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Case Report

Successful Ayurvedic Management of Dermatophytosis—A case study

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ABSTRACT

Fungal infections are quite common in day-to-day practice. The available conventional treatments include various topical and systemic anti-pruritic and anti-fungal agents which are associated with high rates of treatment failure and adverse effects. Fungal infections manifest a great challenge to clinicians due to higher rate of recurrences and if not treated early, can lead to the development of more extensive diseases. In Ayurveda, this condition has resemblance with *Dadru kustha*. The characteristics of *Dadru kustha* are circumscribed erythematous, scaly plaques due to dematophytes infection. It is a type of *Kshudra kushta*, *tridosaja vyadhi* with dominance of *pitta* and *kapha dosha*, having characteristic features such as presence of *utsanna mandal* (elevated circular skin lesion), *kandu* (itching), *raga* (erythyma), and *pidaka* (eruptions). In this case report, a 62-year old male patient suffering from tinea corporis on and off for one year was treated effectively with Ayurvedic medicines. Significant changes were observed in the skin lesion and in the patient symptoms after 42 days of regular treatment. Post-treatment follow-up after 1 month did not reveal any signs of recurrences of lesions. Ayurvedic medicines offer an effective approach to manage tinea corporis.

1. Introduction

Dermatophytes are fungi that infect skin, hair, and nails and include members of the genera Trichophyton, Microsporum and Epidermophyton. It is designated as tinea followed by the name of the affected part [1]. Dermatophyte infection of the skin is often called ringworm. Dermatophytes occur worldwide and infections with these organisms are extremely common. Dermatophytes are transmitted from person-to-person through contact and fomites, and the infections are more commonly observed in males than in females. The characteristic ring shape of cutaneous lesion is the result of dermatophyte's outward growth in a centrifugal pattern in the stratum corneum [2]. The tinea infection may reach epidemic proportion in geographical areas with higher humidity, high population density and poor hygienic conditions [3].

Dermatophytes can be correlated with the *Dadru kustha* due to its characteristic features such as *utsanna mandal* (elevated circular lesion), *raga* (erythema), *daha* (burning sensation), *pidaka* (eruptions), and *kandu* (itching) [4]. The *Dadru kustha* has the appearance like the colour of the linseed flower or are copper-coloured, and are serpigineous with full of eruptions [5]. *Dadru* is classified as a *ksudra kustha* by *Acharya Charaka* and *maha kustha* by *Acharya Sushruta* and *Vagbhatta*. It is a *chirkalaja* [6] (chronic) *vyadhi* with predominant vitiation of *pitta* and *kapha dosha* [7]. These clinical features of *Dadru kustha* described in Ayurveda are more common in fungal infection and it spreads easily to other parts of body.

2. Case report

A 62-year old male, living in Deen Dayal Nagar, Gwalior presented in the Outpatient Department (OPD) of Regional Ayurved Research Institute of Drug Development, Gwalior, M.P, India (OPD Regn. No. 3168/2018-19) on 20/02/19 with complaints of rashes over face and in the right hand with itching since 1 year. These symptoms were occurring off and on from the past one year including a recurrence 15 days prior to OPD visit. History revealed that doctors had examined the affected area of skin and made a diagnosis of tinea carporis (body ringworm) infection, for which he had received tablet– Fluconazole 150 mg OD/week for 4 weeks

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Fig. 1. A. Left side of face- before treatment. B. Left side of face- after treatment.

along with Candid–B cream (Clotrimazole & Beclomethasone) for local application. The patient got relief for few week but skin rashes reappeared along with recurrence of other symptoms. He also had a history of hypertension for which he was taking a modern medicine treatment.

On examination, his *prakriti* (body constitution) was *kapha-vataj*, his *agni bala* (digestive power) was *avara* (poor) while *sharir bala* (physique) was *madhyama* (medium). Systemic examination did not reveal any abnormality. Routine hematological investigations were: Hb-14 gm/dl, total leukocyte count-8000/cumm,neutrophils-68%, lymphocytes-28%, eosinophils-02% monocytes-1%, RBS-108 mg/dl, and uric acid–4.14 mg/dl were normal. The rashes were extremely pruritic, initiated as erythematous small papules which increased gradually and later on formed circumscribed rashes (Figs. 1 and 2). On local examination, he was found to have multiple circumscribed rashes with central clearing of varying sizes seen symmetrically over knee joint, face and on right wrist joint (Figs. 1 and 2). Based on these findings diagnosis of *Dadru* was made.

