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# A scientific review on *Dadrukushta* with special reference to Dermatophytosis and its management through *Ayurveda*

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## ABSTRACT

Skin is the largest organ of the body and skin diseases has a high prevalence throughout the world and fungal infection of skin is one of them. In the high populated countries like India and China the incidence of skin diseases is considerably increased in recent years due to predisposing factors like warm, humid climate, crowded living conditions, hygiene and poor nutrition. In *Ayurveda* all the skin related diseases are explained under main heading of *Kushta* and skin fungal infections termed as *Dadrukushta* (Dermatophytosis). *Ayurveda* has a versatile approach towards skin disorders depending on the requirement of the patient. The present article is aimed at understanding the disease *Dadrukushta* with special reference to Dermatophytosis and its management through *Ayurveda*.

**Key words:** *Kushta, Dadrukushta, Dermatophytosis, Ayurveda, Skin, Fungal*

## INTRODUCTION

Acharya Sushruta explained *Dadrukushta* as *Sankramika* or *Aupasargika Roga*. *Dadru* spreads person to person by *Krimi* through *Sweda Mala*. It can be diagnosed by the symptoms like *Raga, Pidaka, Mandala* in the *Adhishtana* that is *Twak*.<sup>[3]</sup> *Dadrukushta* is mentioned under *Kshudra Kushta* by Acharya Charaka<sup>[2]</sup> and Acharya Sushruta under

*Mahakushta*.<sup>[1]</sup> *Dadrukushta* is *Pitta-Khapaja Vyadhi* as per Acharya Charaka<sup>[4]</sup> and Acharya Vagbhata.<sup>[5]</sup> On the other hand *Khaphaja Vyadhi* as per Acharya Sushruta.<sup>[6]</sup>

**Causative factors for all skin disorders according to *Ayurveda* are as follows**

- *Mithyahara Vihara* (Improper and irregular diet habits)
- *Dosha Vaishamy* (Vitiation of the Biological forces)
- *Srotavarodha* (Obstruction of the channels)
- *Vegadharana* (Suppression of natural urges)
- *Viruddhahara* (Incompatible diet)
- *Krimi* (Infections)
- *Manovikaras* (Emotional stress factor)

## Modern view

In modern science there are three genera of superficial dermatophytosis as *Trichophyton Microsporum* and

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Epidermophyton. They are grouped according to their natural habitat as geophilic (soil), zoophilic (animals), and anthropophilic (humans).<sup>[7]</sup> Transmission may be indirect or direct bodily contact. Clinically, these fungal infections are labeled according to the region involved. These are as follows:<sup>[13]</sup>

1. **Tinea capitis** occurring on the scalp, especially in children.
2. **Tinea barbae** affecting the region of beard in adult males.
3. **Tinea corporis** involving the body surface at all ages.
4. **Tinea cruris** occurs most frequently in the region of groin in obese men, especially in hot weather.
5. **Tinea pedis** or 'athlete foot' is located in the web places between the toes.
6. **Onychomycosis** shows disintegration of the nail substance.
7. **Tinea vesicolor** caused by *Malassezia furfur* generally affects the upper trunk.

#### Predisposing factors

Warm, humid climate, poor nutrition and hygiene, obesity, diabetes mellitus and debilitating illness.<sup>[7]</sup>

#### Symptoms

Common symptom is pruritus in all types of dermatophytosis.<sup>[7]</sup> Other clinical features are intense itching, annular erythematous scaly lesions, the active border consists of papulovesicular lesions, and in advancing stage the lesions spread peripherally with central clearing and pigmentation.<sup>[8]</sup>

Clinical features of *Dadrukushta* and Dermatophytosis (Mycoses / Tinea / Ringworm) are similar with each other so the co-relation between *Dadrukushta* and Dermatophytosis is done on the basis of similarities of clinical features in both *Ayurveda* and Modern medicine.

