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Review Article

A CRITICAL REVIEW OF *DADRU* W.S.R. *TINEA* INFECTION

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ABSTRACT

All the skin diseases in *Ayurveda* have been classified under the broad heading of *Kustha* which are further categorized in to *Mahakustha* and *Kṣudrakustha*. *Dadru* is a type of *Kustha* that comes under both due to its quick invading nature. On the basis of symptomatology *Dadru* is compared with 'Dermatophytosis'. Dermatophytosis are considered as *Tinea* infections. They are also named according to the body site involved. It is called ringworm because the itchy, red rash has a ring like appearance. Aims of present study are to scrutinize the available literature for related conditions *Dadru* in *Ayurveda* & *Tinea* infections in contemporary science.

KEYWORDS: *Kustha*, *Dadru*, Dermatophytosis

INTRODUCTION

All the skin diseases in *Ayurveda* have been classified under the broad heading of *Kustha* which are further categorized in to *Mahakustha* and *Kshudrakustha*. *Dadru* is a type of *Kustha* that comes under both due to its quick invading nature. In broad sense *Kustha* is the one, which causes vitiation as well as discoloration of the skin. Though skin diseases are common at any age of the individual but they are particularly frequent in the elderly. Normal 10-15% of the General Practitioners work is with skin disorder (Roxburgh's Common Skin disease) & it is a second commonest cause of loss of work.

In *Ayurveda* classics, specific aetiology for *Dadru* has not been explained except the general aetiology of *Kustha*.

As per modern perspective disease *Dadru* comes under ' Superficial fungal infections of the skin'. the most common dermatological manifestation. The superficial fungal diseases turn into critical state as multi drug resistance fungal dermatophytosis in course of time that is also well explained in our classical Ayurvedic text as *Dhatuanukraman*. That's why the disease *Dadru* is considered in the both groups of *Kushtha* (*Kshudra* & *Maha*) as per *Charak Samhita* & *Shushruta Samhita* respectively.

Aim:

Aim of present study are to scrutinize the available literature for related conditions *Dadru* in *Ayurveda* & Tinea infections in contemporary science.

Dadru:

In *Ayurveda* all the skin disease considered in *Kustha* which are further divided in to *Mahakustha* and *Kshudrakustha*. *Dadru Kustha* is a type of *Kustha* that included under both due to its fast invading nature. The word *Kustha* is derived from the *Samskrit* root “*kuṣ*” means that which comes out from the inner part to the outer part. *Kustha* is produced invariably by the vitiation of the seven factors i.e. 3 *Doṣha* and 4 *Duṣhya*. [1] When the vitiated *Doṣha* aggravate the four body components and if this muddle of seven *Dravya* is not controlled, disease is produced inside the body which demonstrate itself on outermost part of the body.

History of any science is a group of facts and it helps to provide the guidelines about our present and future path. So profound knowledge of the historical events can help us to correlate between today and ancient *Ayurveda* texts and modern medicinal texts with the help of scientific parameters. The history of Indian medicine starts from *Veda*, so the history of *Kustha Roga* beginning from *Veda*.

VEDIC KALA

Veda is considered as the oldest and first available literature of the world. There are four Veda i.e. *Rigveda*, *Yajurveda*, *Atharvaveda* and *Samveda*. Ayurveda is considered the *Upaveda* of *Atharvaveda*. In Vedic period no special description of *Dadru Kustha* is present but a general literature of *Kustha* is described somewhere.

Rigveda

There is no any scientific explanation regarding the *Kustha*. *Rigveda* identified this disease with characteristic features of *Vivarṇata* and *Romasatana*. *Kustha* word seems to be used for a medicinal plant and not for the skin disease. But some historical events are described such as:

The *Charma Roga* of *Apala* was cured by Lord *Indra*.

Ghoṣa, the daughter of *Kakṣavati* was disliked by her husband due to her ugly looks of *Kustha roga*. She was treated with proper medication and got cured and accepted by her husband. The words *Kilas* and *Palitya* are used to indicate the skin disease.

Yajurveda

In *Yajurveda* medicines having capacity of curing *Kustha*, *Hṛidroga*, *Arsha* etc. have been mentioned and their virtues praised.

