Case Report

Hair: more than just an appendage

Harshitha Reddy*, Srikanth Shanmugam, Manobalan Karunanandhan

INTRODUCTION

Hair defects become significant when they produce an unsightly cosmetic appearance or when they lead to the diagnosis of an underlying metabolic disorder or genetic syndrome. Hereditary hypotrichosis simplex (HHS) [Online Mendelian inheritance in man (OMIM) 146520] of the scalp is a rare autosomal dominantly inherited disorder where there is sparsity of scalp hair with no abnormalities in the other ectodermal derivatives. Autosomal dominant hypotrichosis is of two types, generalized hereditary hypotrichosis simplex (hypotrichosis type 1) and hypotrichosis simplex of the scalp (hypotrichosis type 2). The former type can affect hair growth all over the body whereas the latter affects only the scalp.

CASE REPORT

A 4 years old male child, second born of non-consanguineous marriage presented with complaints of gradual thinning of scalp hair since 6 months of age. Birth history and development history was uneventful. Child had normal hair density at birth. History of similar sparse hair in patient’s father. His sibling had normal hair growth.

Haematological investigations like complete hemogram, liver function test, renal function test, serum electrolytes, urine analysis, blood glucose (random) thyroid profile and serum zinc levels were done and found to be normal. On light microscopic examination showed varying diameters of the hair shaft but was otherwise normal (Figure 3). Trichogram also showed hair of varying diameters, sparse hair with minimal atrophy of the scalp (Figure 4). Biopsy was not done as the parents were not willing for the same.

ABSTRACT

Hypotrichosis is a relatively common feature of a number of complex hereditary syndromes. However, the isolated variant, called hereditary hypotrichosis simplex (HHS), is uncommon. We present a 4 years old child and his father who presented to us with features suggestive of HHS. No other associated ectodermal and systemic abnormalities were noted.

Keywords: Hypotrichosis, Hereditary hypotrichosis simplex, Ectodermal defects, Trichoscopy

Haematological investigations like complete hemogram, liver function test, renal function test, serum electrolytes, urine analysis, blood glucose (random) thyroid profile and serum zinc levels were done and found to be normal. On light microscopic examination showed varying diameters of the hair shaft but was otherwise normal (Figure 3). Trichogram also showed hair of varying diameters, sparse hair with minimal atrophy of the scalp (Figure 4). Biopsy was not done as the parents were not willing for the same.

Congenital atrichia and hypotrichosis disorders, loose anagen syndrome, short anagen syndrome and hair shaft disorders were the broad differential diagnosis we considered. In view of the following features: sparse thin hair since 6 months of age, no other ectodermal or systemic defects, normal hair shaft, no significant trichoscopic finding and blood investigations being normal, a diagnosis of hereditary hypotrichosis simplex was made.

In a similar case reported by Pasricha et al, topical applications of 0.1% fluocinolone acetonide acetate ointment showed significant improvement in hair growth so the same was started for our patient. But the outcome could not be assessed as the patient was lost to follow-up.
Figure 1.

Figure 2: Scalp of patient showing sparsity of hair.

Figure 3: Scalp of father showing sparsity of hair.

Figure 4: Light microscopy.

Figure 5 (A-C): Trichoscopy.
Table 1: Examination findings of father and child.

| Clinical features       | Father  | Child  |
|-------------------------|---------|--------|
| Scalp hair              | Sparse  | Sparse |
| Eyebrow hair            | Normal  | Sparse |
| Eyelashes hair          | Normal  | -      |
| Skin, nails, teeth      | Normal  | Normal |
| Intelligence            | Normal  | Normal |
| Development             | Normal  | Normal |
| Hair pull test          | Negative| Negative|
| Systemic abnormalities  | None    | None   |

DISCUSSION

Hypotrichosis represents a very heterogeneous and vast group of disorders characterized by a reduced density of hair follicles. Phenotypic variability is the rule and can be striking even among affected members of the same family, which often complicates the diagnosis. Patients with HHS present with normal hair at birth and in the first year of life, progressive, gradual thinning and loss of hair begin in the middle of first decade. Mutation in APC downregulated gene 1- APCDD1 located on chromosome 18p11 or nonsense mutation CDSN gene encoding for corneodesmosin has been suggested to be responsible. Development and intelligence is normal. Scalp biopsy shows decreased number of follicles, with no specific pattern and no structural changes. Based on our literature search, only 5 families with this type of hypotrichosis have been reported.

CONCLUSION

Human hair is an important phenotypic marker that can aid in the diagnosis of underlying metabolic or genetic syndromes. We report this case because of its uncommon occurrence. Although evidence-based treatment options are mostly non-existent at this stage for most genotrichosis, a prompt diagnosis may help ruling out any underlying systemic abnormalities.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Cruz CF, Costa C, Gomes AC, Matamá T, Cavaco-Paulo A. Human Hair and the Impact of Cosmetic Procedures: A Review on Cleansing and Shape-Modulating Cosmetics. Cosmetics. 2016;3(3):20–6.
2. Koslu A, Ekmecki TR, Cetincelik U. A case of hereditary hypotrichosis simplex. J Eur Acad Dermatol Venereol. 2006;20(9):1150–1.
3. Pasricha JS, D’Souza P. Topical fluocinolone acetonide acetate ointment in autosomal dominant congenital hypotrichosis. Indian J Dermatol Venereol Leprol. 1996;62(4):242–5.
4. Farah RS, Holahan HM, Moye MS, Stone MS, Swick BL. Hereditary Hypotrichosis Simplex of the Scalp. 2017;100(1):12–4.
5. Moravvej-Farshi H, Ayatollahi A, Hejazi S. Hereditary hypotrichosis simplex of the scalp. Indian J Dermatol. 2014;59(6):634.
6. Li M, Cheng R, Zhuang Y, Yao Z. A recurrent mutation in the APCDD1 gene responsible for hereditary hypotrichosis simplex in a large Chinese family. Br J Dermatol. 2012;167(4):952–4.
7. Vázquez MR, Rodríguez RR, Tapia AG, Diez LI. Hereditary Hypotrichosis Simplex of the Scalp. Pediatr Dermatol. 2002;19(2):148–50.

Cite this article as: Reddy H, Shanmugam S, Karunanandhan M. Hair: more than just an appendage. Int J Res Dermatol 2021;7:584-6.