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An unusual anatomical colocalization of alopecia areata and vitiligo in a child, and improvement during treatment with topical prostaglandin E2

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The association of two or more autoimmune disorders in an individual is well known.[1] Development of organ-specific autoantibodies for vitiligo and alopecia areata (AA) can lead to the features of both disorders appearing concurrently in a patient, but strict anatomical colocalization of these two autoimmune dermatoses is very rare, with only two published reports in the literature.[2,3] We report a case of colocalization of AA and vitiligo over the eyelid in a child.

A 12-year old girl presented with a 1-month history of an asymptomatic white patch of skin over the left eyelid. On physical examination, a well-demarcated area of depigmentation measuring 15 mm × 4 mm was seen over the left upper eyelid margin extending up to the lateral canthus. On closer inspection, complete loss of eyelashes in the area of depigmentation was seen, and leucotrichia was present in adjacent areas (Fig. 1a). The eyelashes in other areas were normal in colour and density. There was no scaling, sclerosis or any other epidermal change in the involved area. There were no patches of alopecia or depigmentation on any other area of the body. The patient was otherwise well, and there was no family history of AA or vitiligo. Ophthalmological examination did not reveal any other ocular abnormality. The patient refused permission for a skin biopsy. Based on the clinical findings, a diagnosis of colocalization of AA and vitiligo over the eyelid was made.

We prescribed prostaglandin E2 (PGE2) eyedrops (latanoprost 0.005% w/v; Xalatan; Pfizer, New York, NY, USA) once daily, to be applied over the depigmented patch using a cotton bud. At follow-up 1 month later, there was some repigmentation with partial regrowth of the eyelashes. After 2 months of treatment, there was repigmentation of the vitiligenous patch and the eyelashes were almost of normal density (Fig. 1b). Some of the eyelashes affected by leucotrichia had also regained normal pigment. The patient tolerated the treatment well with no side-effects.

There are only two previous case reports of colocalization of vitiligo and AA.[2,3] Both cases occurred in young female patients, as in our case. The scalp was the site of involvement in both cases. Dhar *et al.*[2] reported a 9-year-old girl who presented with a 1-year history of localized loss of hair and depigmentation of the skin over the occipital scalp. Those authors suggested that concurrence could result from a nonspecific immune mechanism affecting not only melanocytes but the epithelium of the hair follicle as well. Adams *et al.*[3] reported an 18-year-old girl who had a 4-month history of colocalization of AA and vitiligo, principally on the occipital scalp.

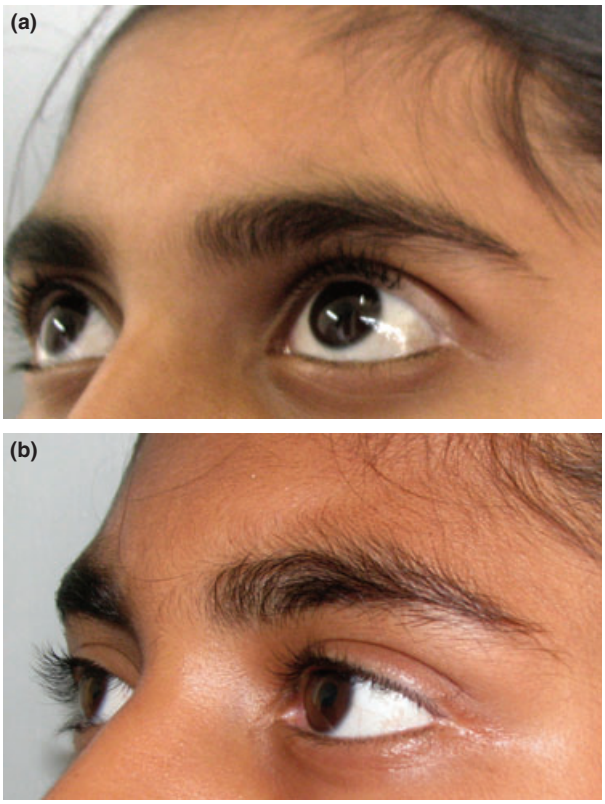

Figure 1 (a) Vitiligo patch over the left upper eyelid margin with loss of eyelashes in the same area; (b) complete repigmentation with regrowth of eyelashes at the 2-month follow-up.

The pathogenesis of AA and vitiligo is not yet fully elucidated, but there is definite evidence that both disorders have autoimmune basis, as autoantibodies against melanocytes and hair-follicle antigens are seen in vitiligo and AA, respectively.[4,5] The role played by these autoantibodies in the pathogenesis is not yet clear.

Concurrence of these two disorders at the same anatomical site could be due to localized costimulation of an immunological mechanism mediated by helper T cells against both the melanocytes and the hair follicle antigens, or due to inactivation of nonspecific suppressor mechanisms leading to polyclonal B-cell activation and production of multiple autoantibodies. There could also be a structural similarity between the circulating antiendothelial antibody targeted against the endothelial cells of the hair-bulb capillary plexus and the antimelanocytic antibody.[6]

Our patient responded to PGE2 eyedrops with repigmentation and increased eyelash density. Prostaglandin has stimulant and immunomodulatory effects on melanocytes and regulates their proliferation. It has been found useful in the treatment of vitiligo in a few studies.[7,8] Prostaglandin eyedrops, used for lowering intraocular pressure in patients with glaucoma and intraocular hypertension, have been shown to cause trichomegaly, hypertrichosis and increased pigmentation of eyelashes.[9] This side-effect of prostaglandin analogue has been exploited for treating AA involving eyelashes with encouraging results.[10]

Both vitiligo and AA have an autoimmune basis, and have often been reported to occur concurrently in same patient but concurrence at the same site is very rare. Topical prostaglandin is particularly useful and safe in cases of involvement of the eyelids.

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