Loose anagen hair syndrome

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A 3-year-old boy presented with diffuse hair thinning and easily pluckable hair over scalp and eyebrow since 1 year [Figures 1 and 2]. Mother denied any history of hair pulling. According to the mother, loss of hair had begun about one year prior without any identified trigger and even gentle traction resulted in hair removal. Physical examination was normal, with normal development. Hematological investigations were also normal. On examination, hair was short, curly, and patchy over scalp and eyebrows. Hair pull test was strongly positive, which on trichogram showed more than 70% anagen hairs with characteristic floppy sock appearance [Figure 3]. On the basis of clinical and trichogram analysis, the diagnosis of loose anagen hair syndrome (LAHS) was made.

The LAHS is a rare, benign, sporadic, or autosomal dominant disorder of anagen hair characterized by easy and painless extraction of hairs. It is usually seen between 3-9 years of age, but may occur in adults with female predominance and having annual incidence of 2-2.5 cases per million. It is commonly found in white population as compared to darker individuals and remain underdiagnosed in boys due to difference in hairstyle. Though it mainly affects scalp hairs, eyebrow and other body hairs can be involved as in our case.[1]

Nodl *et al*., first reported LAHS in 1986. Chapalain *et al*. showed mutations in the keratin gene K6HF in these patients, which is required for the development of companion layer or inner root sheath. The other suggested gene is K6IRS, which is specific for inner root sheath keratin formation. Mutations in the above genes leads to faulty premature keratinization of inner root sheath, outer root sheath, and cuticle of hair shaft, resulting in impaired adhesion and decreased hair growth with stunted anagen hair phase. Light microscopy shows twisted, grooved, and ruffled cuticle of hair shaft with characteristic floppy sock appearance and distorted hair bulb. Electron microscopy reveals different abnormal hair shaft shapes like triangular, quadrangular, and flattened with longitudinal groove.[1,2]

There are three phenotypes of LAHS: Type A showing sparse and patchy hair, type B showing majorly unruly and curly hair, while type C shows normal hair density.

The other associated hair disorders are alopecia areata, wooly hair, and uncombable hair

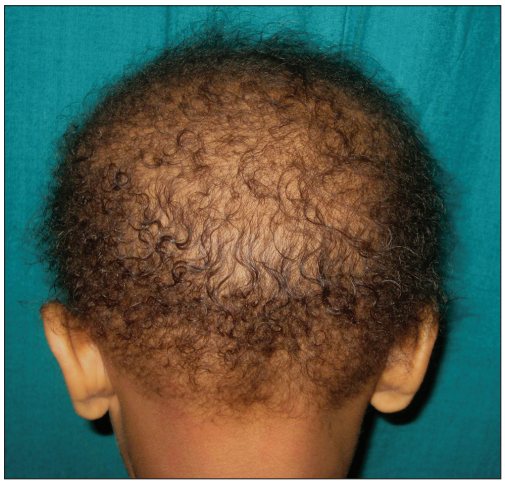

Figure 1: Thin, unruly, sparse hairs over posterior scalp

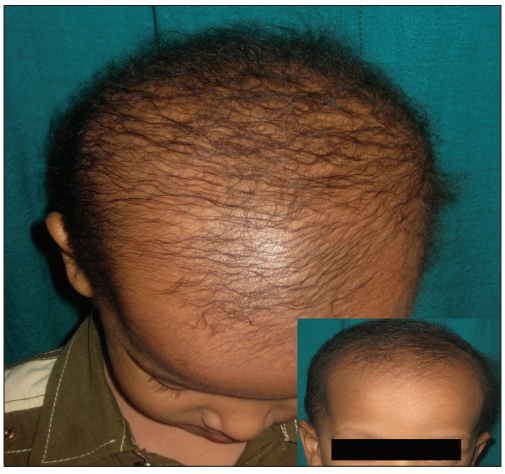

Figure 2: Thin, unruly, sparse hairs over anterior scalp as well as over eyebrows

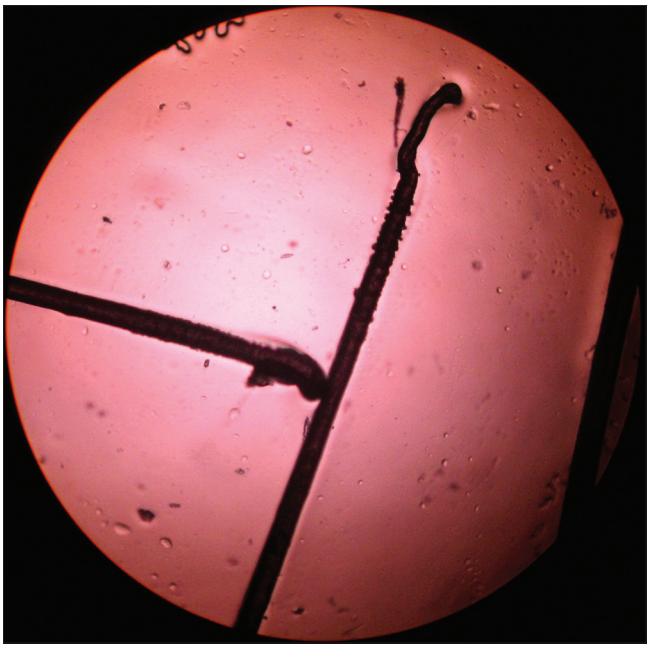

Figure 3: Trichogram showing distorted anagen hair bulb with characteristic floppy sock appearance

syndrome, which need to be distinguished from this benign condition. painless extraction of more than ten hairs of which at least 50% of anagen hairs on trichogram confirms the diagnosis.[3]

Treatment is resorted to for addressing cosmetic concerns, hence prognosis is excellent. Proper counselling about benign nature of the disease with reassurance is all that required in LAHS.[1]

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