#### Prevalence rate

The prevalence rate of this infection is 2% among young adults and increases to 20% among individuals

of 40-60 years age.<sup>[11]</sup> 39% of the world population is suffering from Tinea infections. In India also, 5 out of 1000 people are suffering from Tinea infections.<sup>[12]</sup>

#### Nidana for Dadrukushta

There is no separate *Nidana* for *Dadrukushta*. *Dadrukushta* spreads from person to person by *Malaja Krimi* through *Sweda* (contact with the infected person and contact with the wearables of the infected person etc.)<sup>[14]</sup> Due to the sharing of towels, bed sheets, soap, hand kerchief etc. of infected person causes the spreading of micro - organism from one person to another person.<sup>[15]</sup>

*Dadrukushta* is likely similar to fungal infection of the skin in which the fungal spores has been transferred from a diseased person to a healthy person by above explained modes.

#### Samprapti of Dadrukushta

Sharing the wearables of infected person (contagious/*Sankramika*)



*Sankramika* of *Krimi* from *Purusha* to *Purusha* (*Malaja - Bahya Krimi*)



*Krimi* enters into *Twak* through *Sweda* and vitiates *Tridosha*, *Twak*, *Rakta* and *Lasika*



*Dadrukushta* (*Kandu*, *Pidika*, *Raaga*, *Mandala*, *Visarpini*)

**Table 1: Secondary causes for Dadrukushta (Dermatophytosis) as per Ayurveda.**

<i>Mithyahara</i>	Ch.S [16]	Su.S [17]	B.S [18]	H.S [19]	M.N [20]
<i>Adhyashana</i>	+	+	-	+	+
<i>Vishamashana</i>	+	+	-	-	-
<i>Atyashana</i>	+	+	-	-	-
Intake of food during indigestion	+	+	-	-	+

Continuous and excessive use of Madhu, Fanita, Matsya, Lakucha, Mulaka, Kakamachi, and intake of above substances while having Ajirna	+	-	-	-	-
Excessive Snehana	-	-	-	-	-
Vidahi Ahara without emesis of undigested food	+	-	+	+	-
<b>Rasataha</b>					
Excessive intake of Amla and Lavana Rasa	+	-	-	-	+
<b>Dravyataha</b>					
Excessive intake of Gramya, Anupa, Audaka, Mamsa	-	-	+	-	-
Navanna, Dadhi, Masa, Matsya, Mulaka, Tila, Pishtanna, Kshira, Guda	+	-	-	-	+
Dushivisha	-	+	-	-	-
Dushita Jala	-	-	-	+	-
Excessive Dravya, Snigdha Ahara	+	-	-	+	+
Guru Ahara	+	+	-	-	+

**Abbreviations:** Ch.S - Charak Samhita, Su.S - Sushrut Samhita, B.S - Bhel Samhita, H.S - Harit Samhita, M.N - Madhav Nidan

**Table 2: Dosha Dushya Sankalpana.**

	Ch.S	Su.S	A.H	A.S	M.N
Dosha	Pitta - Kapha	Kapha	Kapha - Pitta	Kapha - Pitta	Kapha - Pitta

Dushya	Twak, Rakta, Mansa, Ambu	Twak, Rakta, Mansa, Ambu	Twak, Rakta, Mansa, Ambu	Twak, Rakta, Mansa, Ambu	Twak, Rakta, Lasika, Ambu
Srotas	Rasa, Rakta	Rasa, Rakta	Rasa, Rakta	Rasa, Rakta	Rasa, Rakta

**Abbreviations:** Ch.S - Charak Samhita, Su.S - Sushrut Samhita, A.H - Ashtanga Hridaya, A.S - Ashtanga Sangraha, M.N - Madhava Nidana




