Ringworm of the Scalp Among Immigrants in Finland

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Sir,

Ringworm of the scalp is a childhood disease which is quite common among black people in the tropics and subtropics but unusual among white people in Western and Northern Europe. The causative agents of tinea capitis in Western Europe and the USA are usually *Trichophyton tonsurans* and *Microsporum canis* (1–3), while in Eastern and Southern Europe and North Africa the disease is usually caused by *T. violaceum* (4). In the early 1990s, immigrants from North Africa began coming to Finland. Many of the children of the families had dandruff, folliculitis or partial alopecia-like changes in the scalp and were therefore sent to our dermatology clinic. This report consists of a retrospective study of 76 patients with culture-positive ringworm infection of the scalp, only 12 of whom were of Finnish origin.

PATIENTS AND METHODS

The study was performed at the outpatient dermatology clinic at the Skin and Allergy Hospital in Helsinki between January 1990 and December 2002. Seventy-six patients with culture-positive ringworm of the scalp were included in the study. There were 35 males and 41 females and the age range was 1–59 years; 47 patients were 0–5 years old, 24 were 6–10 years old and 5 were over 10 years.

According to the interviews 38 patients had tinea capitis in their family. Sixty of the 76 patients were black immigrants from Africa, 49 of them were from Somalia and 11 from Central Africa. Twelve of the patients were of Finnish origin and in four cases, the country of origin was not evident from the patient's history. The mean duration of suspected tinea capitis was 11 months (range 1 week to 6 years). None of the patients was treated with systemic antifungal agents before their first visit to our outpatient clinic.

Microscopy was performed on the skin of the scalp and hairs in 68 patients and fungal culture in all cases. In 72/76 of the culture-positive cases, a systemic antifungal drug (either itraconazole, terbinafine or griseofulvin) was administered. The drugs were administered on an average for 4 weeks. The mean dose for itraconazole was 4 mg/kg/day, for terbinafine 4 mg/kg/day and for griseofulvin 10 mg/kg/day. In cases of secondary bacterial infection, a systemic antibiotic was administered as well.

RESULTS

As can be seen from Table I, *T. violaceum* was by far the most common ringworm cultured. Almost all cases of *T. violaceum* were from North-East Africa (Somalia, Ethiopia). *T. soudanense* and *T. tonsurans* were found in equal frequency in patients from North-East Africa and Central Africa, while *M. audouinii* was found mostly in patients from Central Africa. All patients with *M. canis* and *T. mentagrophytes* infections were of Finnish origin.

As can be seen from Table II, the treatment results with itraconazole and terbinafine were almost the same. The few patients receiving griseofulvin or 'local treatment only' healed well too.

Two patients who did not heal with terbinafine were afterwards treated with itraconazole and cured. Eight patients who did not heal with itraconazole were given terbinafine, seven of them were cured and one patient could not be traced.

Table I. *Culture results in accordance with the country of origin in patients with tinea capitis*

Culture	Number of patients (%)	North-East Africa	Central Africa	Finland	Not specified
T. violaceum	47 (62)	41	1	1	4
M. audouinii	7 (9)	1	4	2	0
T. soudanense	7 (9)	4	3	0	0
T. tonsurans	6 (8)	3	3	0	0
M. canis	6 (8)	0	0	6	0
T. mentagrophytes	3 (4)	0	0	3	0
Total	76	49	11	12	4

Table II. *Treatment results with different antifungal agents in patients with tinea capitis*

Antifungal agent	Number of patients (%)	Cured	Not cured	Not known
Itraconazole	58 (76)	32	8	18
Terbinafine	10 (13)	5	2	3
Griseofulvin	4 (5)	4	0	0
Local treatment only	4 (5)	3	0	1
Total	76	44 (58%)	10 (13%)	22 (29%)

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None of the patients who were given itraconazole or terbinafine suffered any side effects from the drugs. One patient taking griseofulvin had transitory leukopenia during the treatment.

DISCUSSION

Ringworm of the scalp has been extremely rare in Finland for decades. In the 1940s and 1950s, there were two epidemics in a disabled children's home. In both epidemics the causative agent was *T. violaceum* (5, 6). In the early 1990s, immigrants began arriving in Finland from Africa, mainly Somalia. Ringworm of the scalp, caused by *T. violaceum*, is particularly common in these areas (4, 7).

The clinical diagnosis of tinea capitis is not an easy one. The differential diagnoses of seborrhoeic eczema, psoriasis, atopic eczema and alopecia areata come into question (7, 8). This was also evident from the physicians' referrals, where the diagnosis was correct in only 30 of the 76 cases. Tinea capitis can also be accompanied by secondary bacterial infection, which makes the diagnosis even more difficult. Tinea capitis should always be suspected if a child who has emigrated from Africa has scaly or suppurative patches on the scalp. Hair loss in the area should increase suspicion of tinea. The few cases of tinea capitis of Finnish origin almost always originated from a pet or from contact with a foreign animal.

The number of patients who did not come to the control visit was quite high (29%). This may be due to linguistic or other problems more common among immigrants. However, we assume that most of the patients who did not come to the control visit were cured.

Most of the patients who came to the control visit were cured. Nine patients who were not healed were treated with a different systemic antifungal on the second visit. The few patients given only local treatment were cured. This may be due to the fact that they had only minimal symptoms.

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