Six Cases of Sporotrichosis Treated with Potassium Iodide and Itraconazole

Yoon Whoa Cho, M.D., Chang Kwun Hong, M.D., Kye Yong Song*, M.D.
and Byung In Ro, M.D.

Departments of Dermatology and Pathology, College of Medicine,*
Chung Ang University, Seoul, Korea

We report 6 cases of sporotricosis including 3 cases of lymphocutaneous type and 3 cases of fixed cutaneous type. There were 3 males and 3 females patients in the age between 5 to 63 year-old age.

Clinically, histopathologically and mycologically, we diagnosed the cases as the sporotrichosis. And then case 1 and 2 were treated with potassium iodide for 9 weeks and 15 weeks duration. Case 3, 4, 5 and 6 were treated with itraconazole for 10-14 weeks duration. All patients were almost healed without recurrence. (Ann Dermatol 4:(2) 128–132, 1992)

Key Words: Sporotrichosis, Potassium iodide, Itraconazole

Sporotrichosis is most common chronic infectious disease of deep mycoses caused by a dimorphic fungus *Sporothrix schenckii*[1]. Many cases of sporotrichosis had been reported in Korean and foreign literatures[2-8].

Clinical types are divided into five categories: lymphocutaneous, fixed cutaneous, mucocutaneous, extracutaneous resulted from traumatic implantation and disseminated sporotrichosis from inhalation of spores[9].

Therapeutic modalities of sporotrichosis were potassium iodide(KI)[1, 9], amphotericin B[9, 10], 5-fluorocytosine[11], ketoconazole[12], etc.. KI frequently showed side effects such as nausea, vomiting, indigestion, rash, lacrimation and cardiac problems, therefore lately used to be given the mode of lower dosage therapy for treatment[5]. Recently itraconazole(IC) has been reported to be effective[9] in the treatment of sporotrichosis. Lim et al[5] and Choi et al[6] in our department described 4 cases treated with low dosage KI and 1 case treated with IC, respectively.

We report herein 6 cases of sporotrichosis in regard to efficacy of KI and IC in treatment.

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Reprint request to: Yoon Whoa Cho, M.D., Department of Dermatology, College of Medicine, Chung Ang University, Seoul, Korea.

REPORT OF CASES

Age, Sex and Site Affected. The female to male ratio of our cases was 3:3. The age distribution revealed 2 cases above 60 decade and 3 cases below 12-year-old. Predilection sites were face and arms except the dorsum of left foot in case 2.

Episode of Trauma. 5 cases among the 6 cases had a history of trauma. The chief traumas were stab wounds (iron in case 2, wire in case 1 and 4, prickle in case 6) and insect bite in case 5.

Clinical Findings. The lymphocutaneous types spreading along the lymphatics developed chains of subcutaneous nodules in case 1, 2, 4 and the fixed cutaneous types restricted to the site of inoculation in case 3, 5, 6 were noted. The fixed types were frequent in children. On the otherhand, the lymphocutaneous types were dominant in older patients.

Mycologic Examination. Each exudative and biopsy materials from the lesions were cultured on Sabouraud's dextrose agar slant at room temperature. Colony that developed on the medium was folded and membranous on the surface in case 1 and case 4. If colony did not grow, we did reculture three times in case 2, case 5, case 6. Thereafter we found growing colony.