Considering the history, clinical examination, and investigation, treatment summarized in Table 1 was prescribed. The patient was advised to report at an interval of 7 days or report as and when required for assessment.

Picture of the affected skin was taken at the time of initiation of the treatment and subsequently on every visit as per the methods used by Rastogi and Chaudhari [Figs. 1A–4B]. The subsequent observations are summarized in Table 1. The consecutive photographs were taken after each follow-up visit when compared with the before treatment status were able to exhibit the changes in the skin patches [Figs. 1A–4A]. This shows a considerable improvement in the area of patches following the therapy to the before treatment status (See Figs. 1B–4B).

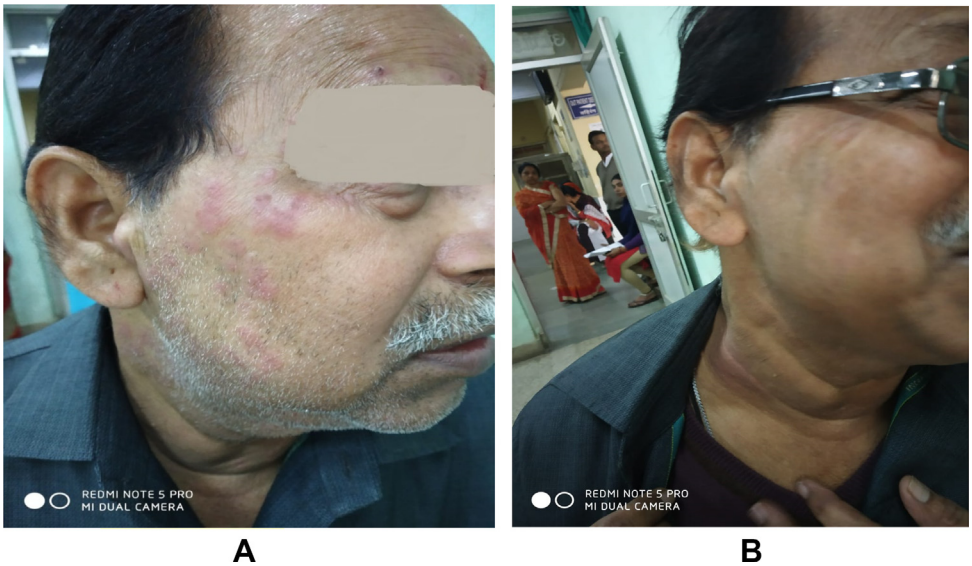

Fig. 2. A. Right side of face- before treatment. B. Right side of face- after treatment.

Table 1
Timeline of the case.

Date	Relevant medical history and examination
2016	Hypertension and on amlodipine 5 mg daily
2017	Skin rashes relieved with topical and oral medicines, again recurrences of rashes occurred.
2018	Appearance of rashes with severe itching
Relevant personal, family and pschycosocial history	No history of photosensitivity, diabetes, weight loss or any other significant health condition. Family history was also not significant. He had a normal bowel and bladder habits; He had not used any unused soap or detergent.

Date and day of visit	Patient summary from initial & F/U visit and description of skin patches	Interventions
20/02/19 (Day 0)	Itchy, erythematous, circumscribed rashes with central clearing, varying sizes approx 2−3 cm in diameter present symmetrically over knee joint, face and on right wrist joint	AV-250 mg twice daily with lukewarm water after food for 42 days KG- 250 mg twice daily with lukewarm water after food for 42 days NA-1Tab-Nishaamalaki 500 mg twice daily with lukewarm water after food for 42 days TC-5gms bedtime with lukewarm water daily for 42 days NKC- 30 ML twice daily Before food for 42 days CL- as per area, For topical application, two times daily tills complete Relief. Dietary and lifestyle modification explained.
27/02/19 (Day 7th)	Mild relief in itching, mild reduction in erythema and in the area of patches	AV + KG + NA + TC + NKC + CL in prescribed dosage.
06/03/19 (Day 14th)	Moderate relief in itching, mild reduction in erythema and in area of patches	AV + KG + NA + TC + NKC + CL in prescribed dosage.
13/03/19 (Day 21st)	Moderate reduction in erythema and in area of patches	AV + KG + NA + TC + NKC + CL in prescribed dosage.
20/3/19 (Day 28th)	Significant relief in itching, Moderate reduction in erythema and in area of patches	AV + KG + NA + TC + NKC + CL in prescribed dosage.
27/3/19 (Day 35th)	Significant reduction in erythema and in area of patches	AV + KG + NA + TC + NKC + CL in prescribed dosage.
03/04/19 (Day 42nd)	No itching with complete reduction of patches	AV + KG + NA + TC + NKC + CL in prescribed dosage.
03/05/19 (Day 72nd) Follow up after 1 month	Recurrences of skin lesion have not seen. No itching, no other associated complaints.	No medications
04/01/2020 Follow up after 8 month	A recurrence of skin lesion has not seen. No itching, no other associated complaints.	No medications
Diet-Normal bland diet, avoid excessive salty, sour and spicy food, milk, curd, jaggery and fish [8]		
Lifestyle-Avoidance of day sleep and excessive sun exposure		

