Hair heterochromia is characterised by the presence of hair of two naturally-occurring different colours in an individual. Although scalp and facial hair can often be different colours in fairer-haired individuals, hair on the rest of the body tends to be much darker than the scalp hair.1 Eyelashes are usually also more darkly pigmented than scalp hair for most people. Moreover, a slight variation in the colour of individual hair shafts can sometimes be seen in a normal scalp.1 This report describes an infant with a circular patch of focal scalp hair heterochromia without any underlying abnormalities.

Case Report

A six-month-old Omani male infant presented to the Department of Dermatology, Saham Hospital, Oman, in 2013 with focal scalp hair heterochromia without any detectable underlying abnormalities. The area of heterochromia was still noticeable at a one-year follow-up.

ABSTRACT: Hair heterochromia involves the presence of two different non-artificially induced colours of hair in the same individual which can be due to either iron deficiency anaemia, genetic mutations or mosaicism. We report a six-month old male infant who presented to the Department of Dermatology, Saham Hospital, Saham, Oman, in 2013 with focal scalp hair heterochromia without any detectable underlying abnormalities. The area of heterochromia was still noticeable at a one-year follow-up.

Keywords: Pigmentation Disorders; Hair Color; Hair Diseases; Mosaicism; Infant; Case Report; Oman.

Routine investigations, including total iron binding capacity, serum ferritin and serum copper levels, did not reveal any nutritional deficiencies.

An examination of the heterochromic hair under a light microscope revealed a homogenous distribution of pigment along the hair length. No thinning was noted when compared with the darker scalp hair. A Wood's lamp examination of the skin and hair also did not reveal any abnormalities. The density of the heterochromatic hair was the same as that of the normal scalp hair and there were no loose hairs, as evidenced by a hair pull test. There was no clinical evidence of an underlying naevus or heterochromia of the hair elsewhere on the body. At a one-year follow up, the scalp hair had become dark brown, although the patch of light-coloured heterochromatic hair remained unchanged [Figure 1B].

Discussion

Eumelanin and pheomelanin combine to form most of the naturally-occurring hair, eye and skin colours during a process known as mixed melanogenesis.2 Although blond hair contains mostly eumelanin, Ito et al. concluded that the yellowish tint of blond hair is due to the high dilution of eumelanin, while pheomelanin does not play a significant role.3 While the exact mechanism which makes blond hair appear...
yellowish is unknown, the researchers suggested that suppressed melanogenesis in blond hair may lead to smaller eumelanin polymers, resulting in a yellow appearance.2

Discrete patches of lighter or darker coloured hair with a Blaschkoid distribution may occur in rare cases.3,4 Several reports of segmental hair heterochromia have been published in which demarcated variations in colour occur along a single hair shaft.5,6 This variation usually takes the form of an intermittent loss of pigmentation. Sato et al. described a 15-year-old girl with segmented heterochromia associated with iron deficiency anaemia; the patient subsequently recovered completely following treatment with an iron supplement.7 Tomita et al. reported a case of white scalp hair in an infant with Menkes disease who had low levels of eumelanin and pheomelanin; the discolouration resolved after the administration of copper histidinate.8 A solitary case of nummular headache associated with focal hair heterochromia in a child has also been reported.9

Three different types of hair heterochromia have been previously described: patchy, segmental and diffuse.10 The patient in the current case had heterochromia of one area of scalp hair and thus was diagnosed with patchy or focal heterochromia. Focal hair heterochromia, owing to its presentation in isolated areas, is an indication of mosaicism.11,12 A similar case was reported in Japan with systematic naevus depigmentosus and focal blond hair on a portion of the scalp; the eumelanin content in the hair was low although pheomelanin levels were normal.13 However, a systemic examination in the current case did not reveal evidence of the involvement of any other systems. Moreover, the patient did not have any nutritional deficiencies and the colouration of the affected hair was uniform along the whole shaft. As such, somatic mosaicism leading to the dilution of hair pigment in a focal area of the scalp was considered the most likely explanation for the heterochromia in the current case.

Conclusion

Focal hair heterochromia may be caused by iron deficiency anaemia or Menkes disease and can be associated with underlying naevus depigmentosus. This case report described a case of focal scalp hair heterochromia without any underlying abnormalities; moreover, the heterochromia was found to have persisted at a one-year follow-up. As such, somatic mosaicism was concluded to be the most likely explanation for the heterochromia.

References


