Japanese Acupuncture - Current Research

Treatment of Tinea Unguium with Heat-sensing Moxibustion

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1. Introduction

The removal of warts is a well-known example of the application of moxibustion for the treatment of skin diseases, but in actual clinical practice this modality is widely used for the treatment of atopic dermatitis, postherpetic neuralgia, alopecia, eruptions, incision wounds, pruritus and the like. Currently, internal application of antifungal agents is considered to be an effective treatment for tinea unguium. Tinea unguium is often refractory to treatment and if left untreated almost never heals naturally, but it is also difficult to achieve improvements with therapy of topical antifungal medications alone. Under certain circumstances, pregnant women or people with impaired liver or kidney function may not tolerate the internal application of antifungal agents[1]. For patients in whom oral administration of antifungal agents is difficult, we thought about the possibility of using moxibustion for skin diseases and thus tried to use moxibustion for the treatment of trichophytosis unguium.

2. Methods

Duration: from June 2000 to September 2004

Site: Nagoya University, Medical Faculty, ambulance of the Department of Dermatology

Subjects: The study included 36 patients in whom direct microscopic examination revealed trichophytia and who were thus diagnosed with trichophytosis unguium, presenting with opacities extending over more than half of the nail area and in whom oral administration of antifungal agents was difficult either because of complications or by choice of the patients. These patients were divided into the A group: comprising 8 patients treated continuously for more than 24 weeks for trichophytosis with antifungal agents for external use (3 men, 5 women, average age 62.4±12.9 years, average duration of the morbidity with trichophytosis 4.5±4.3 years), and the B group: 28 patients who consented to be treated with a combination of antifungal agents for external use and moxibustion (12 men, 16 women, average age 61.1±13.1 years, average duration of the morbidity with trichophytosis 6.3±4.1 years) (Table 1).

Moxibustion treatment: Moxa（長沙乙= Changsha, Chinese product) was rolled by hand into half rice grain-sized cones of approximately 2 mg (base diameter approximately 2 mm, height approximately 3 mm) and placed on both sides of the posterior nail folds of the affected toe (hallux) (at sites corresponding to well points) and directly on the opaque areas to perform heat-sensing moxibustion using one cone on each point once a week. Heat-sensing moxibustion refers to a technique, where the tip of the moxa cone it lighted and removed by the practitioner, when the patient feels the heat.

Study duration: 24 weeks from the first moxa treatment.

Observation: Once a month pictures were taken from the affected nails in both group A and B. In group B in addition to the pictures sketches of the condition of the nails from the first treatment were made after each treatment and the ratio of opacity from the end of the nail (opacity ratio) recorded as figures. Opacity ratio refers here to the degree of opacity defined as "10", when it extends from the free margin to the posterior nail fold, a distance divided into 10 equal sections, or as an opacity ratio of 3, when it extends only over three sections (Figure 1).

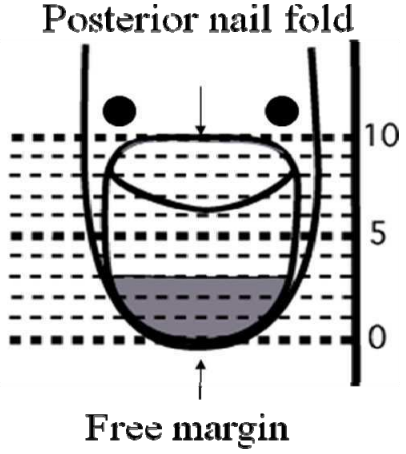

Figure 1

Figure 1:
Opacity ratio: The distance from the free margin to the posterior nail fold divided into 10 equal parts is used to express the opacity ratio. The figure shows an opacity ratio of 3. The presence of fungi was evaluated by direct microscopic examination. The black circles indicate the sites of the moxibustion treatment

Evaluation of results: The 4-step evaluation defines a reduction of the opacity ratio in the 24th week by 5-10, as compared to the time of the first moxibustion treatment, as "markedly effective", a reduction by 3-4 as "improvement", a reduction by 1-2 as "slight improvement" and 0 or a negative value as "no change and aggravation".

