tinued to show slight improvement in appearance. This phenomenon has been attributed to increasing girth and length of newly grown hair in previous studies.[1-3]

To conclude, minoxidil produced faster initial improvement in midfrontal/vertex AA in up to a third of treated patients, whereas finasteride produced marginally better results with increasing duration of treatment. Both agents were equally effective in stopping the progression of AA. Increase in the count of thick terminal hair was the major determinant of clinical improvement in AA in Indian men and was more important than total hair count.

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Finasteride Treatment May Not Prevent Telogen Effluvium After Minoxidil Withdrawal

Oral 1-mg finasteride and 5% topical minoxidil are currently widely used to treat androgenetic alopecia (AGA) in men.[1,2] Although the finasteride-minoxidil association has not been widely tested in humans,[3] results in animal models suggest that the combination of the 2 treatments may be more effective in inducing hair regrowth than either treatment alone.[4]

Topical vs Oral Regimens. Until a few years ago topical minoxidil was the only effective treatment available for AGA. Since the introduction of finasteride, increasing numbers of patients have switched from minoxidil to finasteride because the oral treatment is easier to manage than topical application.

Interruption of minoxidil treatment is well known to induce telogen effluvium because the follicles phase simultaneously to telogen, having prolonged their anagen growth under the effect of minoxidil. This often produces severe hair loss with obvious thinning.

There are no data about the capacity of finasteride treatment to prevent aggravation of AGA after minoxidil treatment interruption. Our observations indicate that such benefits may not exist.

Report of Cases. In 1997, a 24-year-old man consulted us because of AGA (**Figure 1**). He started applying topical 5% minoxidil, 1 mL, twice daily. In October 1999, the patient was given 1 mg of finasteride in addition to topical minoxidil because the latter had produced only moderate regrowth. In May 2001, the patient was satisfied with his hair growth, which had considerably improved, with elongation and thickening of the hair in the temporal and vertex regions (**Figure 2**), but decided to interrupt minoxidil application for personal reasons. However, in November 2001, he returned to our offices because of a noticeable worsening of his AGA, complaining of severe hair loss for 2 months. Clinical examination revealed evident hair thinning.

Follow-up in February 2002 confirmed the worsening of his AGA (**Figure 3**) compared with the pictures obtained before minoxidil treatment interruption. At follow-up in February 2003, the condition had remained stable.

We have recently observed 2 other patients who developed severe hair loss with evident worsening of AGA after interruption of 5% minoxidil treatment, despite continued finasteride treatment. Acute telogen effluvium started approximately 3 months after minoxidil withdrawal.

Comment. It is important to stress that all of these patients had been treated with a minoxidil-finasteride com-

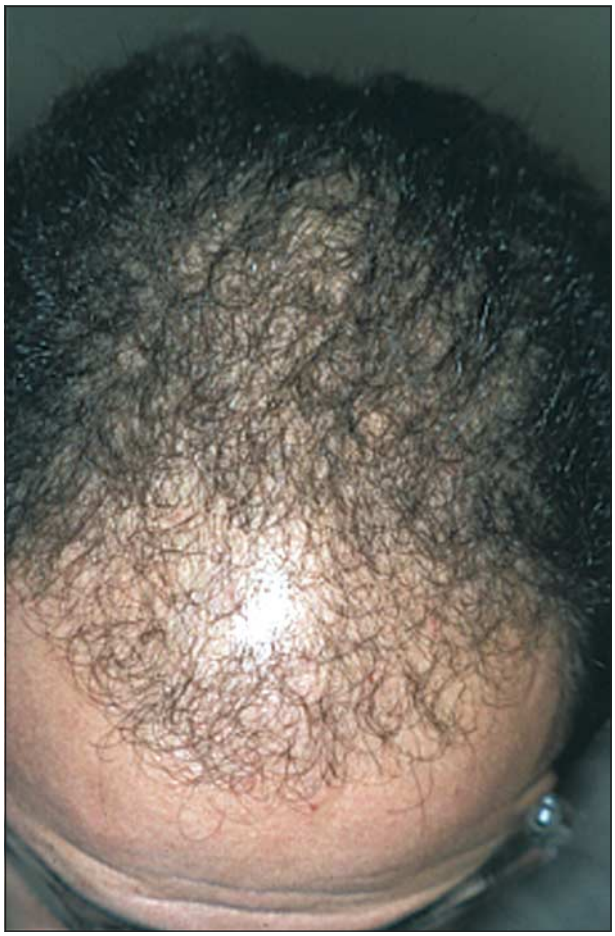

Figure 1. Androgenetic alopecia in a 24-year-old man.

