between alopecia existence and categorical variables were determined using the χ^2 test ($\alpha = .05$).

Results

Of 1003 patients, scalp disorders and hair loss were found in 69 patients. The observed scalp disorders and hair loss variants are listed in the Table. Some of the commonly occurring scalp disorder and

From Fatih University, Ankara, Turkey. Drs. Sarifakioglu and Gorpelioglu are from the Department of Dermatology, and Drs. Yilmaz and Orun are from the Department of Pediatrics.

The authors report no conflict of interest.

Correspondence: Evren Sarifakioglu, MD, Department of Dermatology, Fatih University Faculty of Medicine, Alparslan Turkes Caddesi, No. 57, 06510 Ankara, Turkey (evrenmd@yahoo.com).

Observed Scalp Disorders and Hair Loss Variants

Scalp Disorder or Hair Loss Variant	No. of Patients
Seborrheic dermatitis	26
Transient neonatal hair loss	14
Alopecia areata	5
Temporal triangular alopecia	5
Pityriasis amiantacea	4
Nevus sebaceous secondary to localized alopecia	3
Trichotillomania	3
Traction alopecia	2
Diffuse alopecia secondary to ichthyosis vulgaris	1
Early depigmentation of the hair secondary to vitiligo	1
Hair cast	1
Hairy nevus of the scalp (localized alopecia)	1
Lichen planopilaris scarring alopecia	1
Pressure alopecia	1
Tinea capitis	1

hair loss diagnoses among these patients included seborrheic dermatitis (SD)(26 [2.6%] patients), transient neonatal hair loss (TNHL)(14 [1.4%] patients), AA (5 [0.5%] patients), temporal triangular alopecia (TTA)(5 [0.5%] patients), and pityriasis amiantacea (PA)(4 [0.4%] patients).

Sixty-four percent (44/69) of the alopecia patients were aged 0 months to 2 years. Figure 1 shows the relationship between age distribution and alopecia existence. There was no relationship between alopecia existence and age, gender, gestational age, delivery type, weight-for-age percentile, or length-for-age percentile. Four patients had growth retardation.

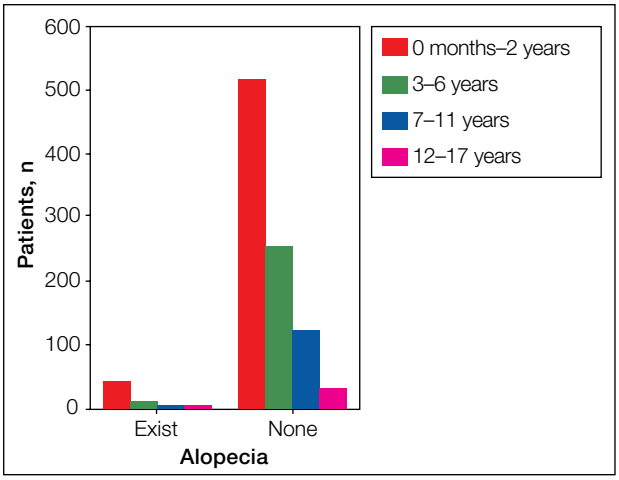

Figure 1. Age distribution of patients in relation to the existence of alopecia (N=1003).

A history of systemic disease was found in 29 patients: 9 asthma; 2 cerebral palsy; 4 congenital heart disease; 1 bronchiolitis; 1 CHARGE (coloboma, heart disease, atresia choanae, retarded growth and retarded development and/or central nervous system anomalies, genital hypoplasia, and ear anomalies and/or deafness syndrome) association; 2 Down syndrome; 1 encephalitis; 1 febrile convulsion; 1 familial Mediterranean fever; 1 glucose-6-phosphate dehydrogenase deficiency; 1 hydronephrosis; 1 hypospadias; 1 urinary tract infection; 1 precocious puberty; 1 retinoblastoma; and 1 vesicoureteral reflux. Dermatologic diseases were found in 32 patients: 22 atopic dermatitis; 1 allergic contact dermatitis; 1 vitiligo; 1 verruca vulgaris; 3 hemangioma of the nape; 1 ichthyosis vulgaris; 1 nummular eczema; 1 chronic urticaria; and 1 molluscum contagiosum.