3. Results

Result 1:

In group A only "no change or aggravation" and nothing better than slight improvements were observed, but in group B slight improvement or better results were observed in 86% of the cases (markedly effective: 6 patients (21%), effective: 6 patients (21%), slight improvement 12 patients (43%) and no changes or aggravation: 4 patients (14%) (Figure 2)

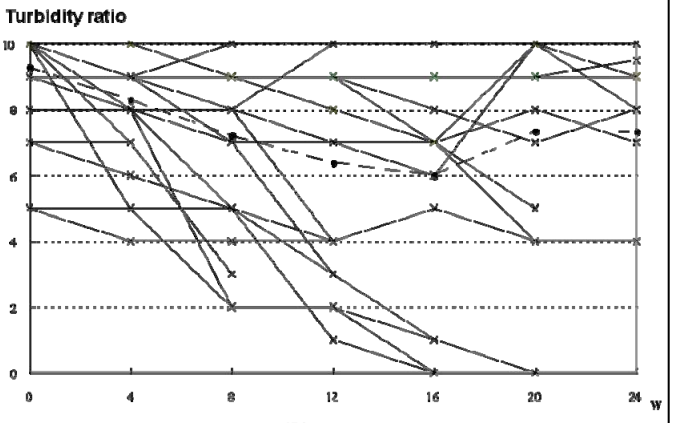

Figure 2

Figure 2:
B group: (combination therapy of antifungal agents for external use and moxibustion therapy: 28 cases) Variations in the opacity ratio in intervals of 4 weeks. Solid lines indicate the variations in intervals of 4 weeks for each patient. The dashed line indicates the average of the opacity ratio.

Below are the results from group B
1) Marked effectiveness or improvements classified by hands and feet shows improvements in 66% of the fingernails and 36% of toenails.
2) Classification of "no change or aggravation" by diseases showed for the fingernails one case of gastritis and for the toenails one case of dermatitis, one case of diabetes and one case of hypertension.
3) Depending on the number of years of morbidity the ratio of improved cases was 67% for patients with morbidity duration of less than one year, 40% for morbidity duration of 1 to 5 years, 33% for less than 5-10 years and 27% for morbidity duration of more than 10 years.

Result 2:

On this occasion I add a report of observed variations in the opacity ratio in all toes of one patient treated over a period of one year and 8 months with moxibustion from the first treatment on April 13 (final treatment on December 6, 2006). The patient was a 75-year old woman, presenting with impaired liver function and leukemia. Due to difficulties associated with oral administration of the antifungal agents, the topical application of butenafine hydrochloride was combined with heat-sensing moxibustion. (Figure 3)

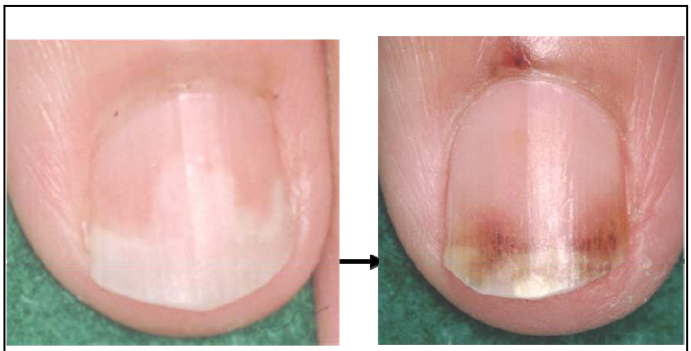
Figure 3

Figure 3
Age 50 years, female, 4th digit of right hand
About 4 months after moxibustion treatment, improvement in opacity ratio from 5 to 1.

If the weekly interval of the moxibustion treatment is spaced wider, the opacity ratio tends to deteriorate. During the wet and hot season from April to August

the opacity ratio tends to deteriorate, while it rarely deteriorates during the dry season from August to March of the following year. Continued moxibustion treatment resulted in a tendency towards facilitated improvement, even if a temporary aggravation occurs. The opacity ratio for the 2nd, 3rd and 4th toes of both feet tends to improve easily.