AV-*Arogyavardhini vati*, KG-*Krimimudgar rasa*, NA -Tab-*Nishamalaki*, TC-*Triphala churna*, NKC-*Nimbadi Kwath Churnam*, CL-*Chandrakala Lepa*.

3. Discussion

Ayurvedic perspective of this case presented with pruritus, erythema, and circular patches has been established. Itching and elevated circular patches are the features of *kapha* dominancy while erythema (*raga*) and burning sensation (*daha*) are the features of aggravated *pitta*. On the basis of symptomatology, the disease can be equated with *kapha-pitta kushtha*. The *kapha dushti* initially manifested as circular patches with itching (*kandu*) over both knee joints, face and on wrist joint which are the local sites of

Fig. 3. A. Right hand- before treatment. B. Right hand - after treatment.

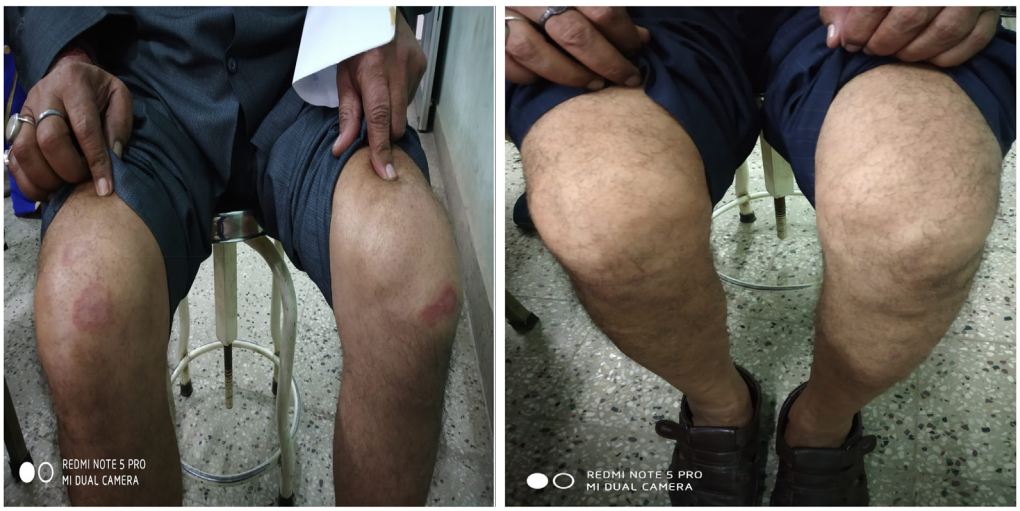

Fig. 4. A. Knee joint- before treatment. B. Knee joint - after treatment.

kapha dosha. *Kapha dosha* involving *rasa dhatu* causes *kandu* (itching) and elevated circular patches while *pitta dosha* with vitiated *rakta dhatu* leads to erythema.

The treatment was planned on the basis of predominance of *dosha* and *dhatu* (body tissue) and *srotas* (macro and microcirculatory channels) involvement [Table 1].

Arogyavardhini Vati is indicated in *kustha*, *medo-dosha* (obesity), *yakritvikara* (liver disorders) and *jirna jwara* (chronic fever) [9]. Major ingredients of *Arogyavardhini Vati* are *Gandhaka* (Sulfur), *Triphala*, *Katuki* (*Picrorhiza kurroa*), and *Nimba* (*Azadirachta indica*), which are the versatile drugs for all type of skin diseases. *Triphala* is anti-inflammatory astringent. *Nimba* is an antiseptic helpful in shedding of the scales of the skin and preventing secondary infection [10]. It is helpful in *Pachana* (metabolism) of *Ama Visha* (toxins) and corrects vitiated *rasa dhatu* in the body.