Comment

Although scalp disorders and hair loss cause no physical disabilities in most cases, cosmetic concerns can be problematic, especially in children. Therefore, when hair loss occurs in children, guardians rapidly seek medical advice, as they also are psychologically affected. Hair loss in children can be classified as congenital/hereditary, localized congenital/hereditary, diffuse congenital alopecia or hypotrichosis, or acquired alopecia.[1] According to a PubMed search of articles indexed for MEDLINE using the terms *hair loss*, *alopecia*, *hair abnormalities*, and *scalp disorders*, only 1 study from Southeast Nigeria has been published concerning hair loss and scalp disorders in the pediatric population.[2] Therefore, it was difficult to compare our results with other reports. Common diagnoses in the study from Southeast Nigeria (N=113) included tinea capitis (62 [54.9%]),

AA (43 [38.1%]), psoriasis (5 [4.4%]), and telogen effluvium (3 [2.7%]).[2]

Scalp disorders and hair loss accounted for 6.9% (69/1003) of pediatric dermatology cases seen at our pediatric and dermatology outpatient clinics. Scalp disorders and hair loss were mostly seen in patients aged 0 months to 2 years. When we evaluated the 4 age groups in relation to scalp disorders and hair loss, TNHL, also known as neonatal occipital alopecia, was the most common hair loss variant in the 0 months to 2 years age group. This result was similar to the study by Nnoruka et al.[2] Three variants of TNHL were found in our study, which we categorized as diffuse, frontal, and temporal TNHL. Transient neonatal hair loss can be caused by friction related to sleep positions, as infants are put to sleep in the supine position to avoid sudden infant death syndrome.[3] However, a retrospective study of 301 neonates proposed that TNHL is not caused by friction. The authors believed the hair disorder was caused by the physiology of hair shaft shedding.[3] Transient neonatal hair loss is physiologic and is temporary. It should be differentiated from pressure alopecia. Children who are ill must lie on their back with the occiput on the pillow and must be immobilized for long periods of time; therefore, they are liable to develop pressure alopecia.[3] In our study, all 14 patients with TNHL reported sleeping in the supine position. Guardians should be informed that a relationship between the sleep position and the onset of TNHL has not been confirmed; changing the child's sleep position, which could potentially lead to a fatal outcome, may not be necessary.

In our study, SD was the most common scalp disorder in children aged 0 months to 2 years (n=20). Williams et al[4] studied the prevalence of scalp scaling in prepubertal children. The most common diagnosis was infantile SD in patients younger than 2 years.[4] Seborrheic dermatitis usually occurs between the first 2 to 6 weeks of life and then recurs during or after puberty.

In patients aged 3 to 6 years, the most common hair loss variant was AA in our study. None of the patients had an autoimmune component. The prevalence of AA in children from various pediatric dermatology clinics ranges from 1% to 6.7%.[5-7] A prospective survey of 10,000 pediatric patients from Kuwait revealed that AA was seen with a peak incidence from 2 to 5 years of age.[7] This result was similar in our study. Our patients did not have a family history of the condition. Stress was a possible precipitating factor, as the children had just started preschool and may have been experiencing separation anxiety disorder.