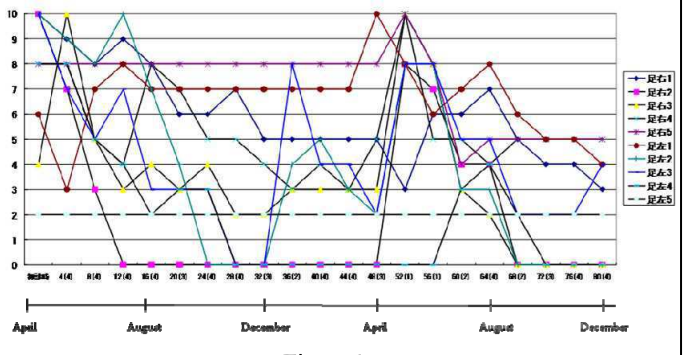

Figure 4

Figure 4:
Variations in the opacity ratio in intervals of 4 weeks for a 75-year old woman (combination therapy of antifungal agents for external use and moxibustion therapy). The numbers in bracket indicate the number of moxibustion treatments during that month. The horizontal line below indicates the actual number of years/months (seasons).

4. Discussion

Improvement of the nails here does not refer to improvements of the deformed or discolored portions of the nails, but rather a faster growth of new nail at the nail matrix than the invasion of the nails by the fungus, so that the discolored portions are pushed outwards and thereby end the infection. Nail growth from the posterior nail fold to the free margin in the fingers of healthy adults usually takes about 6 months and in the toes somewhere between 12 and 18 months[2]. The experimental observation period was with 6 month too short, so that the result "no change" observed in the 24th week for one affected toe had changed by the 48th week to "improved", suggesting that long-term treatment and extended observation periods are required. Classified by sites it was found, not surprisingly, that improvements occurred more easily in the fingernails.

Heat-sensing moxibustion has the advantage, that it can be performed regardless of the presence of impaired liver or kidney function. Yet, with treatment intervals longer than 1 week the results deteriorate, indicating that regular moxibustion treatments of more than once a week are necessary. In our clinic I instruct the patients under certain conditions also to perform the moxibustion treatment at home, using commercially available simplified moxa products. However, in cases of sensory disturbances of the affected finger of toe, poor skin condition or in case of insufficient comprehension of the explanations, this home treatment is not recommended.

On this occasion I did not examine the degree of sensation of coldness of the feet, but after the moxibustion treatment the patients reported "my toes are now feeling comfortably warm", suggesting that the moxibustion stimulation of the nails had promoted peripheral blood circulation, raised the skin temperature, inhibited the growth of the trichophytia, promoted the growth of the nails, improved the local immunocompetence and thereby was considered to influence improvements in the onychomycosis.

In case other family members also suffer from onychomycosis there is a high likelihood of contracting the disease. Prolonged time spent in highly humid environments, wearing shoes or similar environmental factors too have a strong influence. It is therefore necessary to communicate to the patients, that they should try to maintain cleanliness and keep the affected areas dry during the treatment.

In the control group treated only with antifungal agents for external use no improvements in the onychomycosis were observed, but through combination with moxibustion treatment improvements of the onychomycosis were observed also in cases, in whom oral treatment with antifungal agents was difficult. There are also clinical cases in which improvement of the onychomycosis had been achieved by moxibustion therapy alone[3], but the question, whether there are any significant differences still remains unanswered. Application of antifungal agents for external use tends to prevent trichophytia infection of hands and feet and this effect is enhanced through combination with moxibustion therapy,

suggesting that the latter may have promoted improvements in the onychomycosis.

Well points lie on both sides of the posterior nail fold. These well points are said to be "the site, where the vessel qi emerges, like from a spring, if likened to a stream of water"[4], so that stimulation with acupuncture and moxibustion is not limited to the particular area, but is considered to influence the entire area of the affiliated meridian.

5. Conclusion

Moxibustion therapy may be a possible treatment choice for cases in whom the oral administration of antifungal agents proves to be difficult. This indicates the role of acupuncture and moxibustion for cases refractory to pharmacologic therapy.