**Table 3: Sign & symptoms of Dadrukushta according to various Acharayas and Modern Science.**

S N	Signs & Symptoms	Charaka	Sushruta	A.H	A.S	M.N	Y.R	Modern
1	Kandu (itching/pruritus)	+	-	+	+	+	+	+
2	Raga (redness/erythema)	+	-	+	+	+	+	+
3	Atasi Pushpavat Pidika (macular rashes similar to flax flower)	-	+	+	-	-	-	-
4	Tamra Varna Pidika (copper coloured macular rashes)	-	+	-	-	-	-	-
5	Visarpani Pidika (diffused macular rashes)	-	+	+	+	-	-	-
6	Dirgha Pratana (tendrill like macular rashes)	-	-	+	+	-	-	-

7	Unnata Mandala (raised border ring)	-	-	+	+	+	-	-
8	Scaling	-	-	-	-	-	-	+
9	Vesiculations	-	-	-	-	-	-	+

**Abbreviations:** A.H - Ashtanga Hridaya, A.S - Ashtanga Sangraha, M.N - Madhava Nidana, Y.R - Yogaratnakara

**Table 4: Differential diagnosis of Dadrukushta (Dermatophytosis).**

SN	Disease	Symptoms	Diagram
1.	Vicharchika (Eczema)	Bahusraava Yukta Pidika originate in Vicharchika	
2.	Pama Kushta (Scabies)	Scattered Pidika with different Varna (white, red, black)	
3.	Dadrukushta (Dermatophytosis)	Atasi Pushpa like Pidika, Varna with Mandala (round patches)	

**Clinical examination as per modern medical science<sup>[21]</sup>**

Typical infections have an annular appearance that patients refer to as “ringworm” and following table showing sign and symptoms of Tinea.

SN	Type of Tinea	Clinical manifestations	Prevention
1.	Tinea pedis	Most common infection of foot, Variable erythema,	Prevention strategies include allowing

		Edema, Scaling, pruritis, and occasionally vesiculations, Involvement may be widespread or localized but generally involves the web space between the fourth and fifth toes.	the feet to breathe plenty of air and keeping them clean and dry. Wearing sandals in public showers or in locker rooms is a smart idea.
2.	Tinea capitis	Infection of the scalp, produce a relatively non-inflammatory infection with mild scale and hair loss that is diffuse or localized	One should not share towels, combs, hairbrushes, hats or pillowcases with other family members, friends or visitors. Wash the towels in warm, soapy water after each use.
3.	Tinea cruris	Mainly involvement of groin region, Scaling, Erythematous eruption sparing the scrotum	Basic hygiene can also be of assistance in treating and preventing ringworm. Holding the skin clean and dry may help to prevent infection. Public safety includes wearing sandals in public showers or locker rooms and avoiding shared towels and items.
4.	Onychomycosis	Mostly affected nails, Opacified, thickened nails, Sub-ungual debris, Distal-lateral variant is most	Avoiding yeast infections begins with a healthy diet and proper hygiene. Wearing loose-

		<p>common, Proximal subungual onychomycosis may be marker for HIV infection</p>	<p>fitting garments made of natural fabrics can also help avoid infection. Washing undergarments in very hot water and adjusting feminine items will also help avoid fungal growth too.</p>
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**Onychomycosis**

**Pathological Examinations**

**a) Potassium Hydroxide (KOH) Microscopy<sup>[9]</sup>**

Potassium hydroxide (KOH) may be used to diagnose tinea from skin scrapings, nails scrapings, or hair direct microscopic examination.

**b) Fungal culture<sup>[10]</sup>**

Skin scrapings should be sent for culture whenever infection of the dermatophytes is suspected. It takes at least two weeks before the fungus grows enough to identify itself. Nail clippings and hair samples should be examined in the same way as skin scrapings.

**Modern management of Dermatophytosis**

**Tinea Pedis**

Athlete's foot is often treated with topical antifungal ointments which can be purchased online or over-the-counter. Severe infections can also require supplementary oral medication. The feet will also need to be treated and kept dry in order to help kill the fungus.