The most frequently seen scalp disorder in patients aged 3 to 6 years was PA. Two of our patients presented with temporary alopecia. Pityriasis amiantacea is characterized by thick, silvery, adherent scales that surround and bind down tufts of hair. Typical scales of PA have been called amiante or asbestos, as they are said to resemble white or gray fibrous minerals. The cause is unknown, but it may represent a particular reaction pattern of the scalp to various inflammatory scalp diseases (eg, psoriasis, SD, lichen planus, fungal or bacterial infections).[8] Most cases of PA often reveal bacterial isolates of *Staphylococcus aureus*; however, fungal and bacterial examinations were negative in our patients. Etiologic findings of PA in our patients were thought to be caused by SD. Pityriasis amiantacea can be associated with temporary hair loss and sometimes scarring alopecia.[9]

In patients aged 7 to 11 years, the most commonly seen hair loss variant was AA (n=2) and the most common scalp disorder was SD (n=2). The study in Southeast Nigeria revealed that the second most common form of hair loss was AA in patients aged 8 to 11 years.[2] Seborrheic dermatitis also was common in children aged 2 to 10 years (6%) in a study by Williams et al[4] (N=300).Interestingly, in this age group, 1 case of traction alopecia was caused by friction of the scalp that occurred when the child was playing with the iron bar in the park, 1 case of diffuse alopecia was seen due to the diagnosis of ichthyosis vulgaris, and 1 case of trichotillomania was most likely due to stress from newly divorced parents.[4]

Traction alopecia may be induced by physical trauma, heat, radiographs, and chemicals.[10] Trichotillomania was first used by French dermatologists to denote "a morbid impulse to pull one's own hair."[11] Clinically, it presents with irregular patches of alopecia on contralateral sides of right-handed or left-handed children with the presence of broken off hair and perifollicular accentuation (Figure 2). It causes nonscarring localized alopecia. The condition often is confused with AA. Most cases of trichotillomania are related to psychosocial stress in the family or coexist with obsessive-compulsive disorder and schizophrenia.[11]

In patients aged 12 to 17 years, a specific scalp disorder or hair loss was not found. Nevertheless, a 13-year-old adolescent girl was diagnosed with lichen planopilaris of the scalp (Figure 3). She was prescribed isotretinoin 10 mg daily and prednisolone 5 mg daily. Lichen planopilaris is a cicatricial alopecia that is commonly seen in the third and seventh decades of life and rarely has been reported in children.[12] The adolescent girl described in our study was noteworthy, as she did not have any involvement in other hairy regions of the body.

Temporal triangular alopecia was the second most common alopecia (together with AA) reported

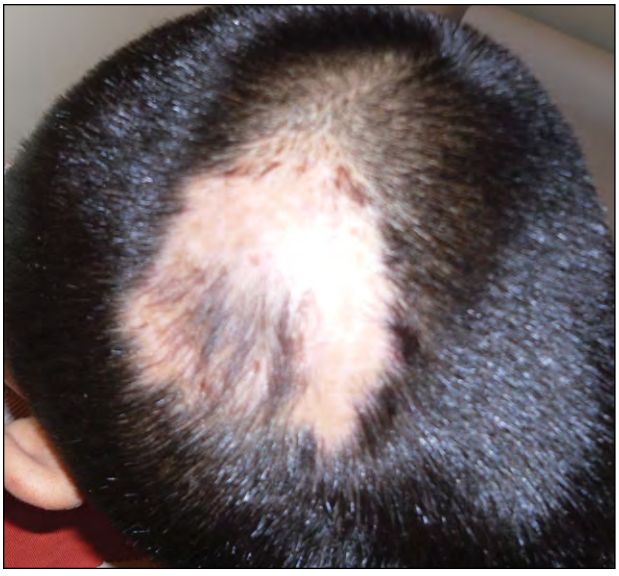

Figure 2. Hair loss from trichotillomania.

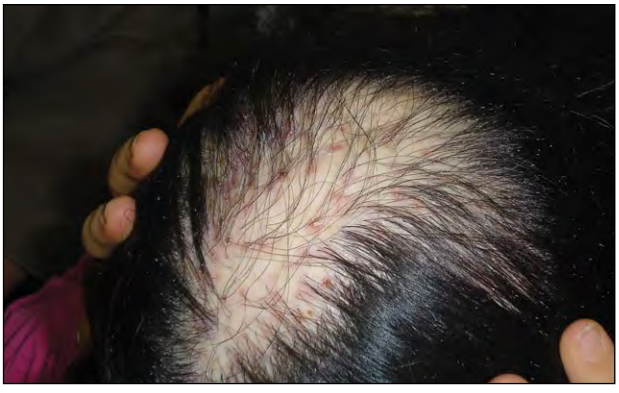

Figure 3. Lichen planopilaris of the scalp.

