

REVIEW OF DADRU KUSHTHA W.S.R. TO FUNGAL DERMATOPHYTOSIS: A CONCEPTUAL STUDY

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ABSTRACT

The word '*Kushtha*' stands for all types of skin disorders. *Acharya* Charaka described *Dadru* under *Kshudra Kushtha*, which is characterized by *Udagata Mandala* (raised patch) associated with *Kandu* (itching), *Raga* (redness), and *Pidika* (eruptions) and is *Pitta Kaphaja* predominance skin disease. It has a resemblance to Fungal Dermatophytosis. It is a common skin condition caused by superficial tinea infection, which is easily spread by contact and contamination. This study aimed to review of *Dadru* as per Ayurveda and modern science has been summarized. The present study is based on an

analysis of ancient science, related published research works, and contemporary literature. Common cause are incompatible diet and food habits, which lead to *Dadru Kushtha*. The remission and relapses are common therefore, one should take necessary to treat the root cause. In Ayurveda treatment mainly focuses on avoiding the etiological factors (*Nidana Parivarjanam*) and breaking of pathology (*Samprapti Vighatana*) and ultimately is *Dhatu Samya*.

KEYWORDS: *Dadru*, *Kushtha*, Fungal Dermatophytosis.

INTRODUCTION

Ayurveda literature has described '*Tvak Sharira*' along with different types of *Kushtha*. In Ayurveda, all skin diseases are categorised under the wide title of '*Kushtha*' which are further classified in two subdivisions 7 *Mahakushtha* and 11 *Kshudrakushtha*.^[1] *Dadru* is one of the most common type of *Kushtha*, which affects the people of all the age of group. *Acharya* Charaka described *Dadru* under *Kshudra Kushtha*,^[2] *Acharya* Sushruta^[3] and *Acharya* Vagbhatta^[4] described it under *Mahakushtha*.

Kushtha considered as one of the eight *Mahagada*^[5, 6] and *Santarpanajanya Vyadhi*.^[7] It is also *Raktapradoshaja Vikara*.^[8]

According to *Acharya* Sushruta, the skin condition which is having spreading nature, papules with bluish tint or copper colour is known as *Dadru Kushtha*.

Acharya Kashyapa has clearly defined *Dadru* as a skin disorder having '*Vridddhimant Mandal*' i.e. disseminating discoid lesions with intense itching, burning and secretions from it. The lesions are sometimes dry in nature, which is a very important point through the practical aspect.

Dadru is a *Tridoshaja Vyadhi* with predominance vitiation of *Pitta* and *Kapha Dosha*.^[9] According to *Sushruta* *Dadru* is a *Kapha Pradhanvyadhi*.^[10]

This condition can be compared with Fungal Dermatophytosis/ Ringworm in modern medical science based on similarities of the symptoms.

Fungal skin infections can be superficial (dermatophytes and yeasts) or deep (chromomycosis or sporotrichosis), with the latter occurring more frequently in tropical areas or in immunocompromised individuals. Fungi can arise from the soil (geophilic), from animals (zoophilic), or from human skin (anthropophilic).^[11]

Dermatophytes, which including members of the genera *Trichophyton*, *Microsporum*, and *Epidermophyton*, are fungi that infect the skin, hair, and nails. *Tinea corporis*, or infection of the body's relatively hairless skin (glabrous skin), can occur in a variety of forms depending on the severity of the inflammatory reaction. Typical infections are characterised by erythematous, scaly plaques with an annular appearance, thus the term ringworm.^[12]

The different types of ringworm are usually named for the location of the infection on the body e.g. tinea capitis (head), tinea pedis (feet), tinea corporis (body), tinea cruris (crotch), and tinea unguium (nails), etc.

Aim

Conceptual study of *Dadru Kushtha* (Fungal Dermatophytosis).

MATERIAL AND METHOD

Present work is based on a review of classical information, relevant published research works, and modern literature.