**Tinea Capitis**

Although oral Griseofulvin has been the standard treatment for tinea capitis, newer oral antifungal agents such as terbinafine, itraconazole, and fluconazole are effective, safe, and have shorter treatment courses.

**Tinea Curis**

Tinea curis is commonly known as Jock itch. Jock itch care typically requires the use of topical antifungal ointments and proper grooming. Over-the-counter medications improve many cases of jock itch, though

**Diagrams of various Fungal Infections**



**Tinea pedis**



**Tinea capitis**



**Tinea cruris**

some require prescription medications. This may also help destroy the infection by washing the infected area and keeping this dry.

### Onchyomycosis

Treatment of infections with leasts depends on their severity. Standard treatments include creams, tablets, or suppositories available through prescription, or over-the-counter, or online. Complicated infections can take complex therapies.

### Ayurvedic management of Dadrukushta (Dermatophytosis)

The basic principle of treatment as per *Ayurveda* is *Nidana Parivarjana*. Hence avoid the causative factors and take special care to protect the skin. Following measures should be taken to reduce the risk of infection with the fungal skin and to prevent of spread.

- Dry the skin thoroughly after a bath.
- To remove any fungi, wash socks, clothes and bed linen frequently by soaking them in warm water
- Wear clean flip - flops or plastic shoes in damp areas, as well as common areas such as showers, saunas and pools.
- Wear loose fitting clothes made of cotton or material to keep the skin away from moisture.
- Do not share towels, hair brushes and combs that might carry a fungus. The treatment of *Dadru* should be done on the basis of their cause.
- Make sure about the cleanliness of the equipment's at haircut shops & saloons.

### As per Ayurveda treatment of Dadru are

- 1) *Shodhana Chikitsa*
- 2) *Shamana Chikitsa*
- 3) *Lepana Karma* (Local Applications)

#### 1) *Shodhana Chikitsa*

The excretion of vitiated *Doshas* from the diseased individual is very important role of *Shodhana Chikitsa*. To remove vitiated *Pitta* and *Rakta* in *Dadrukushta*

*Virechana Karma* and *Raktmokshana* should be carried out.

#### *Virechana Karma*

##### *Purvakarma*

***Snehana Karma*** - *Snehana* should be done with *Mahatiktaka Ghrita* daily by increasing manner starting from 50 ml, 150 ml, and 250 ml up to emergence of manifestation of *Samyak Snehana* in the early morning after the completions of physiological urges.

***Swedana Karma*** - After the completion of the *Snehana* and before the *Virechana Karma*, *Sarvanga Sweda* should be given after *Sarvanga Abhyanga*.

##### *Pradhankarma*

***Virechana Karma*** - Following *Samyak Snehana* and *Shodhana* and patient examination, the planned induce of purgation should be given to patients by giving *Trivrit Kwatha* early in the morning. Patients should be observed for *Samyak Virechana Lakshanas* and *Samsarjana Karma* should be followed as scheduled.

***Rakta - Mokshana Karma*** - *Rakta Mokshana* should be done by using No.18 bore needle early in the morning and near about 60 ml blood should be withdrawn per sitting.

#### 2) *Shamana Chikitsa*

Some commonly used classical *Ayurvedic* formulations in *Dadrukushta* are as follows:

**Table 6: Ayurvedic formulations in Dadrukushta**

SN	Drug	Dose	Anupana
1.	<i>Arogyavardhini Rasa</i>	500mg twice a day	Luke warm Water
2.	<i>Gandhaka Rasayana</i>	500mg twice a day	Luke warm Water
3.	<i>Panchatiktaka Guggulu</i>	250mg twice a day	Luke warm Water
4.	<i>Kaishor Guggulu</i>	500 mg, twice a day, after food	Luke warm Water

