

Juvenile Tinea Capitis Caused by *Trichophyton violaceum*

Hepatic Reactions during Ketoconazole Treatment

BARBARA GASIOR-CHRZAN, SVEIN ERIK STENVOLD and EDVARD S. FALK

Department of Dermatology, University Hospital, Tromsø, Norway

A 10-year-old boy with *T. violaceum* tinea capitis was given systemic ketoconazole therapy. After 4 weeks' treatment, liver enzymes had increased considerably. Ketoconazole treatment was stopped and 3 weeks later the values had returned to normal. Three weeks thereafter the patient was completely cured and no relapses have occurred. Key words: Systemic anti-fungal therapy; Hepatotoxicity.

(Accepted July 10, 1990.)

Acta Derm Venereol (Stockh) 1991; 71: 57-58.

E. S. Falk, Department of Dermatology, University Hospital, N-9012 Tromsø, Norway

Dermatophyte infections in children are uncommon in our geographical region. Tinea capitis is caused by species of either *Trichophyton* or *Microsporum*, most commonly by *T. mentagrophytes* or *M. canis* (1). *T. violaceum*, on the other hand, is uncommon both in Western Europe and in North America and rare in Scandinavia. However, it has been found endemic in some parts of North Africa, South America, Eastern Europe and in the Far East (2).

Several studies have demonstrated that griseofulvin and ketoconazole (imidazole derivate) are efficient antifungal drugs (3, 4). Both drugs, however,

can cause hepatotoxic reactions. Liver complications may occur even after short periods of ketoconazole therapy.

We observed a considerable increase in serum liver enzymes in a patient with *T. violaceum* tinea capitis during treatment with ketoconazole.

CASE REPORT

In July 1988, a 10-year-old boy spent his holidays on Cy-

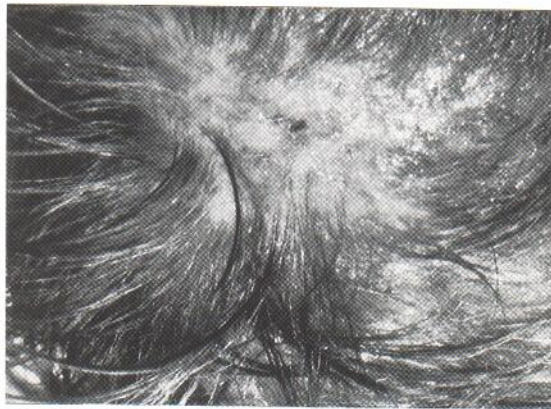


Fig. 1. Inflammatory tinea capitis due to *T. violaceum*, showing alopecia.

prus. From September 1988 he developed marked hair loss in circumscribed areas of the scalp with slight erythema, scaling and pustules. The clinical presentation was interpreted by his local dermatologist as psoriasis and he was treated with topical antibiotics and corticosteroids for several months, without any improvement. The lesions slowly spread, resulting in small red, scaling spots on the upper face.

In January 1989 he was referred to our out-patient department with inflammation, crusts and follicular pustules on the scalp; in addition, there was partial alopecia, showing numerous broken-off hairs (black dots) (Fig. 1).

Swabs sent to the microbiological laboratory revealed *Staphylococcus aureus* and an oral antibiotic was given. A few weeks later *T. violaceum* was cultured from the scalp and treatment with ketoconazole (Fungal®; Janssen) 100 mg daily (2.6 mg/kg/day) in combination with clotrimazole cream (Canesten®, Bayer) locally was started. After 2 weeks the dosage of ketoconazole was increased to 5.2 mg/kg/day owing to treatment failure. Another 2 weeks later, liver enzyme values were found elevated (ALAT 115 U/l, ASAT 48 U/l, GT 247 U/l and ALP 719 U/l). Ketoconazole treatment was stopped, but local applications with clotrimazole cream were continued. Three weeks after cessation of ketoconazole treatment the liver enzyme values were normalized and after a further 3 weeks the patient was completely cured and no relapses have since occurred.

DISCUSSION

T. violaceum tinea capitis is an extremely rare condition in our part of the world. The clinical presentation may resemble seborrhoeic dermatitis or bacterial infections. Folliculitis is often seen and a frank kerion may sometimes develop. In our patient the demonstration of *S. aureus* led to systemic antibiotic therapy. Nevertheless, unusual or treatment-resistant diseases of the scalp should always include microscopy and culturing for fungi. The subsequent confirmation of a concurrent *T. violaceum* infection necessitated oral ketoconazole treatment, which should be continued for 4 to 8 weeks to avoid recurrences.

Ketoconazole is usually a well-tolerated drug and few side effects have been reported. Liver toxicity due to ketoconazole is a rare reaction, though transient elevation of serum liver enzymes has been found in up to 5–10% of cases. Usually, hepatic

injury associated with ketoconazole therapy occurs in adults. In children only a few cases of hepatotoxicity have been reported during protracted ketoconazole treatment (5–9).

The increased liver enzyme values in our patient may have resulted from the doubling of the treatment dose – they returned to normal levels 3 weeks after cessation of therapy.

Ketoconazole is a useful drug for systemic treatment of patients with dermatophyte infections, especially when infected with *Trichophyton* species (1, 3). However, in conjunction with ketoconazole therapy, liver function tests should be done before treatment and every 2 weeks thereafter and, should symptoms of liver damage occur, treatment should be discontinued.

REFERENCES

1. Martinez-Roig A, Torres-Rodriguez JM, Bartlett-Coma A. Double-blind study of ketoconazole and griseofulvin in dermatophytoses. *Pediatr Infect Dis J* 1988; 7: 37–40.
2. Roberts SOB, Mackenzie DWR. Tinea capitis. In: Rook A, Wilkinson DS, Ebling FJG, Champion RH, Burton JL, eds. *Textbook of Dermatology*, 4th edn. Oxford: Blackwell Scientific Publications, 1986: 911–915.
3. Jones HE, Simpson IG, Artis WM. Oral ketoconazole: An effective and safe treatment for dermatophytosis. *Arch Dermatol* 1981; 117: 129–134.
4. Graybill JR, Craven PC. Antifungal agents used in systemic mycoses. Activity and therapeutic use. *Drugs* 1983; 25: 41–62.
5. Rasmussen JE, Ahmed AR. *Trichophyton* reactions in children with tinea capitis. *Arch Dermatol* 1978; 114: 371.
6. Hanifin JM. Adverse reactions. In: Levine HB, ed. *Ketoconazole in the management of fungal disease*. Sydney: AIDS Press, 1982: 156–159.
7. Jones HE. Ketoconazole. In: Fleischmayer K, ed. *Progress in diseases of the skin*. New York: Grune & Stratton, 1984: 217–249.
8. Lewis JH, Zimmerman HJ, Benson GD, Ishak KG. Hepatic injury associated with ketoconazole therapy. *Gastroenterol* 1984; 86: 503–513.
9. Babel DE, Baughman SA. Evaluation of the adult carrier state in juvenile tinea capitis caused by *Trichophyton tonsurans*. *J Am Acad Dermatol* 1989; 21: 1209–1212.