Krimimudgar rasa cures *mandagni*, *vibandha*, *vrana,* and *kustha*, and its main ingredients are *Gandhaka* (sulfur) *Vidanga* (*Embelia ribes*), *Ajamoda* (*Carum roxburghianum*), *Kuchala* (*Strychnos nux-vomica*) and *Palash* (*Butea monosperma*) [11]. *Gandhaka* has *rasayana*, *dipana*, *pachana vatakaphahar, kusthahar,* and *krimihar* properties [12]. It also has anti-fungal, anti-bacterial, and keratolytic properties [13].

Nishaamalaki tablet contains *Haridra* (*Curcuma longa*) and *Amalaki*(*Emblica officinalis*) [14]. Turmeric is the dried rhizome of perennial herb *C. longa*. Curcumin is generally regarded as the most active constituent of Curcuma species and comprises 2–8% of most turmeric preparations. Curcumin exhibits anti-inflammatory, antiviral, anti-bacterial, antioxidants, and nematocidal activities. Curcumin also has shown to have immunomodulatory effect involving activation of host macrophages and natural killer cells and modulation of lymphocyte-mediated function [15]. It possesses antihistaminic, anti-bacterial, anti-fungal, and anti-inflammatory activities and is useful in pruritus, skin diseases, allergic condition and discolouration of skin. Due to its multivarious action like *varnya*, *kandughna* (anti-itching), *kusthaghna,* and *vishaghna* (detoxifier), it helps in reducing the infections [16]. *Amalaki* has been mentioned in *kusthghna mahakasaya* by *Achrya Charak* [17].

Triphala is well-known for its *rookshana, kaphamedohar,* and *rasayana* effect [18]. It is used for *Shodhana* (purification and bowel cleansing), and indicated in *kapha-pitta roga*, *kushtha, prameha* (urinary disorders), and *anaha* (abdominal distension due to retention of urine or stool) [19]. *Haritaki*, *Amalaki* and *Khadira* have been mentioned in *kusthghna mahakasaya* by *Achrya Charak* [17].

Nimbadi kwatha churna is the herbal coarse powder of *Nimba twak, Guduchi, Sunthi, Haridra, Dasamula, Triphla, Patol and Kantakari. Nimbadi kasaya* is prepared by boiling 20 gms of coarse powder in 240 ml (16 parts) of water on *mandagni* reducing it to 1/8th (30 ml). All ingredients are *tikta rasatmak* which has *kushthaghna, kandughna,* and *shamanam* (pacificatory) and *varnya* (blood purifier) properties, also useful in *Mahakustha and Krimi* [20].

Chanderkala lepa (C. lepa) contains *Madhucchista*, *Sveta Marich*, *Narikela Thaila* and *Karpura*. Topical action of *C. lepa* is mainly due to *katu* and *tikta rasa. Katu rasa* acts on *kleda* as *kledopashoshana*, and thus reduces *kandu* in *dadru*. *Katu rasa* also acts on *mamsa* as its action of *lekhan* on *mansa dhatu* thus reducing the elevated circular patches. *Ushana virya* and *katu rasa* are said to be *kandughna* while *tikta rasa* is said to be *kushthaghna* and *raktashodhak* (removal of blood impurity) thus acting on skin diseases.

Component of C. *lepa* is *Narikela Thaila* which is said to be *tvchya* by *Charak*. It also has *sukshma guna* so it penetrates into the microchannels of skin and enhance the action of *Shvet maricha* and *Karpura* in *Dadru*. It is commonly used in different skin diseases like *kandu* (Itching), *shitapitta*, *vicarchika* and *pama* due to its *raktashodhak* (removal of blood impurity) property [21]. After 6 weeks of Ayurvedic treatment, recurrences of skin lesion and other associated complaints were not seen in follow-up period of the present case (Figs. 1B–4B). *Medovaha srotodushti* have been corrected by *arogyavardhini vati* as *sveda* (sweat) is *mala* of *meda dhatu*, *vitiated sveda* restored to normal state.

4. Conclusion

This case study shows that dermatophytosis can be managed successfully with Ayurvedic intervention. No adverse effect pertaining to the prescribed drug was reported. Ayurvedic medicines offer a good approach to manage *Dadru*, but to establish this fact, further study on larger sample is required.

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Conflict of interest

None.

Author contribution

Neelam K. Singh has done the clinical aspects of study, while compilation has been performed by Alok S. Sengar and Bipin B. Khuntia has done the literature aspects.

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