A Case of Tinea Faciei, Tinea Corporis, and Tinea Unguim with Dermatophytoma Successfully Treated with Oral Fosravuconazole L-lysine Ethanolate

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ABSTRACT

We present a 76-year-old Japanese male with tinea faciei, tinea corporis, and tinea unguim with dermatophytoma. We performed fungal culture and confirmed the causative fungus to be Trichophyton rubrum. We treated the patient using oral fosravuconazole l-lysine ethanolate (F-RVCZ). More than one year has passed since the end of treatment, but there has been no recurrence. This case suggests that F-RVCZ is effective for tinea other than tinea unguim.

Key words: annular erythema, dermatophytoma, fosravuconazole l-lysine ethanolate, tinea corporis, tinea faciei, tinea unguim, Trichophyton rubrum

Introduction

Tinea faciei is a relatively rare dermatophyte infection occurring on the face. Both topical antifungal agents and oral antifungal agents can be used for this disease. Oral agents are used when the lesions are extensive, refractory to topical agents, or when tinea unguim coexists; but drugs currently indicated for tinea faciei cannot be used in some cases due to drug interactions and side effects.

Fosravuconazole l-lysine ethanolate (F-RVCZ), an antifungal drug approved in Japan in July 2018, is only indicated for tinea unguim. Compared with conventional drugs, there are few drugs that cannot be used in combination with F-RVCZ, which also has a lower rate of side effects. Therefore, it has potential as an option for patients who cannot use conventional drugs.

We report a case of tinea faciei, tinea corporis, and tinea unguim with dermatophytoma that was successfully treated with oral F-RVCZ.

Case report

A 76-year-old male noted an eruption on his abdomen and consulted his previous doctor after approximately one month from appearance of symptoms. He used topical steroids prescribed by his previous doctor, but the eruption did not improve. He was referred to our department in November 2018. He had asthma and allergic rhinitis.

The patient presented with annular erythema and multiple red papules on the face, neck, and chest accompanied by pruritis (Fig. 1a, b). Physical examination revealed the erythema to be covered with scales. All toenails were deformed with subungual hyperkeratosis, and white and yellow striae were observed on both big toenail plates (Fig. 2).

Potassium hydroxide (KOH) direct microscopic examination of the right cheek, neck, back of the right ear, chest, and left big toenail demonstrated septate hyphae (Fig. 3a). We also opened the left big toenail plate and confirmed the presence of dermatophytoma in the nail scrapings (Fig. 3b).

Plate culture isolated from his neck on Sabouraud dextrose agar yielded brownish-white and velvety colonies with...
Fig. 1.
a: Scaly erythema on the right cheek and back of the right ear.
b: Scaly annular erythema and red papules on the neck and chest.

Fig. 2. White and yellow striae were present on his almost all toenails. Toenail deformation caused by subungual hyperkeratosis was also observed.
reddish-brown reverse. The isolate was preserved as IFM 65869 at the Medical Mycology Research Center, Chiba University. Based on the morphological characteristics and sequence of internal transcribed spacer regions of the ribosomal RNA gene, the colonies were identified as *Trichophyton rubrum*.

Since he was an elderly person and had mild anemia and renal dysfunction, administration of itraconazole and terbinafine was considered highly likely to cause side effects. We therefore administered oral F-RVCZ at 100 mg/day for 3 months. Approximately one month after starting the drug, the eruption on the face and neck started to improve (Fig. 4). No side effects, including hepatic dysfunction, were observed during the 3-month oral administration period. There has been no recurrence to date, and tinea unguium was cured after one year (Fig. 5).

**Discussion**

Tinea faciei is a relatively rare superficial dermatophyte infection caused by infection of *Trichophyton* on glabrous skin of the face\(^1\). Although tinea faciei is often classified as tinea corporis in Japan\(^2\), it is usually more difficult to diagnose because of severe inflammation due to zoophilic fungi and alteration by topical steroids\(^3\). Noguchi et al. examined the clinical features of 80 cases of tinea faciei in Japan\(^2\) and reported that 52.5% had lesions on the cheek, 41.2% had lesions other than on the face, and 43.7% were caused by *T. rubrum*. Thus, we considered our case to have the typical features of tinea faciei in Japan.

For the treatment of tinea faciei, only terbinafine and itraconazole are currently approved. However, when using these drugs, it is necessary to pay attention to their interaction...
with many drugs and to their side effects; thus, in many cases, they cannot be used. In elderly patients, such as that in our case, these medications cannot often be used due to comorbidities and the frequent use of many oral medications. Therefore, there are many cases in which topical treatment is inevitable, even though oral medication is desirable.

F-RVCZ was approved for manufacture and sale in Japan in 2018, and it is the first drug approved for the oral treatment of tinea unguium in the past 20 years. Although, unlike the existing drugs terbinafine and itraconazole, use of F-RVCZ is limited to “tinea unguium caused by dermatophytes (Trichophyton spp.),” it has weaker CYP3A4 inhibitory effects than itraconazole\(^4\); therefore, there are no contraindicated drugs, and only a few drugs should be used with caution. Clinical studies also demonstrated that its side effects are less frequent and less severe\(^5\). As this was a case of tinea faciei and tinea unguium, the patient was treated with F-RVCZ. The eruption of tinea faciei and tinea corporis disappeared 1 month after the start of oral administration; and tinea corporis has not recurred after 12 weeks. This case indicates that F-RVCZ is effective for tinea corporis due to T. rubrum and is a treatment option when tinea unguium is coexisting.

In recent years, terbinafine-resistant Trichophyton infections have been reported\(^6\). The effectiveness of oral terbinafine against griseofulvin-resistant Trichophyton infections was previously reported and has attracted attention\(^7-9\). Similarly, the presence of terbinafine-resistant Trichophyton strains may increase the use of F-RVCZ. Although still limited, there are reports of treatment using F-RVCZ for cases of ringworm other than tinea unguium\(^10\). Onychomycosis, which includes dermatophytoma identified by KOH direct examination\(^11\), may be an indication for oral F-RVCZ with nail debridement. Going forward, the accumulation of similar case reports should expand the indications of F-RVCZ for fungal infections.

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Conflicts of interest

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