Diagnosis and Management of Alopecia in Children

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KEYWORDS

• Alopecia areata • Telogen effluvium • Tinea capitis • Traction alopecia
• Trichotillomania/trichotillosis

KEY POINTS

- Alopecia in childhood is not uncommon.
- Tinea capitis is the most common cause of loss of hair in childhood and should be excluded in an evaluation.
- Clues to the type of hair loss include evidence of scale, hair breakage, and location of the hair loss.
- The age of the child and whether there are other comorbidities are additional clues to diagnosis.

INTRODUCTION

Overview

The ideal evaluation of a child with scalp hair loss should include a full history and physical examination with a detailed evaluation of the hair and scalp. In the pediatric office, it is usually possible to send dermatophyte screens or fungal cultures to rule out tinea as a source of alopecia, perform a hair pull test to see if hair is actively shedding, and assess overall pattern of hair loss and scalp health. A thorough history must include whether hair was never present/sparse after birth or whether hair was later lost in a localized manner or shed more diffusely. The history should also include diet and nutrition and underlying medical problems, with special attention to autoimmune disease. If medical providers suspect that alopecia is congenital, a detailed evaluation/history of teeth and tooth eruption, nails, skin, and the ability to sweat is needed. Congenital alopecia can be associated with general abnormalities of the ectoderm referred to as the broad category of diseases known as *ectodermal dysplasias*. Patients with ectodermal dysplasias will have long-term problems with dentition, hair, nails, sometimes heat regulation, and occasionally bones. In most cases, alopecia occurs after the development of full scalp hair and is related to infection, an autoimmune process, or trauma/traction.

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Pathophysiology

All human hairs regularly cycle through anagen, the growth phase; telogen, the resting phase; and catagen, the transition phase.[1] The first anagen phase starts at about 18 to 20 weeks of gestation, with the first normal shedding period occurring sometime between 4 and 8 months of age. This period can occur as late as 1 year of age. This hair loss is the typical pattern hair loss seen in infants at their well visits. The occiput of the scalp differs in that it has expected telogen shedding that occurs earlier at about 2 to 3 months of age and accounts for the bald spot seen in the occiput of most infants around that time. Pressure and rubbing from sleeping on the back accentuate this hair loss. The number of hair follicles during the first 2 years does not change, but there is a transition from vellus hairs to terminal hairs.[2] Because terminal hairs are larger in caliber, the density of hair seems to increase. Hair darkens with age in most cases.

THE HISTORY AND PHYSICAL EXAMINATION

The most important question in the history is whether the hair loss is acute or gradual. Did the hair loss occur over months or within days? Alopecia areata (AA) will often occur with very rapid localized loss over days, whereas traction alopecia will occur slowly overtime with gradual thinning at the hairline or wherever there is tension on the hair. Telogen effluvium will start rapidly, but then the shedding stabilizes; there is increased but steady shedding over weeks to months. This type of shedding decreases with time until it shifts back to the patient's normal hair-shedding pattern.

Physical examination should evaluate all areas of the scalp in a systematic fashion. The scalp should be evaluated for localized or diffuse hair loss. The location of loss should be noted. Locations include periphery, occiput, vertex, temples, and parietal scalp. An evaluation should be performed for scale and redness of the scalp, which are signs of inflammation. In all cases, if redness or scale is present, tinea capitis should be ruled out. Scale can also be a sign of other inflammatory disorders like psoriasis, cutaneous lupus, eczema, or seborrheic dermatitis, which can lead to hair loss because of associated scale and inflammation. Clues to these other inflammatory disorders include cutaneous signs of inflammation in other parts of the body; previous atopic disease; or, in the case of cutaneous lupus, scarring on the scalp and a negative dermatophyte screen.

A hair pull test is a simple tool all pediatricians can use because it requires no special instruments. The hair pull test involves gently pulling 20 to 60 hairs between the thumb and forefinger in multiple locations of the scalp.[3] Anagen or growing hairs should remain rooted in place, whereas hairs in the telogen phase should come out easily. One can roughly estimate the number of hairs in telogen. If 2 hairs come out on a hair pull of approximately 20 hairs, telogen is about 10%. Normal telogen is between 10% and 20%. It is important to ask patients about when they last washed their hair. Ideally, it is the day before the examination. If it was the same day, you should expect fewer hairs to be shed. If it was 1 week before, you should expect more telogen hairs to be shed. Hairs from the pull test can be mounted and reviewed under microscope for hair shaft abnormalities as well as the phase of the cycle of the hair when practical. This practice is rare outside of specialist offices. A full skin examination including an evaluation of eyelashes, eyebrows, and nails should be completed. Evaluation of cervical chain lymphadenopathy should be performed and is often present in tinea capitis but can also be seen in other inflammatory disorders of the scalp, notably atopic dermatitis.

The history should include questions about general health; illness in the last 4 to 6 months, including illness with high fevers; and other stressors, including surgeries,