Epidemiology

There is an increase in the risk of skin conditions especially in the tropical and developing nations due to poverty, overcrowding, poor sanitation and personal hygiene, low standards of living along with high humidity environments, pollution etc.^[13]

- The most frequent fungal diseases are superficial fungal infections. The incidence rate of superficial mycotic infection has been reported to be 20-25 percent globally, according to the World Health Organization (WHO).^[14]
- Tinea infections affect 5 out of 1000 persons in India.^[15]

Classification

According to *Acharya Dalhana Dadru* classified in two types:

- Sita Dadru*
- Asita Dadru*

Table no. 1: *Sita-asita dadru kushtha*.

<i>Sita</i>	<i>Asita</i>
Recent origin	Chronic
Non-involvement of deeper <i>Dhatu</i>	Involvement of deeper <i>Dhatu</i>
<i>Sadhya</i>	<i>Asadhya</i>

Sita type of *Dadru* comes under *Kshudrakushtha* (Charaka) & *Asita* type of *Dadru* comes under *Mahakushtha* (Sushruta).^[16]

Acharya Chakrapani has also explained in *Kushtha Adhyaya* that if only four *Dhatu* are vitiated then it is *Samanya Dushti*. While on the vitiation of the deeper *Dhatu*, it may be

considered as *Vishesha Dushti*. *Samanya Dushti* happens mainly in *Kshudrakushtha* while *Vishesha Dushti* occurs in *Mahakushtha*.

According to *Acharya Sushruta Dadru* is a deep rooted recurring *Vyadhi* and involves deeper *Dhatu* and as the chronicity grows the management becomes difficult. Hence, *Sushruta* considers under *Mahakushta* and *Dalhana* considers it under *Asita Dadru*.^[17] Therefore, *Acharya Sushruta* has described it under the heading of *Mahakushtha*. If it is ignored, there is a risk of recurrence and a bad prognosis.

But *Acharya Charaka* opines that *Sukhasadhya* that is easy for the treatment, *Uttarottara Dhatu Anupravesha Abhavat* that it doesn't affect deeper *Dhatu* like *Majja* and *Shukra*, it is limited to *Rasa*, *Rakta* and *Mamsa*. *Atyarth Peeda Abhavat* there is no excessive pain as such. Hence, he considers it under *Kshudra Kushtha* and *Dalhana* includes under *Sita* type of *Dadru*.^[18]

Nidana panchaka

Dadru has been included under the *Kshudra Kushtha*, but the classics have not described any specific *Nidana*, *Poorvarupa*, *Samprapti* of *Kshudra Kushtha* as well as *Dadru*, except the general *Nidana*, *Poorvarupa*, *Samprapti* of *Kushtha*.

1. *Nidana*

Nidana mentioned as bellow-^[19, 20]

- A. *Aharaja nidana*:** Intake of *Chilchima* fish with milk; intake of food mostly containing *Hayanka*, *Yavaka*, *Chinaka*, *Uddalaka* along with *Ksheera*, *Dadhi*, *Takra*, *Kulattha*, *Kola*, *Masha*, *Atasi*, *Kusumbha*, *Sneha*. Continuous and excessive use of *Madhu*, *Phanita*, *Lakucha*, *Matshya*, *Mulaka*, *Kakmachi* and intake of above substances while having *Ajirna*; *Adhyashana*, *Vishamashana*, *Atyashana*, *Ajirhashana*, excessive *Snehana*, *Navanna*, *Dadhi*, *Mulaka*, *Matshya*, *Tila*, *Pishtanna*, *Kshira*, *Guda*, excessive *Drava* and *Snigdha Ahara*; *Guru Ahara*, Excessive *Amla* & *Lavana Rasa* etc.
- B. *Viharaja nidana*:** *Shitoshna Vyatyasa Sevana* and *Anupurvy Sevana*, *Santarpana* and *Apatarpana* diet without sequence; immediate diving into cold water or drinking cold water after fear, exhaustion & coming from sunlight; practice of physical exercise & sunbath after heavy meals, sex indulgence in *Ajirna*, *Vegavidharana* like *Chhardi*, *Mutra*, *Purisha*; *Panchakarma Apacharinam* etc.
- C. *Acharaja nidana*:** *Papa Karma*, *Vipra Guru Tiraskara* etc.