Atharvaveda

In *Atharvaveda*, various plat for disease have been explained and between them skin has been described as one of the major sites of the disease. The drug '*Kustha*' has been promoted for its management. The name of diverse diseases has been manifested, whereby *Kustha* has been described as *Kṣetriya Roga*. There is characterization of some herbs like *Rama*, *Nili*, *Asuri*, *Shyama* etc. for the treatment of *Kustha*. Some new terms for skin disorder are described as *Pama*, *Vidradhi*, *Apachi*, *Gaṇḍamala* etc.^[ii] The most efficient drug in the treatment of *Kustha* is *Trivṛt* (*Shyama*). *Atharvaveda* has set down the affliction of *Doṣha* which were inflicted by *Kustha*. ^[iii] The commentator of *Atharvaveda* considers *Kustha* as one of the circumscribed diseases.^[iv]

PURĀṆA KĀLA

Mahabharata

At that time, it has been mentioned that the person who suffering from *Tvaka roga* is not to be selected a king. It emphasizes that people suffering from *Kustha* were disapproved by the society.

Agnipurana

Kusthaghna preparation is mentioned under the heading of “*Nana Rogahara Auśadhani*”. [v] There is a reference concerning the use of *Khadira* as internal medicine and *Haritala* and *Manahshila* as external medicine in the management of *Kustha*.

SAMHITA KALA

The systematic collection of the knowledge of *Ayurveda*, first mentioned in the *Samhita* period. All skin disease is appraised in *Ayurveda Samhita* under the heading of *Kustha* and precise description of *Dadru Kustha* develop gradually from the *Samhita* period. In *Ayurveda* classics, specific cause of *Dadru* has not been explained except the general aetiology of *Kustha*. Since *Dadru* has been included under *Kustha*, its aetiology can be built up on the behalf of general aetiology.

Charak Samhita

Charak has demonstrated 18 types of *Kustha* among them 7 types of *Kustha* have been described as *Mahakustha* and 11 types have been *Kshudrakustha*. [vi] *Acharya Charak* considered *Dadru Kustha* in *Kshudrakustha* as per his definition, the reddish colour *piḍika* in the form of *maṇḍala* with elevated borders and itching is known as *Dadru*. [vii] According to *Charak*, *Dadru* is *Kaphapittaja roga*. [viii] In *Nidana Sthana* only *Mahakustha* have described in detail but in *Chikitsa Sthana* both *Mahakustha* and *Kshudrakustha* have been discussed. The diagnosis and management of *Dadru* have been discussed in *Chikitsa Sthana* under the subtitle of *Kshudrakustha*.

Sushruta Samhita

Acharya Sushruta described first time, the *Anuvansika* and *Krimija Nidana* as an aggravating factor of *Kustha*. *Kustha* has also been included in list of *Aupasargika Roga*, which spreads out from one person to another. [ix]

In *Sushruta Samhita*, *Kustha* has been described in *Nidana sthana* chapter 5 regarding aetiopathogenesis and its management in *Chikitsa Sthana* chapter 9 and 10. *Sushruta* has described 18 types of *Kustha* and *Dadru Kustha* has considered in *Mahakustha*. According to the definition, the *Atasi* flower like colour and copper colour *piḍika* with spreading called *Dadru*. [x] According to *Sushruta* *Dadru* is *Kaphaja roga*. Explanation regarding *Dhatugatatva* of *Kustha* was mentioned by *Sushruta* first time [xi]. *Acharya*

Sushruta explained *Kustha Chikitsa* in two chapters under the subtitle of *Kustha* and *Mahakustha*. *Sushruta* described the criteria for differentiation between *Mahakustha* and *Kshudrakustha*.

Aṣṭanga Samgraha

In *Aṣṭanga Samgraha*, the disease *Kustha* has been demonstrated in detail in *Nidana sthana* and *Chikitsa sthana*. According to *Aṣṭanga Samgraha*, *Tvaka* is of six types. *Paka* of *Rakta* results into formation of six layer of *Tvaka*. [xii]

Aṣṭanga Samgraha described 18 types of *Kustha* out of which *Dadru* is *Durvavata dirgha pratana*, having colour like *Atasi* flower, elevated circle, itching and *Anusangini*. [xiii]

Aṣṭanga Hridaya

Aṣṭanga Hridaya has followed *Sushruta* regarding classification of *Mahakustha* and *Kshudrakustha*. *Dadru Kustha* considered in *Mahakustha* and definition that *DurvaVata dirgha pratana*, having colour like *Atasi* flower, elevated circle, itching and *Anusangini*. [xiv]

Harita Samhita

In *Harita Samhita*, the description of *Kustha* is available in 3rd *Sthana* 39th chapter. Here 18 types of *Kustha* have been explained but there is different sign, symptoms and nomenclature.