Table 1. Summary of 6 cases of sporotrichosis

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Age/Sex	M/63	F/19	F/11	F/56	M/7	M/5
Duration	1 month	4 months	2 years	2 months	2 months	5 months
Trauma history	(+)	(+)	(−)	(+)	(+)	(+)
Skin findings	Linear ulcerative nodules	Eroded crusted plaques	Fungating verrucous plaque	Linear ulcerative nodules	Erythematous patch	Crusted plaque
Size	3×2.5cm 1.5×2cm	0.5×1cm	2×2cm	0.8×0.8cm	2×1cm	0.7×1cm
Site	Dorsum of Rt. forearm	Dorsum of Lt. foot	Rt. ala nasi	Lt. hand & forearm	Lt. shoulder	Lt. ala nasi
No. of lesion	3	4	1	7	1	1
Type	LC	LC	FC	LC	FC	FC
Culture on SGA	S.S	S.S	ND	S.S	S.S	S.S
Pathologic findings						
Central suppuration	(+)	(+)	(+)	(+)	(+)	(−)
Asteroid body	(−)	(−)	(−)	(−)	(−)	(−)
Giant cell	(+)	(+)	(+)	(+)	(+)	(+)
Granuloma	(+)	(+)	(+)	(+)	(+)	(+)
Spore	(+)	(+)	(+)	(+)	(+)	(+)
Lab. findings	WNL	WNL	WNL	WNL	WNL	WNL
Treatment	KI	KI	IC	IC	IC	IC
Initial dose	1.5g/D	1.0g/D	100mg/D	200mg/D	100mg/D	100mg/D
Final dose	3.0g/D	2.0g/D				
Total dura	9 wks	15 wks	10 wks	14 wks	10 wks	12 wks
Side effects	N/V	N/V	(−)	(−)	(−)	(−)
Result	Cure	Cure	Cure	Cure	Cure	Cure

LC: Lymphocutaneous, FC: Fixed cutaneous SGA: Sabouraud glucose agar, S.S: Sporothrix schenckii, NG: No growth, ND: Not done, WNL: Within normal limits, KI: Potassium iodide, IC: Itraconazole, N/V: nausea/vomiting, D: Day, Dura: Duration, Wks: Weeks

Fungus Elements in Tissue. For detection of organism, biopsy materials in the tissue were stained carefully with periodic acid Schiff(PAS). Five serial sections were prepared and examined for further evaluation. We observed free spores and spores within giant cells in all cases. We did not find asteroid bodies.

Treatment. Patients were treated with oral administration of KI and IC. Our mode of KI administration was usually as follows: 1.0g/day in children and 1.5g/day in adult were given initially and then gradually doses were increased to 2.0g/day-3.0g/day. Treatment was continued to complete cure plus 1 more week. Therapeutic methods with IC were administrated 100mg/day in children and 200mg/day in adult until complete cure of lesions. The case 3, 4 were initially treated with KI but stopped due to side effects of headache, nausea and vomiting and 1 month later started administration of IC. We did not experience significant side effects in IC administrated patients. All of the 6 cases were completly cured without recurrence.

There are summary of clinical findings in Table 1 (Fig. 1, Fig. 2).

DISCUSSION

Sporotrichosis shows considerable variations among areas including with age and sex distribution, type frequency, predilection site, occupation and seasonal variation. The characteristics in our cases are as follows: (1) Preponderance of the infection in children and older patients (2) no preponderance of the infection in sex (3) Predilection of lesions on the face of children and upper limbs of adult patients (4) Preponderance of lymphocutaneous and fixed cutaneous type. (5) High frequency of demonstration of the free spores or spores within giant cell and granulomatous in-