D. Anya nidana: Some scattered references regarding *Nidana* of *Kushtha* are also seen in the classics, which are as follows:

- *Sansargaja Hetu:* *Kushtha* is *Aupasargika Roga* and stated that *Kushtha* spreads due to *Prasanga*, *Gatrasansparsha*, *Nishwasata*, *Sahabhajanata*, *Sahashayyasana*, *Vastramalyanulepana*.^[21]
- *Kulaja Hetu:* *Kulaja Nidana* is due to the *Beejadushti*. Acharya Sushruta has introduced *Kushtha* as *Adibalapravritta Vyadhi* i.e. the original cause of the disease is attributed to defects of *Shukra* and/or *Shonita*. Sushruta has also told that the children of *Kushtha* patients may also suffer from *Kushtha*.^[22]
- *Krimi Ja Hetu:* Acharya Sushruta has mentioned that all types of *Kushtha* originate from *Vata*, *Pitta*, *Kapha* and *Krimi*.^[23] Acharya Charaka has also indicated that causative factors & treatment of *Raktaja Krimi* is as same as *Kushtha*.^[24]
- *Chikitsa Vibharansajanya Hetu:* *Stambhana* in the initial stage of disorder like *Raktarsha*,^[25] *Raktapitta*^[26] and *Amatisara*^[27] cause *Kushtha*.

Kushtha has been mentioned as *Raktapradoshaja*^[28] and *Santarpanajanya Vyadhi*.^[29] So, the *Raktaprakopaka* and *Santarpaka Nidana* can be attributed to the production of *Kushtha*.

Risk Factors mention in modern medical science as follow-^[30]

The factors that increase the risk of fungal infections include antibiotics or steroid therapy, diabetes, obesity, immune-compromised persons, moist skin, damaged skin surfaces like a cut or graze etc. Further more the following also contribute to the fungal infections-

1. Poor nutrition - leading to poor immunity.
2. Excessive sweating, Hot and humid climate - leading to moist skin.
3. Chronic diseases - leading to compromised immunity.
4. Poor hygiene and living conditions.

Three genera of dermatophytes infect skin and appendages:^[31]

- Trichophyton
- Microsporum
- Epidermophyton

2. *Poorvarupa*

Poorvarupa are *Aswedanam*, *Atiswedam*, *Parushyam*, *Atishlakshnata*, *Vaivarnyam*, *Kandu*, *Toda*, *Suptata*, *Paridaha*, *Pariharsha*, *Romharsha/ Lomaharsa*, *Kharatvam*, *Ushmayanam*, *Gauravam*, *Svayathu*, *Visarpagamanam*, *Svalpanamapi Vrananam*, *Asam-rohanam*; *Asparshta*, *Kotha*, *Shrama*, *Klama*, *Ativedana*, *Seeghra Utpatti Chira Sthiti*, *Daha*.^[32, 33]

3. *Rupa*

Clinical features of *Dadru Kushtha* are *Udgata Mandala* associated with *Kandu*, *Raga* and *Pidika*.^[34]

Acharya Sushruta explains the colour of the lesion more specifically like that of copper or the flower of *Atasi* and mentions that its *Pidika* are in the form of *Parimandala* having spreading nature (*Visarpanshila*) but slow in progress or chronic in nature (*Chiroththan*) with *Kandu*.^[35] *Acharya* Vagbhatta mentions that it is *Durvavat Deergha Pratana*, having colour like that the flower of *Atasi* and itching and spreads following one lesion by another (*Anushangini*).^[36]