Kashyap Samhita

Kashyap Samhita has described 18 types of *Kustha* in *Kustha Chikitsa* chapter. [xv] *Kashyap* has given the classification of *Kustha* on the basis of its *Sadhyata* and *Asadhyata*. Thereby 9 *Kustha* are described as *Sadhya* while other 9 are *Asadhya*. *Dadru* has been described in *Sadhya Kustha*.

Bhela Samhita

In *Bhela Samhita*, *Kustha* has been described in *Sutra Sthana* 4th, *Nidana Sthana* 5th and *Chikitsa Sthana* 6th chapter. Polluted water is mentioned as a special etiological factor of *Kustha*. [xvi]

SAMGRAHA KALA

Madhav Nidana

In *Madhav Nidana*, the aetiopathogenesis of *Kustha* is described in the chapter of *Kustha Nidana*. Madhav has described *Nidana Panchaka* of *Kustha* according to *Charak* and *Vagbhata*. [xvii] while *Dhatugatatva*, *Sadhya- Asadhyata* and *Samkramakata* have been described according to *Sushruta*. [xviii]

Sharangdhara Samhita

Classification of *Kustha* has been described in *Purvakhanda*. [xix] *Tamra*, the fourth layer of skin is the origin site of all types of *Kustha*.

Bhavaprakash

Bhavaprakash mentioned *Kustha* under *Kustha Rogadhikara*. *Bhavaprakash* has given detailed description of *Kustha*. [xx] He has followed *Charak* for classification and nomenclature of *Kustha*. The *Dhatugatatva* and *Sadhya- Asadhyata* are taken from *Sushruta*.

Yoga Ratnakara

Yogaratanakara described the *Kustha* according to the earlier classics. Contagious part of *Kustha* is also described in this chapter.

Bhaisajya Ratnavali

Rasamanikya and *Marichyadi tail* are mentioned as medication of *Kustha*.

KUSTHA

All dermatologic disorders are come under the term *Kustha* as per *Ayurvedik* texts. *Kustha* produces psychological and physical discomforts due to the impaired skin which itself is proved by the name. *Kustha* is always *Tridoshaja* in origin and a dominance of a particular *Dosha* leads to specific symptoms. It is produced universally by the vitiation of the seven factors viz. 3 *Dosha* and 4 *Dushya* but different types of pain, colours etc. are found in *Kustha* because of *Amamsamshakalpana* of *Dosha* and *Samkhyavikalpa*. [xxi]

DADRU

Acharya Charak considered *Dadru* in *Kshudra Kustha* and *Dosha* dominance is *Kaphapitta*. *Acharya Sushruta* considered *Dadru* in *Maha Kustha* and *Dosha* dominance is *Kapha*.

Etymology of *Dadru*

According to *Shabda Kalpa Druma*, the word *Dadru* is *pullinga shabda*, which means “Tortoise” because *Dadru* comes under “*Anadaya Shabda rupa*” i.e. without any “*dhatu*” or “*Pratyaya*”.

As per Sir Monier William’s Sanskrit English Dictionary, *Dadru* is a type of *Kustha* characterized by skin lesions, which resembles tortoise. “*Dadrana iti- deryanteanya carma daruhu, sa asyastiti dadrunaha, dadru roginoma nama*”.

In *Vaidyaka Shabda Sindhu*, *Dadru* is mentioned as a type of *Kṣudra kustha* having the characteristics of tortoise.

Definition

Dadru is a type of *Kushta roga*, which is characterized by the cardinal symptoms like *Kaṇḍu*, *Utsannamaṇḍala*, *Raga* and *Piḍika* and the lesions resembling the skin of a tortoise.

Acharya Charak considered *Dadru* in *Kshudrakustha* as per his definition, the reddish colour *piḍika* in the form of *maṇḍal* with elevated borders and itching is known as *Dadru*. [xxii]

Acharya Sushruta defined ‘the *Atasi* flower like colour and copper colour *piḍika* with spreading called *Dadru*’. [xxiii]

Acharya Charak mentioned *Dadru* in *Kṣudra Kustha* and the provoked *Dosha* of *Dadru Kustha* is *Kaphapitta*. *Acharya Sushruta* mentioned *Dadru* in *Maha Kustha* and involved *Dosha* is *Kapha*. *Ḍalhaṇa*, [xxiv] commentator of *Sushruta Samhita* has divided *Dadru* in 2 parts, *Sita* and *Asita*. *Ḍalhaṇa* clarified by saying that *Sita* type of *Dadru* is easily treatable because it does not invade the deeper tissues, associated with lesser number of signs and symptoms and without the major involvement of all the *Dosha* while *Asita Dadru* is just opposite of *Sita Dadru*.