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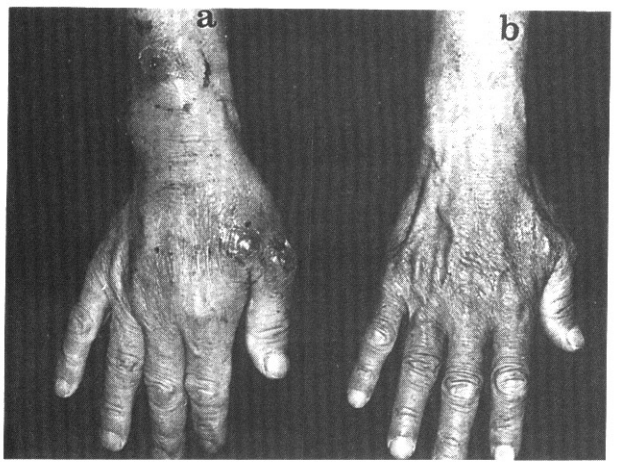
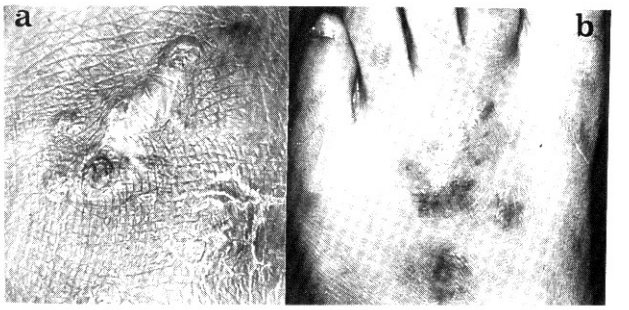
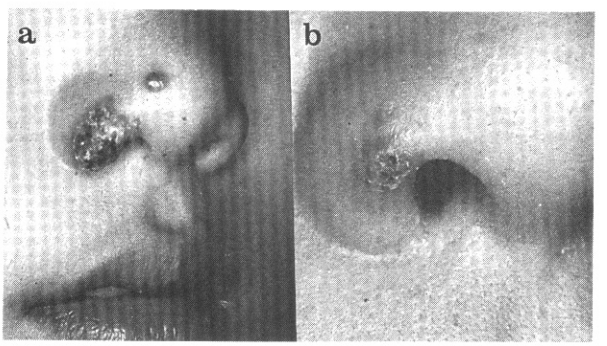


Case 1.

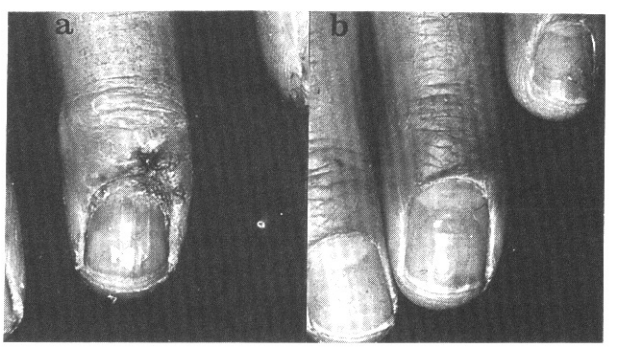


Case 2.

Fig. 1. Pretreatment and almost healing findings after potassium iodide treatment in case 1, 2 (a: pretreatment, b: post-treatment)



Case 3.



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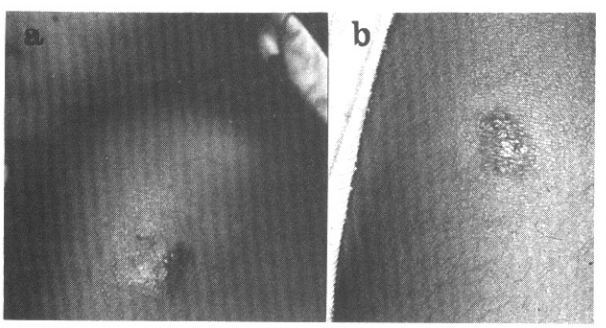
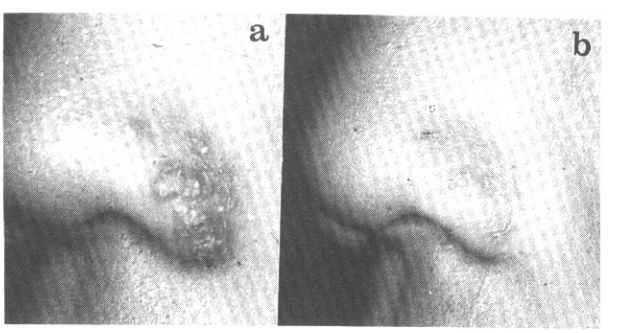


Case 5.



