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Original Research Paper

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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 can be easily and without discomfort removed 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 hair disorder characterised by anagen hairs of abnormal morphology that can be easily and without discomfort removed from the scalp. A basic hair pull test is the first step in the LAS diagnosing process. Other diagnostic procedures include of trichogram and biopsy[2].

Case presentation

A 13-year-old girl came in with sudden widespread hair thinning and hair that could be easily pulled out from her scalp since childhood. Her mother reported ongoing hair loss since childhood without any apparent cause, and even gentle pulling resulted in hair coming out. Hair loss was also noticeable on pillowcases. After reaching puberty and starting menstruation, there was a gradual improvement in hair growth. General examination showed normal development, weight, and appetite with no significant issues. There was no family history of a similar condition, and blood investigations showed normal results.

On physical examination, hair was short, unruly, curly and patchy over scalp (fig 1). Hair growth was not seen beyond the nape of neck (fig 2). The hair pull test yielded a markedly positive result.. Trichoscopy showed 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 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. Ther dermal papilla goes through several phases of anagen after telogen, such as pro anagen 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 the metanagen has several substages that influences 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. 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 hairstyle 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].

The diagnosis of LAH syndrome relies on assessing the percentage and quantity of LAH present in the trichogram and the outcome of the hair pull test. A positive result in the hair pull test signifies the painless removal of a minimum of 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

Although uncommon, loose anagen hair syndrome should be considered as a possible diagnosis in young female patients experiencing unmanageable hair that can be easily plucked from the scalp, particularly if they test positively on the hair pull test. It is a self-limiting condition which improves with age. Timely diagnosis helps in reducing a significant psychosocial

impact in patients and families.

Figure no 1: Patient showing the typical decreased density in fronto-parietal area with unruly dull, sparse hair.

Figure no 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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