Prototype Lesion: according to modern science-^[37]

- ❖ Is an annular or arcuate lesion which spreads centrifugally.
- ❖ The margin is active, showing papulovesiculation, pustulation, and scaling.
- ❖ Center is relatively clear, though in chronic lesions there may be nodules, hyperpigmentation and even lichenification in the center.
- ❖ These features may be modified, depending on:
 - Site of infection
 - Strain of fungus: Anthropophilic fungi induce less inflammation. While zoophilic fungi and geophilic fungi induce significant inflammation.

4. *Upashaya*

No specific *Upashaya* of *Dadru* is seen in the classical texts.

5. *Samprapti*

According to *Acharya* Charaka- As a result of multiple *Nidana Sevana Dosha* get vitiated simultaneously, enter the *Sira* and vitiate *Twak*, *Raktha*, *Mamsa* and *Ambu* that is to say create *Shaithilya* in them. Then *Tridosha* becomes seated in *Shithila Dhatu*. *Kushtha* is a *Bahudosha* disorder. He also emphasized on the importance of *Sapta Dravya*. Whenever the *Dosha-Dushya Sammurchhana* occurs at the site of *Twak* leads to *Kushtha*.^[38]

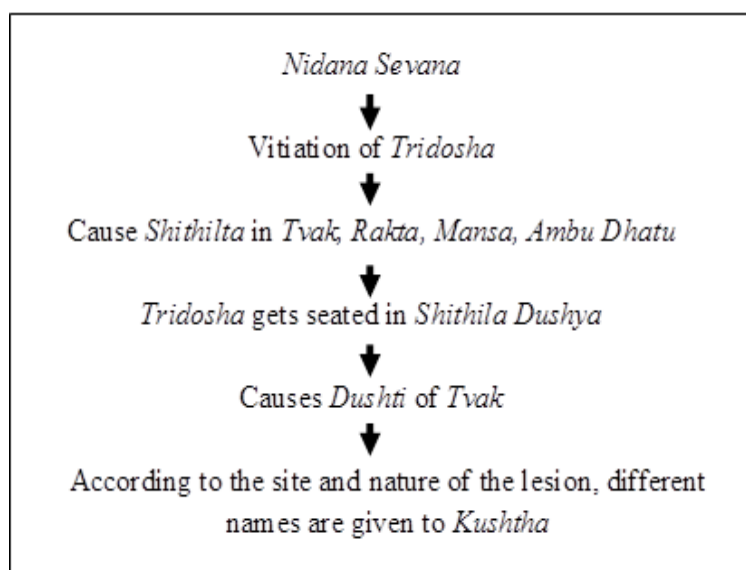


Fig. no. 1: Flow diagram of samprapti of dadru.

Samprapthi ghataka

Table no. 2: Samprapthi ghataka as follow.

<i>Samprapthi ghataka</i>	<i>Detail of samprapthi ghataka</i>
<i>Dosha</i>	<i>Tridosha (Kapha Pitta Pradhana)</i>
<i>Dushya</i>	<i>Twak, Rakta, Mansa and Ambu</i>
<i>Srotas</i>	<i>Rasa, Raktavaha Srotas</i>
<i>Srotodushti</i>	<i>Sanga & Vimargagamana</i>
<i>Agni</i>	<i>Jatharagni and Dhatvagnimandya</i>
<i>Udbhavasthana</i>	<i>Amashaya</i>
<i>Adhishthana</i>	<i>Twak</i>
<i>Rogamarga</i>	<i>Bahya</i>
<i>Svabhava</i>	<i>Chirakari</i>

Acharya Charaka described *Dadru* in the fourth layer of *Twak*.^[39] *Acharya Sushruta* described *Kushtha* in fourth and fifth layer of *Twak*.^[40]

