

## Correspondence

### Telogen effluvium after oral albendazole

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We report a case of telogen effluvium developing after oral albendazole therapy.

A 25-year-old woman presented with alopecia of the scalp. She stated that she was in good general health and was not taking any systemic drugs. However, during the 2 months before her presentation, she had been treated with two courses of oral albendazole 400 mg/day for 1 week because of cutaneous larva migrans (CLM) on both feet, which had been acquired during a trip to Thailand about 2 months previously. The patient stated that the alopecia had appeared during the second course of albendazole.

On physical examination, alopecia of the scalp was seen, but no erythema, scaling, crusts or scars. We assessed the hair shedding by means of the pull test: all collected hairs were telogen club hairs, and anagen hairs were not present. A trichogram of the plucked hairs calculated a ratio of 85% telogen to 15% anagen. This result was consistent with telogen effluvium in the immediate anagenic period. The remainder of the physical examination was normal.

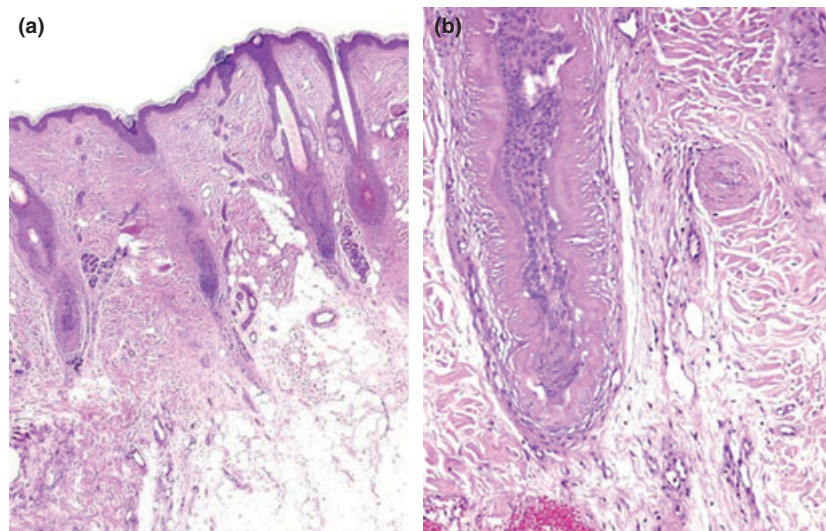
Laboratory investigations included complete blood count and serum levels (iron, transferrin, ferritin, folic acid,

vitamins B12 and C, zinc, homocystine), metabolic tests (glucose, cholesterol, triglycerides, uric acid), immunological tests (antinuclear antibodies, anti-DNA antibodies, anti-ENA antibodies), hormonal tests (thyroid-stimulating hormone, triiodothyronine, thyroxine), erythrocyte sedimentation rate, renal and liver function tests, urinalysis and protein electrophoresis; all tests were negative or within normal ranges. Other examinations (included ultrasonography of the reproductive system) were negative.

On histopathological examination, terminal follicles, mostly in catagen and telogen, were seen, but no inflammatory cells were seen (Fig 1a,b). Despite the rather high percentage of hairs in telogen, a diagnosis of diffuse alopecia areata was excluded because of the absence of perifollicular lymphocytic infiltrate. All possible causes of telogen effluvium (diet/malnutrition, psychiatric disorder, high and prolonged fever, shock, anaemia, and thyroid disease) were excluded.

A diagnosis of albendazole-induced telogen effluvium was made. The patient was not treated, but attended for monthly follow-up. Within about 3 months, the alopecia was in complete remission, and the hair was normal at the 11-month follow-up.

Albendazole is a benzimidazole drug. It is active against several systemic and cutaneous infestations caused by helminths (echinococcosis, strongyloidiasis and



**Figure 1** Terminal follicles, mostly in catagen and in telogen, with no inflammatory cells visible; (b) follicle in catagen, showing thickening of the fibrous root sheath. Haematoxylin and eosin, original magnification (a)  $\times 100$ ; (b)  $\times 200$ .

ancylostomiasis). The side-effects of albendazole are very rare, and are usually mild and reversible. In a group of 78 patients with CLM treated with albendazole 400 mg/day for 1 week, 1 patient reported nausea and abdominal pain, and another reported worsening of pruritus; in both cases it was unnecessary to stop therapy.<sup>1</sup> Side-effects and laboratory abnormalities are more common with high doses for prolonged periods, and include fever;<sup>2</sup> increase in transaminases (10–20% of patients), especially aspartate transaminase;<sup>3–5</sup> leucopenia;<sup>2,3</sup> neutropenia<sup>4</sup> (severe pancytopenia or agranulocytosis are exceptional<sup>5</sup>); and proteinuria.<sup>3</sup> One case of Stevens–Johnson syndrome was also published.<sup>6</sup> According to the literature, all these side-effects and laboratory changes resolved after treatment.<sup>3–5</sup>

Alopecia has been very rarely reported, and only in patients with echinococcosis treated with albendazole at high dosages ( $\geq 800$  mg/day) for long periods.<sup>3–5,7</sup> Only one case report that specifically described telogen effluvium triggered by albendazole has been published,<sup>7</sup> and to our knowledge, no cases of alopecia in patients treated with low-dose albendazole for CLM have been described to date.

In our patient, no other causes of alopecia were identified, therefore a diagnosis of albendazole-induced telogen effluvium is most likely. There is currently no hypothesis about the pathogenesis of this rare event; however, this case seems to prove that albendazole-induced alopecia is dependent on neither the dose nor treatment duration.

**S. Veraldi, C. Francia, V. La Vela, G. Nazzaro  
and M. Barbareschi**

*Department of Anesthesia, Intensive Care and Dermatologic Sciences,  
Università degli Studi di Milano, Fondazione IRCCS Ca' Granda,  
Ospedale Maggiore Policlinico, Milan, Italy*

*E-mail: stefano.veraldi@unimi.it*

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