References

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Key words: trichophytosis unguium, moxibustion therapy

Table 1 Patient background

A group: topical application of antifungal agents for external use only

No.	Sex	Age	Number of years of	Affected	External preparation	Opacity ratio /	Opacity ratio / 24	Evaluation / 24 weeks	Complicating conditions
1	M	69	0	Left leg 2	Butenafine hydrochloride	10:10	10:10	No change	At will
2	F	51	0.3	Right leg 1	Butenafine hydrochloride	10:10	10:10	No change	Liver cirrhosis
3	M	63	0.1	Left leg 1	Butenafine hydrochloride	10:10	10:10	No change	Rheumatism
4	M	78	3	Left leg 1	Butenafine hydrochloride	10:10	10:10	No change	Chronic nephritis
5	F	42	5	Left hand 1	Butenafine hydrochloride	10:10	10:10	No change	Dermatitis
6	F	51	8	Right leg 1	Butenafine hydrochloride	10:10	10:10	No change	At will
7	F	73	10	Right leg 1	Croconazole Hydrochloride	10:10	10:10	No change	Hypertension
8	F	72	10	Left leg 1	Butenafine hydrochloride	10:10	10:10	No change	Diabetes
Avg.		62.4	4.55			10:10	10:10		

M: male F: female

B group: combination therapy of antifungal agents for external use and moxibustion

1	F	72	0.5	Right hand 1	Butenafine hydrochloride	10:10	0:10	Markedly effective	Gastritis
2	F	59	1	Right hand 4	Butenafine hydrochloride	7:10	0:10	Markedly effective	Gastritis
3	F	36	1	Right hand 1	Butenafine hydrochloride	10:10	5:10	Effective	Atopy
4	F	75	0.25	Left hand 1	Butenafine hydrochloride	10:10	6:10	Effective	Gastritis
5	M	75	5	Right hand 1	Butenafine hydrochloride	10:10	8:10	Some improvement	Diabetes
6	M	65	20	Left hand 2	Butenafine hydrochloride	9:10	10:10	Aggravation	Gastritis
7	M	50	6	Right leg 2	Butenafine hydrochloride	10:10	0:10	Markedly effective	Dermatitis
8	M	70	3	Left leg 2	Butenafine hydrochloride	10:10	1:10	Markedly effective	Prurigo
9	F	25	1	Left leg 1	Butenafine hydrochloride	7:10	3:10	Effective	Gastritis
10	M	39	10	Right leg 1	Butenafine hydrochloride	10:10	3:10	Markedly effective	Impaired liver function
11	F	52	15	Right leg 1	Butenafine hydrochloride	8:10	4:10	Markedly effective	Gastritis
12	F	72	5	Right leg 1	Butenafine hydrochloride	10:10	7:10	Effective	Diabetes
13	F	63	3	Left leg 1	Butenafine hydrochloride	10:10	4:10	Effective	Diabetes
14	M	72	10	Right leg 1	Butenafine hydrochloride	10:10	7:10	Effective	Impaired liver function
15	M	58	5	Left leg 1	Butenafine hydrochloride	10:10	8:10	Some improvement	Drug eruption
16	F	62	10	Right leg 1	Butenafine hydrochloride	10:10	8:10	Some improvement	Gastritis
17	M	70	1	Left leg 1	Butenafine hydrochloride	10:10	10:10	No change	Dermatitis
18	F	57	11	Right leg 1	Butenafine hydrochloride	10:10	8:10	Some improvement	Cerebral hemorrhage
19	F	52	10	Right leg 1	Butenafine hydrochloride	10:10	8:10	Some improvement	Diabetes
20	M	51	10	Right leg 1	Butenafine hydrochloride	10:10	8:10	Some improvement	Gout
21	M	64	0	Right leg 1	Butenafine hydrochloride	10:10	10:10	No change	Hyperpiesia
22	F	50	10	Left leg 1	Butenafine hydrochloride	10:10	9:10	Some improvement	Eruptions
23	F	54	8	Right leg 1	Butenafine hydrochloride	9:10	8:10	Some improvement	Hyperpiesia
24	F	73	10	Left leg 1	Butenafine hydrochloride	5:10	4:10	Some improvement	Diabetes
25	M	75	10	Right leg 1	Butenafine hydrochloride	10:10	10:10	No change	Diabetes
26	F	79	6	Right leg 1	Butenafine hydrochloride	5:10	4:10	Some improvement	Hyperpiesia
27	M	72	1	Right leg 1	Butenafine hydrochloride	10:10	9:10	Some improvement	Diabetes
28	F	69	4	Left leg 1	Butenafine hydrochloride	10:10	9:10	Some improvement	Diabetes
Avg.		61.1	6.31			9.29:10	6.11:10		