Pathogenesis according to modern science

Dermatophytes are keratinophilic fungi, living on dead keratin. It generates a range of proteolytic enzymes; these proteases, as well as various mechanical forces induced by hyphal growth, aid in skin penetration. The ability of various dermatophyte species to infiltrate the skin in different areas of the body varies widely. The onset of ringworm inflammation is involved in the formation of a delayed type of skin reaction to trichophytin and cytokines. Poor T-lymphocyte-mediated responses to particular fungal antigens are seen in chronic infections. However of this development, if the host's innate and acquired immune systems are strong enough, *Tinea* will be prevented from spreading.^[41]

Sadhya- Asadhyata

According to *Acharya Charaka*, the *Kushtha* having all the symptoms along with complications of *Trishna*, *Daha*, *Agnimandhya* and *Krimiyukta* are incurable. If the victim suffers from *Vata-Kaphaja* or *Eka Doshaja Kushtha* then it is curable. However, *Kushtha* with deranged *Kapha-Pitta* and *Vata-Pitta* or *Sannipatika* are difficult to cure.^[42]

According to *Acharya Sushruta*, the disease is curable if it seated in *Twak*, *Rakta* or *Mamsa* with full control over sense. However, if the disease reaches into *Medo Dhatu* it becomes *Yapya*, *Asthigata*, *Majjagata* and *Sukragata* is *Asadhya*.^[43]

Upadrava

Upadrava of *Dadru* have not been explained separately in the *Ayurveda* texts. However, *Acharya Charaka* describes *Upadrava* of *Kushtha*, which is relevant to *Dadru* because it is a kind of *Kushtha*. These are as follows-^[44]

Prastravana, *Atisara*, *Angabheda*, *Daha*, *Anga Patana*, *Daurbalya*, *Trishana*, *Arochaka*, *Jwara*, *Avipaka*.

Complications: As follow-^[45]

- Tinea Incognito (Mention above)
- Dermatophytide Reaction: Inflammatory tinea infection (e.g., kerion, tinea pedis) may be associated with appearance of vesicles on the palms and soles.
- Cicatricial Alopecia: Though tinea capitis generally does not cause cicatricial alopecia, kerion (inflammatory tinea capitis) and favus can cause permanent hair loss.

Chikitsa

All *Kushtha* are caused by *Tridosha*, according to *Acharya Charaka*, hence treatment should be done in accordance with *Dosha* predominance. The therapy of the mainly vitiated *Dosha* should come first, followed by the treatment of the other subordinate *Dosha*.^[46]

Sanshodhana, *Sanshamana*, and *Nidana Parivarjana* are three aspects of *Ayurveda's* therapeutic management of *Roga*.^[47]

1. *Sanshodhana*

- *Antah Parimarjana- Vamana, Virechana, Raktamokshana.*
- *Bahi Parimarjana- Lepa, Parisheka, Avachurnana, etc.*

Kushtha is one of the *Bahu-Doshavastha Vyadhi*. In such circumstances, (according to *Rogi Bala*) *Shodhana* is advised frequently.^[48] According to *Acharya Charaka & Vagbhatta* *Shodhana* should be performed based on the presence of vitiated *Dosha*. Here *Dadru* is *Kapha- Pitta Pradhana* disease. *Vamana*, for example, should be performed in *Kapha* dominance, whereas *Virechana* and *Raktamokshana* should be performed in *Pitta* dominance.^[49] *Sushrutacharya* has advised *Vamana* in every fortnight, *Virechana* in every month, *Raktamokshana* in every 6 months in *Kushtha*.^[50]

Vamana- In *Dadru* because of *Kapha* dominance there is *Kledadhikya* in *Dhatu* and it causes itching, so *Vamana* is necessary for removal of *Vikrita Kapha*. *Virechana*- followed by *Vamana*, *Virechana* removes *Drava-Guna* of *Pitta*, which helps to decrease *Dhatugata Kleda*.^[51]

