Loose anagen hair syndrome: treatment with systemic minoxidil characterised by marked hair colour change

Short running title:

LAHS: treatment with oral minoxidil

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Loose anagen hair syndrome (LAHS) is a sporadic or autosomal-dominant disorder of abnormal anagen hair anchorage that typically affects young females between two and six years¹. LAHS is widely considered a benign, self-limiting condition. Treatment of severe refractory cases of LAHS with topical minoxidil has been described^{2,3}. Topical minoxidil appears to safely hasten the resolution of clinical symptoms of LAHS, although exact mechanism remains unclear.

We report a six-year-old girl who presented with LAHS. This was characterised by lusterless and unruly hair and increased shedding. Examination revealed sparse growth of thin, unruly and frizzy hair and diffuse alopecia (Figure 1). A hair pull test was strongly positive, with hallmark painless extraction of hairs from the scalp. Trichogram demonstrated multiple anagen hairs only devoid of the outer and inner root sheath (IRS).

The family and patient requested treatment due to the psychosocial impact of the condition. Topical minoxidil 5% solution twice-daily reduced hair shedding and increased volume in the first 18 months. However, hair length was uneven over the scalp, with longest hair at the vertex and shortest hair at the scalp margin.

Aged 11 years, the patient continued to experience shedding and variable hair growth. Oral minoxidil 0.5 mg daily was initiated – a dose that is effective for treatment of other non-scarring alopecia in women⁴. Shedding and hair density improved in an even pattern within three months. Response to treatment resulted in a change in colour from red-brown to light brown (Figure 2). The patient did not

dye her hair. Oral minoxidil was ceased after 12 months when hair density and length was normal for age, with a half-dose reduction every two weeks. There has been no recurrence of LAHS after cessation of minoxidil after 12 months of follow-up.

Children with alopecia experience higher anxiety and depression and lower parent-rated quality of life scores than controls. Given LAHS predominantly affects young girls during childhood and adolescence, the cosmetic implications of the disease can bear enormous psychological and social impacts. Active management appears to hasten the resolution of clinical symptoms in many cases, thereby mitigating the psychosocial impact of the condition.

Possible mechanisms of action of minoxidil in LAHS include increased local cutaneous blood flow, prolonged keratinocyte lifespan, increased cell proliferation, and DNA synthesis in the follicular and perifollicular keratinocytes⁵. A recent case report suggests that the increase in DNA synthesis and cell proliferation by topical minoxidil modifies the disordered keratinization of the IRS and improves hair anchorage³.

Our experience treating non-scarring alopecias with topical and systemic minoxidil in older children (e.g. 12 years old) has been generally favorable, with very few patients experiencing intolerable adverse effects.

We describe the use of oral minoxidil for refractory LAHS, with significant clinical improvement and no adverse effects. In this case, change in hair colour was used as a clinical indicator of response to treatment. We believe that a change in hair colour can be an indicator of disease resolution, however the mechanism of colour change is unclear.

References

1. Baden HP, Kvedar JC, Magro CM. Loose anagen hair as a cause of hereditary hair loss in children. *Arch Dermatol*. 1992;128:1349–53.
2. Cantatore-Francis JL, Orlow SJ. Practical guidelines for evaluation of Loose Anagen Hair syndrome. *Arch Dermatol*. 2009;145:1123–8.
3. Chandran NS, Oranje AP. Minoxidil 5% solution for topical treatment of loose anagen hair syndrome. *Pediatric dermatology*. 2014 May 1;31(3):389-90.

4. Sinclair R. Treatment of monilethrix with oral minoxidil. JAAD case reports. 2016 May;2(3):212.
5. Rogers NE, Avram MR. Medical treatments for male and female pattern hair loss. J Am Acad Dermatol 2008;59:547–566; quiz 567–568.

Figure Legends:

Figure 1: characteristic short and unruly hair of LAHS

Figure 2: improvement in hair length and density following initiation of oral minoxidil, with marked colour change

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