Case 6.

Fig. 2. Pretreatment lesions and almost healing findings after treatment with itraconazole (a: pretreatment, b: post-treatment)

filtration in tissue.

Treatment of KI in sporotrichosis has been used the drug of first choice for cutaneous sporotrichosis due to its effectiveness, inexpensiveness and relatively simplicity to use. Fungistatic potassium iodide enhanced the polymorphonuclear leukocyte myeloperoxide system and also had side effects of gastrointestinal trouble, pustular acneiform eruption, headache and increased lacrimation[10]. But its main drawbacks are that clinical resolution is

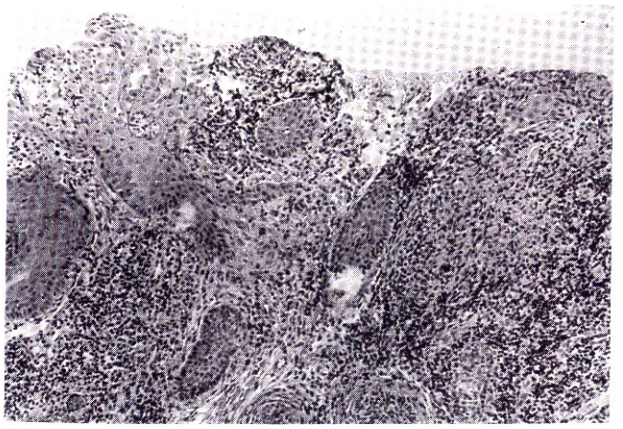


Fig. 3. Biopsy specimen showed pseudoepitheliomatous hyperplasia and chronic granulomatous inflammations (H&E stain, ×100).

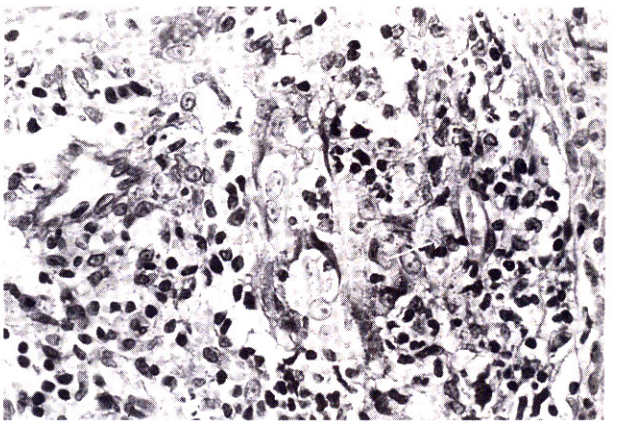


Fig. 4. Biopsy specimen shows granulomatous, inflammation composed of neutrophils, lymphocytes, histiocytes and giant cells in the dermis (H&E staine, ×400).

slow and relapses are common[9]. Other older antifungal agents including intravenous amphotericine B, intravenous stilgamidine, oral griseofulvin and oral nystatin had been used in the past to treat sporotrichosis but administrations had been limited due to toxicity or limited effectiveness and high relapse rate[9]. Newer antimycotic agents including clotrimazole, miconazole, ketoconazole and 5-fluorocytosine have been found lacking in the treatment[9, 10].