The local application acts quicker due to the physiological effect of heat on the skin. As per the requirement of the fast life of today's society, *Bahiparimarjana* in the form of *Taila/ Lepa* was selected which is easily done and acts as *Sthanika Chikitsa* for fast relief.^[52]

2. *Sanshamana*

After performing the *Shodhana Karma*, *Shamana Chikitsa* is indicated to subside the remaining *Dosha*. It is also indicated in those cases who are contraindicated for *Shodhana*. *Charaka* has advised it with *Tikta & Kashaya Dravya* after *Shodhana*.^[53]

3. *Nidana parivarjana*

Nidana are the main causative factors to increase the condition because *Samprapti* starts by *Nidana*. So, for management is to avoid the *Nidana*.^[54]

Also, the treatment principle applies in *Dadru* are *Krimihara Chikitsa* (*Apakarshana, Prakriti Vighata* and *Nidana Parivarjana*), *Kaphahara, Kledahara Chikitsa* and *Twak Sara Vardhana Chikitsa*.^[55]

Pathya – Apathya

As follow-^[56, 57]

Pathya

Ahara: *Makshika, Masura, Laghu Anna, Tikta Shaka, Jangala Mamsa, Mudga, Patolam, Nimba, Bhallataka, Triphala, Shali, Shastika, Yava, Purana Dhanya, Godhuma, Pana-Parisheka- Avagaha* of *Khadira Kashaya, Bakuchi* etc.

Vihara: *Utsadanam* by *Aaragvadhadi Kashaya*, *Khadira Kashaya Pana*, *Abhyanga* by *Karanja Taila*, *Parisheka Avagaha* etc.

Apathya

Ahara: *Dugdha*, *Dadhi*, *Kulattha*, *Aanupa Mamsa*, *Guda*, *Tila*, *Masha*, *Vidahi*, *Ikshu Vikara*, *Vishtambhi*, *Viruddha Ahara*, *Guru Anna*, *Amla Rasa*, *Vishama Ahara*.

Vihara: *Divaswapna*, *Swedana*, *Vegadharana*, *Ativyayam* and *Papakarma*.

Management according to modern science

Several factors determine the treatment modalities used^[58]

- Site of lesions
- Extent of lesions
- Chronicity
- Patient compliance

Dermatophytic infections can be treated with topical as well as systemic antifungal agents. Topical agents are usually adequate for most localized skin infections. Systemic therapy is recommended in the following situations:

- Extensive dermatophytic infections
- Tinea unguium
- Tinea capitis
- ❖ Prophylaxis^[59]
- Patients who sweat profusely should change their garments on a regular basis, wear cotton socks and avoid synthetic material.
- Clothes, especially the underwear, and towels should be boiled in hot water.
- Footwear should be of the open type permitting sufficient aeration.
- Intertriginous areas should be kept dry with powders, e.g. talcum or antifungal powder.
- Shampoo the hair immediately after visit to the barber's shop.

Prognosis

The majority of dermatophyte infections respond to topical treatment. Tinea cruris and tinea pedis relapses are common and should be managed early with topical treatments to prevent the illness from spreading. In 25-30% of instances, onychomycosis relapses after therapy.^[60]

CONCLUSION

Skin of a person is the index of mind, in day to day life person consumes incompatible diet and food habits which lead to most of the diseases, among which skin disorders are prime and *Dadru* is one of them.

Dadru Kushtha is a *Kaphapitta Pradhana Tridoshaja Aupasargika Roga* (highly contagious). *Dadru* though curable but is very tenacious in nature. If the course of treatment is not handled carefully, the remission and relapses are common therefore, one should take necessary treatment as early as possible. In Ayurveda treatment mainly focuses on avoiding the etiological factors (*Nidana Parivarjanam*) and breaking of pathology (*Samprapti Vighatana*) and ultimately is *Dhatu Samya*.

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