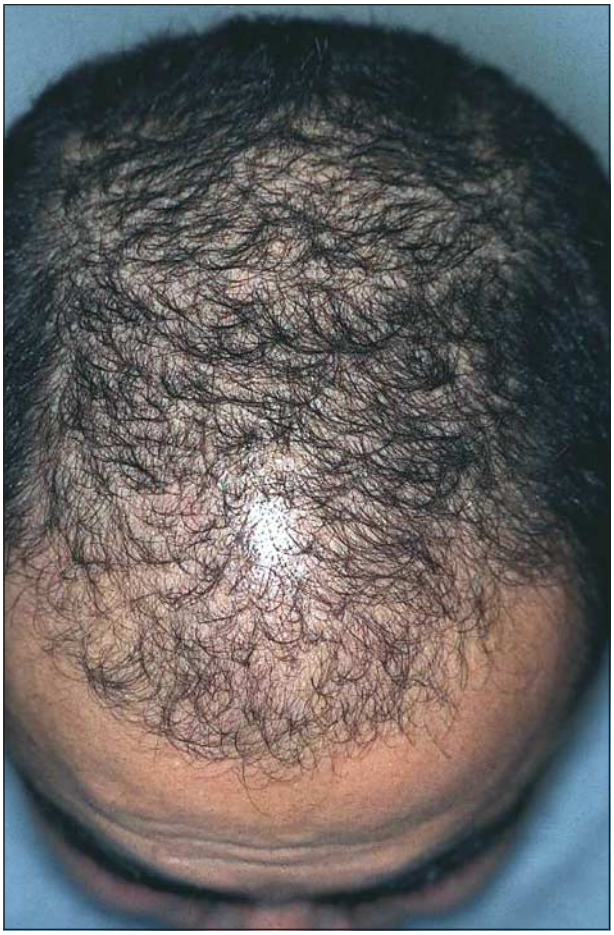

Figure 2. The patient from Figure 1 after undergoing combination oral finasteride/topical 5% minoxidil treatment for 2 years.

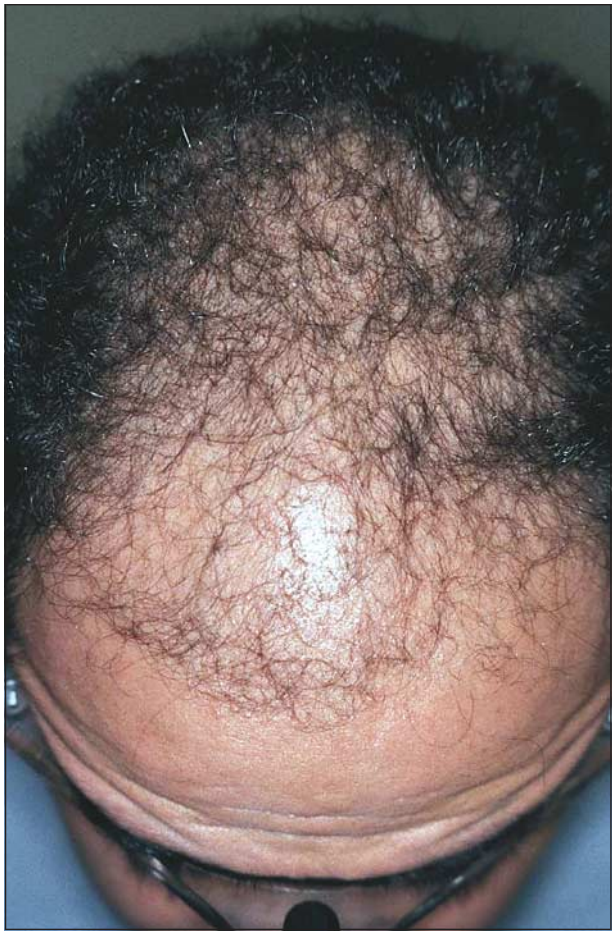

Figure 3. The patient from Figure 1 nine months after discontinuing minoxidil treatment. The picture shows evident hair loss with a noticeable worsening of androgenetic alopecia.

bination for 2 years with good improvement of their clinical presentation. The reason finasteride does not prevent telogen effluvium after minoxidil withdrawal may reside in the different mechanisms by which these drugs act on the follicle. Finasteride is a 5α-reductase type II inhibitor that decreases dihydrotestosterone production. It is effective in the frontotemporal region and in the vertex area. Minoxidil is a potassium channel opener and exerts its action through the activity of its metabolite, minoxidil sulfate. The exact mechanism of its action on the hair follicle is still debated, but it probably acts by stimulating the growth of the hair matrix and/or dermal papilla cells.

Our observations indicate that minoxidil and finasteride may have a synergistic effect on the hair follicles. This is promising with regard to using the 2 drugs in combination, but we also believe that physicians should be alerted to the risk of aggravation of AGA when the use of 1 of the 2 drugs (minoxidil) is interrupted.

So far, all of our patients who interrupted their minoxidil treatment and continued using finasteride have experienced worsening of AGA. However, we have no long-term findings for patients who discontinued finasteride use while continuing minoxidil therapy. Data from the literature indicate that finasteride withdrawal leads to slow and progressive hair loss, with return to pretreatment state within 1 year. Thus we can speculate that withdrawal of finasteride treatment in patients using the combination finasteride-minoxidil might be followed by a slow and not severe hair loss, but further observation is needed to confirm this hypothesis.

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