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A Case Report on Loose Anagen Hair Syndrome in A 13-Year-Old Girl

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Abstract

Loose anagen hair syndrome (LAS) or Uncombable hair syndrome (UHS) is a rare hair disorder in which anagen hairs are easily and painlessly extractable from the scalp. This is a common self-limiting disorder of childhood. Here we present a case report on a 13-year-old girl child who presented with complaints of diffuse hair thinning and easily pluckable hair. The diagnosis was confirmed with a hair pull test, which was painless with anagen hairs, preventing the necessity for other diagnostic tests.

Keywords: *Loose anagen hair syndrome, LAS, anagen hair, paediatric alopecia.*

Introduction

The term "Loose anagen hair syndrome" (LAS) was first coined as "easily pluckable hair" by Zuan in the year 1984 and later described by Price and Gummer as LAS[1]. It is a hair disorder characterised by anagen hairs of abnormal morphology that are easily and painlessly extractable from the scalp. A basic hair pull test is the first step in the LAS diagnosing process. Other diagnostic procedures include trichogram and biopsy[2].

Case presentation

A 13-year-old girl presented with sudden diffuse hair thinning and easily pluckable hair over her scalp since childhood. Mother gave a history of hair loss since childhood without any identified trigger and even gentle traction resulted in hair removal. There was noticeable hair loss seen on the pillow covers. After attaining menarche gradual improvement of hair growth was seen. General examination was normal, with normal development and no significant loss in weight or appetite. Her family history was negative for a similar disorder. Haematological investigations were within normal limits. On physical examination, hair was short, unruly, curly and patchy over the scalp (fig 1). Hair growth was not seen beyond the nape of the neck (fig 2). The hair pull test was strongly positive. Trichoscopy showed a rumpled sock appearance of anagen bulb (fig 3). On the basis of clinical presentation, hair pull test and Trichoscopy the diagnosis of loose anagen hair syndrome (LAS) was made.

Discussion

Loose anagen hair syndrome is an autosomal dominant disorder which is caused by inadequate follicular attachment to the scalp. In the normal hair growth cycle, hair goes through 3 phases, growth phase (anagen), apoptosis and regression (catagen), and rest (telogen) 2. The quantity of blood flow that the follicle receives during these periods varies. The dermal papilla goes through several phases of anagen after telogen, such as the proanagen phase when the hair shaft develops inside the hair follicle, and metanagen, when it emerges from the follicle and is visible on the skin. It is thought that metanagen has several substages that influence hair adherence, such as the creation of the inner root sheath that secures the hair to the follicle.

Impaired adhesion between the hair shaft, inner

root sheath, and outer root sheath occurs in LAS as a result of early keratinization of the inner root sheath[3].

This results in the failure of following hair development by prematurely ending the anagen phase. The autosomal dominant or spontaneous mutation in the keratin 6 gene is the cause of loose anagen syndrome. The inner root sheath becomes prematurely keratinized due to a mutation in K6HF, the companion layer keratin that makes up the outermost layer of the outer root sheath. This reduces the adhesion between the cuticles of the inner root sheath and the hair shaft. An extra mutation in K6IRS that affects just the inner root sheath hinders adhesion between the two sheaths and causes anagen to end too soon[4].

It is further classified into 3 subtypes:

1. Type A LAS includes decreased hair density with sparse short hair.
2. Type B includes diffuse or unruly, uncombable hair.
3. Type C, the adult phenotype, includes normal-appearing hair with excess shedding[5].

It is commonly seen in young children with female preponderance. The condition usually improves with puberty. However, the condition may be underdiagnosed in boys due to short hairstyles leading to lesser evident hair disorders. It is associated with other disorders like woolly hair, hypohidrotic ectodermal dysplasia, coloboma, and Noonan's syndrome[6].

The differential diagnosis for LAH is alopecia areata, trichotillomania, traction alopecia and telogen effluvium[6].

Diagnosis of LAH syndrome depends on the percentage and number of LAH on the trichogram and at the hair pull test. A positive hair pull test indicates painless extraction of at least 10 loose anagen hairs.

It is a self-limited condition with no treatment required. Here we have treated her with topical 2% minoxidil in order to fasten the resolution and to decrease the severity by prolonging the duration of anagen phase[7].

Conclusion

Loose anagen hair syndrome although rare, should be considered as a differential diagnosis in young female patients with unruly hair which are painlessly extractable from the scalp with a positive hair pull test. It is a self-limiting condition which improves with age. Timely diagnosis helps in reducing a significant psychosocial impact on patients and families.

Figure 1*: Patient showing the typical decreased density in the fronto-parietal area with unruly dull, sparse hair.*

Figure 2: *The patient has thin hair not extending beyond the nape of her neck, and the posterior scalp has unruly waves.*

Figure no 3*: Rumpled sock appearance on trichoscopy.*

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