Successful Ayurvedic Management of Dermatophytosis—A case study

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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 kushta 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 kushta has the appearance like the colour of the linseed flower or are copper-coloured, and are serpiginous with full of eruptions [5]. Dadru is classified as a ksudra kushta by Acharya Charaka and maha kushta by Acharya Sushruta and Vagbhatta. It is a chirkalaja [6] (chronic) vyadh with predominant vitiation of pitta and kapra dosha [7]. These clinical features of Dadru kushta 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 corporis (body ringworm) infection, for which he had received tablet— Fluconazole 150 mg OD/week for 4 weeks.
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).
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 kushta*. 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

| 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 psychosocial 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. |
| 20/03/19 (Day 28th)   | Significant relief in itching, Moderate reduction in erythema and in area of patches | AV + KG + NA + TC + NKC + CL in prescribed dosage. |
| 27/03/19 (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 | 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.**
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 (Picrorrhiza 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 krimihaar 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, anti-viral, 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 anti-histaminic, 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), kushthaghna, and vishaghna (detoxifier), it helps in reducing the infections [16]. Amalaki has been mentioned in kushthaghna mahakasaya by Acharya 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, pameha (urinary disorders), and anaha (abdominal distension due to retention of urine or stool) [19]. Haritaki, Amalaki and Khadir have been mentioned in kushthaghna mahakasaya by Acharya Charak [17].

Nimbadi kwatha churna is the herbal coarse powder of Nimba twak, Guduchi, Sunti, Haridra, Dasamula, Triphila, 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 sadru. Katu rasa also acts on mamsa as its action of lekhana 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 rakta shodhak (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 Sadru. It is commonly used in different skin diseases like kandu (itching), shitapitta, vicarchika and pama due to its rakta shodhak (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. 18–48). Medovaha srotodushii 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 Dadvru, 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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