5.	<i>Panchtikita Ghrita Guggulu</i>	500 mg, twice a day, after food	Luke warm Water
6.	<i>Aaragvadhadi Kashaya</i>	15 - 20ml twice a day, before food	<i>Sambhag Ghrita</i>
7.	<i>Nimbadi Kashaya</i>	15 - 20ml twice a day, before food	Water
8.	<i>Aragwadha Kashaya</i>	15 - 20ml twice a day, before food	Water
9.	<i>Guduchyadi Kashaya</i>	15 - 20ml twice a day, before food	Water
10.	<i>Patolakaturohinyadi Kashaya</i>	15 - 20ml twice a day, before food	Water
11.	<i>Manjisthadi Kashaya</i>	15 - 20ml twice a day, before food	<i>Madhu</i>
12.	<i>Aragvadhasava</i>	15 - 20ml	Water
13.	<i>Khadirarishta</i>	15 - 20ml	Water
14.	<i>Chakramarda (Cassia tora Linn)</i>	Swarasa- 10-20 gm Churna-1-6gm	Water
15.	<i>Panchnimbadi Churna</i>	5gm(3-5 masha)	<i>Madhu, Ushna Jala</i>
16.	<i>Haridra Khanda Churna</i>	3-5gm	<i>Dugdha</i>
17.	<i>Gomutra Siddha Haritaki</i>	5gm at night	Lukewarm water
18.	<i>Hinguliya Manikyarasa</i>	8mg/ml	Water

### 3) *Lepana Karma* (Local Applications)

Lepa should be applied as per area of skin lesion. Mostly applied in the morning and bedtime.

- *Dashanga Lepa*
- *Karanja Taila*

- *Durvadi Lepa*
- *Aragvadhadi Lepa*
- *Edagajadi Lepa*
- *Maha Marichyadi Tail*
- *Nimba Taila*
- *Chakramarda Taila*

### *Pathya - Apathya to be followed in Dadrukushta*

- Maintain daily dietary timings, vegetarian food will be better.
- Hold very hygienic.
- Regular exercise based on physical capacity, for at least 1 hour.
- Get breakfast sprouts, nuts, and vegetable juices or fruit juices.
- Stop excess salty, spicy, and fatty, candy, drug misuse and fast food.
- *Ksheera* and *Ghritha* are used every day as *Rasayana*.
- Body massage (*Abhyanga*)
- Minimum 7 - 8 hour sleep is compulsory
- Avoid late at night awakening (*Ratri Jagarana*)
- Follow *Yogasanas* to alleviate mental stress and release toxins
- Adopt holistic approach
- Practice positive thoughts

### DISCUSSION

*Dadrukushta* is the prevalent disease in developing countries such as India, with the majority of the population living in unhygienic conditions. *Dadru* has mentioned nearly all the *Acharayas* along with their management. Thus, *Ayurveda* is able to cure the disease of the skin like *Dadrukushta*. As this is one among the relapsing type of skin disease so patient was advised to follow *Pathyapathya* like *Ahara, Vihara, Achara, Vichara*. Repeated *Shodhana* as per classics in accordance with *Dosha, Kala, Agni* and *Desha* etc., should be administered to control the frequency of



recurrence and further spread chances of recurrences are more in fungal lesions. Utmost care should be taken for skin protection.

## CONCLUSION

*Dadrukushta* is a specific skin condition that is clinically replicated by dermatophytosis or tinea. It can be concluded that the use of *Chikitsa Upakramas* mentioned in *Ayurveda* such as *Shodhana*, *Shamana* (formulations such as *Arogyavardhini Vati*, *Gandhaka Rasayana* etc.) and *Bahirparimarjana* (*Lepa* of local application *Karanj Taila*, *Nimba Tail* etc.) are effective in the management of *Dadrukushta*. Clinical features of *Dadrukushta* and Dermatophytosis (Mycoses / Tinea / Ringworm) are similar with each other so the correlation between *Dadrukushta* and Dermatophytosis is done on the basis of similarities of clinical features in both *Ayurveda* and Modern medicine.

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