

## Discoloration of the Nail Plate Due to the Misuse of Amorolfine 5% Nail Lacquer

Sir,

Amorolfine is a broad-spectrum antimycotic drug, inhibiting biosynthesis of ergosterol. It is available as a nail lacquer at a concentration of 5%. The penetration of amorolfine through human nail is 20–100 mg/cm<sup>2</sup> (1,2). The vehicles contain triacetin, butyl acetate, methylene chloride and methylmethacrylate polymer. A bluish discoloration of the nail plate (3), or a yellow-brown discoloration of the distal portion of the nail plate (4), has been reported after the use of nail hardeners.

We here present cases of chromonychia due to the daily use of amorolfine 5% nail lacquer.

### CASE REPORTS

#### Case 1

A 25-year-old female patient presented with a 1-week history of bluish discoloration of the nail plate of two fingernails, on her left hand. Two months previously, due to a positive nail culture with *Trichophyton rubrum* involvement, amorolfine 5% nail lacquer had been prescribed once weekly. By mistake, the patient was using the lacquer on a daily basis, and 60 days later, she noticed a bluish colour on her nail plates (Fig. 1). Discontinuation of the nail lacquer led to resolution of the nail plate discoloration, after 2 months.

#### Case 2

A 53-year-old female patient with *T. rubrum* on her fingernails was treated with the amorolfine 5% nail lacquer. The patient, by mistake, was using the medication on a daily basis, and 75 days later, she noticed a yellow-brown discoloration of the nail plate (Fig. 2). Two months after discontinuation of the nail lacquer, the chromonychia had disappeared.



Fig. 1. Bluish nail plate discoloration of the first patient.

#### Case 3

An 18-year-old male patient with *T. rubrum* on the toenails was treated by us, with amorolfine 5% nail lacquer. Two months later, we found out that by mistake the patient was using the lacquer on a daily basis. No discoloration of the nail plate was noticed.

### DISCUSSION

Two of the patients suffered from onychomycosis of the fingernails and these were the ones who developed the nail plate discoloration. The third patient did not develop chro-



Fig. 2. Yellow-brown nail plate discoloration of the second patient.

monychia; he was suffering from onychomycosis of the toe nail. This observation led us to the conclusion that nail plate discoloration is probably due to oxidation of one of the constituents of the formulation. In favour of this theory is the restoration of the colour of the nail plate back to normal, after discontinuation of the nail lacquer. The vehicles used in

the above-mentioned nail lacquer are as follows: (a) *Triacetin* (b) *Methylene chloride* (c) *Butyl acetate* and (d) *Methylmethacrylate polymer (MMP)*. MMP is a plasticizer and the only of the constituents which is known to be oxidised. Therefore, MMP might be the responsible agent for the chromonychia seen in 2 of our patients. A role of light in this reaction cannot be ignored, since in the third patient, despite the daily use of the nail lacquer on the toe nails, no discoloration of the nail plate was seen.

#### REFERENCES

1. Polak A, Hartman PG. Preclinical data of amorolphine. In: Rippon S, Fromtling RA, eds. *Cutaneous antifungal agents*. New York: Marcel Dekker Inc., 1993; 2: 13–26.
2. Franz ST. Absorption of amorolphine through human nail. *Dermatology* 1992; 184: 18–20.
3. Lazar P. Reactions to nail hardeners. *Arch Dermatol* 1986; 94: 446–448.
4. Norton L. Common and uncommon reactions to formaldehyde-containing nail hardeners. *Semin Dermatol* 1991; 10(1): 29–33.

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