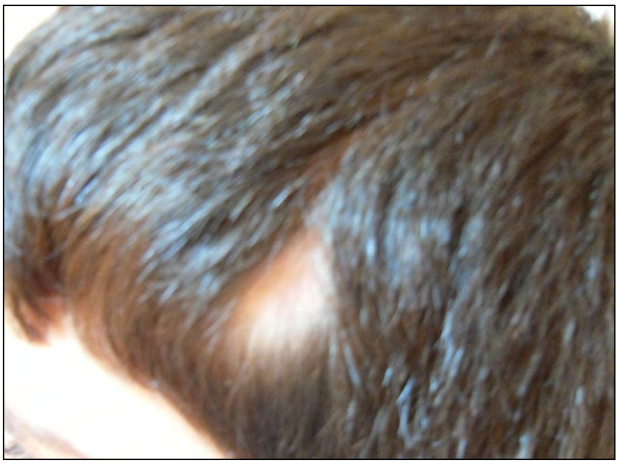

Figure 4. Triangular alopecia of the temporal scalp.

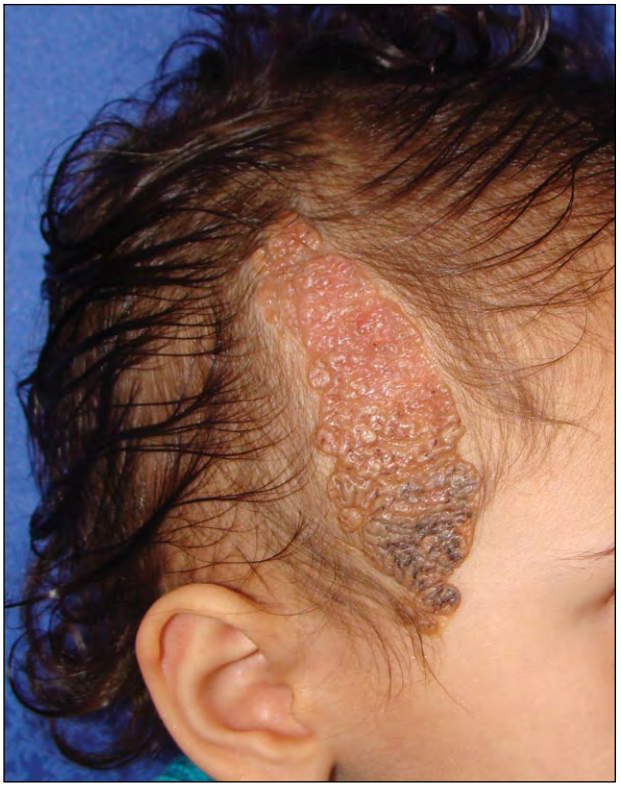

Figure 5. Nevus sebaceous secondary to localized alopecia.

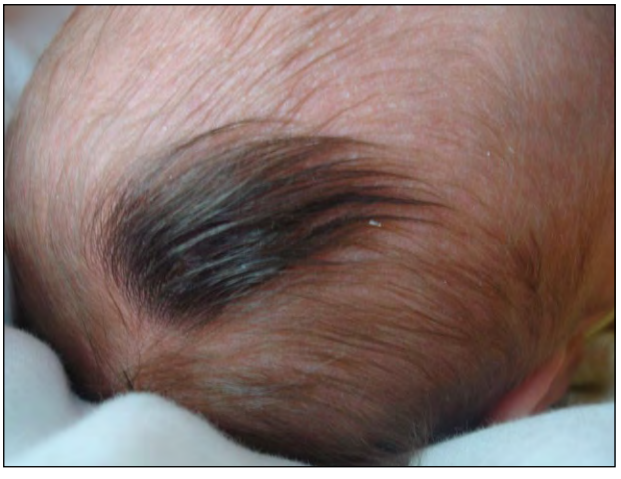

Figure 6. Hairy nevus of the scalp.