Most promising newer antimycotic agent for the treatment of sporotrichosis may be IC[13-15]. The mechanisms of action of IC relate to its binding of fungal cytochrome P-450 isozymes with resultant inhibition of ergosterol synthesis and perturbation of membrane-bound enzyme function and membrane permeability. IC binds more easily to fungal cytochrome P-450 than ketoconazole and has little effect on human cytochrome P-450 enzyme systems[10, 15]. IC has been used deep mycotic infection including coccidioidomycosis, aspergillosis, cryptococcosis and histoplasmosis et al[9]. But whether IC will prove efficacious is not yet known due to primarily fungistatic rather than fungicidal[9, 13-15]. In dose and duration of treatment is dependent on patient's age and clinical type of disease. Restrepo et al[14] reported 17 cutaneous or lymphangitic sporotrichosis treated with IC 100mg once daily for a mean duration of 18 weeks. Higher doses(150 to 200mg/day) have been recommended on the clinical experience[16]. Side effects of IC are commonly reported gastrointestinal disturbance, dizziness, pruritus, headache and fatigue. IC induced hepatitis has not been reported except asymptomatic increases of liver enzymes in 1 to 2%[15]. During higher dosage (400mg/daily), hypokalemia was developed[15]. In rat IC produces embryotoxic and teratogenic effects, therefore the drug is contraindicated during pregnancy and women of childbearing age should practice adequate birth control methods[15].

We experienced complete cure in 6 cases of sporotrichosis treated with KI administration for 9-15 weeks duration and IC for 10-14 weeks duration. Although KI is inexpensive and effective drug in sporotrichosis, we did not find significant side effects with IC treated cases as compared with KI treated cases. In future the chief of therapeutic drugs in sporotrichosis should be based upon drug efficacy, duration of therapy, recurrence rate and side effects.

REFERENCES

1. Anold HL, Odom RB, James WD: *Diseases of the skin. 8th ed, Philadelphia: Saunders, 1990, pp351-353.*
2. Itoh M, Okamoto S, Kariya H: *Survey of 200 cases of sporotrichosis. Dermatologica 172:209-213, 1986.*
3. Hong HP, Cho KH, Cho BK: *4 cases of sporotrichosis developed on the face of children. Kor J Dermatol 19:747-750, 1981.*
4. Ro BK, Ro BI, Chang CY: *Report of 3 cases and analysis of 81 reported cases in the Korean literatures. Inje Med J 3:47-58, 1982.*
5. Lim KS, Kim MN, Lee SH et al: *4 cases of sporotrichosis*

treated with lower dosages potassium iodide. Kor J Dermatol 23:799-803, 1985.

6. Choi BK, Hong CK, Ro BI et al: *A case of sporotrichosis treated with itraconazole. Journal of RIMSK 21:231-234, 1987.*
7. Kook JP, Lee SC, Chun IK et al: *A case of sporotrichosis manifesting unusual location. Kor J Dermatol 28:606-610, 1990.*
8. Suh MK, NH Kim: *A case of Fixed sporotrichosis treated with Itraconazole. Kor J Dermatol 29:228-232, 1991.*
9. Belknanp BS: *Sporotrichosis. Dermatol Clin 7:193-202, 1989.*
10. Gillman AG, Rall TW, Nies AS et al: *Goodman & Gillman's the pharmacological basis of therapeutics. 8th ed. Singapore: Pergamon Press Inc. 1991, pp1165-1585.*
11. Urabe H, Honbo S: *Sporotrichosis. Int J Dermatol 25:255-275, 1986.*
12. Dismukes WE, Stamm AM, Graybill JR et al: *Treatment of systemic mycoses with ketoconazole. Emphasis on toxicity and clinical response in 52 patients. Ann Intern Med 98:13-20, 1983.*
13. Ganer A, Arathoon E, Stevens DA: *Initial experience in therapy for progressive mycosis with itraconazole, the first clinically studied triazole. Rev infect Dis 9:s77-s86, 1987.*
14. Restrepo A, Robledo J, Gomez I et al: *Itraconazole therapy in lymphangitic and cutaneous sporotrichosis. Arch Dermatol 122:413-417, 1986.*
15. Grant SM, Clissold SP: *Itraconazole. Drugs 37:310-344, 1989.*
16. Lavalle P, Suchil P, De Ovando F et al: *Itraconazole for deep mycoses; Preliminary experience in Mexico. Rev Infect Dis 9(Suppl 1):s64-s70, 1987.*