overall. Temporal triangular alopecia also is known as congenital triangular alopecia. It is circumscribed, noncicatricial, and noninflammatory, and is confined to the frontotemporal region. The majority of cases of TTA appear at birth or during the first 9 years of life and remain stable thereafter. In a study of 52 cases of TTA by Yamazaki et al,[13] the rate of occurrence was 55.8% (29/52) on the left side, 30.8% (16/52) on the right side, and 13.5% (7/52) bilaterally.[13] In our study, 1 patient's TTA was bilaterally localized, 1 was on the right side, and the others were on the left side (Figure 4).

In Figure 5, a girl is presented with nevus sebaceous resulting in localized alopecia, and in Figure 6, a hairy nevus of the scalp can be seen in an infant.

Conclusion

In a child with hair loss, a thorough patient history will guide the workup. The medical history should include chronic illnesses; surgeries; medication changes; and autoimmune, dermatologic, and psychiatric disorders. Physicians also should inquire about a family history of alopecia. When performing a physical examination in children, particular attention should be focused on the scalp and hair.

REFERENCES

1. Al-Fouzan AS, Nanda A. Alopecia in children. *Clin Dermatol*. 2000;18:735-743.
2. Nnoruka EN, Obiagboso I, Maduechesi C. Hair loss in children in South-East Nigeria: common and uncommon cases. *Int J Dermatol*. 2007;46(suppl 1):S18-S22.
3. Cutrone M, Grimalt R. Transient neonatal hair loss: a common transient neonatal dermatosis [published online ahead of print July 12, 2005]. *Eur J Pediatr*. 2005;164:630-632.
4. Williams JV, Eichenfield LF, Burke BL, et al. Prevalence of scalp scaling in prepubertal children. *Pediatrics*. 2005;115:e1-e6.
5. Findlay GH, Vismer HF, Sophianos T. The spectrum of pediatric dermatology. analysis of 10,000 cases. *Br J Dermatol*. 1974;91:379-387.
6. Schachner L, Ling NS, Press S. A statistical analysis of a pediatric dermatology clinic. *Pediatr Dermatol*. 1983;1:157-164.
7. Nanda A, Al-Hasawi F, Alsaleh QA. A prospective survey of pediatric dermatology clinic patients in Kuwait: an analysis of 10,000 cases. *Pediatr Dermatol*. 1999;16:6-11.
8. Abdel-Hamid IA, Agha SA, Moustafa YM, et al. Pityriasis amiantacea: a clinical and etiopathologic study of 85 patients. *Int J Dermatol*. 2003;42:260-264.
9. Langtry JA, Ive FA. Pityriasis amiantacea, an unrecognized cause of scarring alopecia, described in four patients. *Acta Derm Venereol*. 1991;71:352-353.
10. Whiting DA. Traumatic alopecia. *Int J Dermatol*. 1998;38(suppl 1):S34-S44.
11. Oranje AP, Peereboom-Wynia JD, De Raeymaecker DM. Trichotillomania in childhood. *J Am Acad Dermatol*. 1986;15(4, pt 1):614-619. Cited by: Al-Fouzan AS, Nanda A. Alopecia in children. *Clin Dermatol*. 2000;18:735-743.
12. Sehgal VN, Bajaj P, Srivastva G. Lichen planopilaris [cicatricial (scarring) alopecia] in a child. *Int J Dermatol*. 2001;40:461-463.
13. Yamazaki M, Irisawa R, Tsuboi R. Temporal triangular alopecia and a review of 52 past cases. *J Dermatol*. 2010;37:360-362.