Aṣṭanga Samgraha mentioned that ‘*Dadru* is *DurvaVata dirgha pratana*, having colour like *Atasi* flower, elevated circle, itching and *Anushangini*. [xxv]

Acharya Kashyap has clearly demarcated *Dadru* as a skin disease having “*Vṛidhimanta Maṇḍal*” i.e. disseminating discoid lesions with intense itching, burning and discharges from it. The lesions are sometimes dry in nature which is a very important point through practical aspect.

Samprapti Ghaṭaka

Dosha *Tridosha*

Duṣhya *Tvaka, Rakta, Mamsa*

Adhithana *Tvaka*

Srotasa *Rasavaha and Raktavaha Srotasa*

Srotoduṣṭi *Samga and Vimargamana*

Agni *Bhranjakagni*

Dosha

All the *Kustha* are *Tridoshaja* however each of them can be differentiated as *Doshik* entity on the basis of the dominance of *Doṣha* in them. The involvement of *Dosha* in the symptoms of *Dadru* is analysed and summarized as follows:

Doṣha symptoms:

Symptoms	Dosha
<i>Kanḍu</i>	<i>Kapha</i>
<i>Raga</i>	<i>Pitta</i>
<i>Piḍika</i>	<i>Pitta</i>
<i>Utsanna maṇḍal</i>	<i>Kapha</i>
<i>Atasi puṣpa varṇa</i>	<i>Pitta</i>
<i>Tamra varṇa</i>	<i>Pitta</i>
<i>Visarpaṇa</i>	<i>Vata</i>

Dushya

Acharya Charak has described four *Dushyas* as *Tvaka, Rakta, Mamsa* and *Lasika* Dhatu which are primarily involved in the manifestation of *Kustha*. *Chakrapaṇi* interprets that when the vitiation is limited up to these four *Dushyas* it should be considered as '*Samanya Duṣṭi*' & when the *Samprapti* traverse these four Dhatus to involve, further deeper Dhatus it may be considered as '*Visheṣa Duṣṭi*'. Generally '*Samanya Duṣṭi*' occurs in *Kshudrakustha* while *Visheṣa Duṣṭi* is traceable in *Mahakustha*. The analysis of *Dhatu Duṣṭi* in the symptoms of *Dadru* is as follows-

Dushti symptoms

Symptoms	Dhatu
<i>Kanḍu</i>	<i>Rasa, Rakta</i>

<i>Raga</i>	<i>Rakta</i>
<i>Piḍika</i>	<i>Rakta, Mamsa</i>
<i>Utsanna maṇḍal</i>	<i>Mamsa</i>
<i>Atasi puṣpa varṇa</i>	<i>Rakta</i>
<i>Tamra varṇa</i>	<i>Rakta</i>
<i>Visarpaṅsila</i>	<i>Rakta</i>

Srotasa

Rasa and *Raktavaha Srotasa* plays an important role in the pathogenesis of *Dadru*. Amongst four types of *Srotoduṣṭi Samga* and *Vimargagamana* are observed in *Dadru*. *Tiryagagamana* of the vitiated *Dosha* suggest *Vimargagamana*. There is *Srotorodha* due to *Samga* in *Srotasa*.

Modern Concept of Dadru

On the basis of symptomatology *Dadru* is compared with 'Dermatophytosis'. Through modern perspective it comes under 'Superficial fungal infections of the skin. The fungal diseases of the skin can be divided into superficial mycoses and the deep mycoses. Dermatophytosis come under superficial fungal infections of the skin.

These infections are restricted to invasion of horny structures like the stratum corneum, the nails & hair while the deep mycoses always involve systemic structures. Dermatophytes are fungi that require keratin for growth. Dermatophytes are spread by direct contact from other people, animals and soil, as well as indirectly from fomites. Dermatophyte infection can be diagnosed based on the history, physical examination and potassium hydroxide microscopy. Dermatophytosis are considered as Tinea infections. They are also named for the body site involved. It is called ringworm because the itchy, red rash has a ring like appearance.

[xxvi]

The external appearance of all Tinea infections other than Tinea corporis does not match exactly with the *Ayurvedik* description. Nonetheless they all should be considered under the same heading '*Dadru*' because only their morphology changes due to the change of site of infections. The causative fungus and the symptoms of all, remains the same.

(i) Tinea corporis

The site of infection is typically on exposed skin unless the infection represents an extension from a pre-existing infection. In such cases infection may spread from the scalp, down the neck onto the upper trunk

or from the groins onto the buttocks and lower trunk. Characteristics lesions are circular, usually sharply emarginated with a raised edge. Single lesions occur or there may be multiple plaques.



(ii) **Tinea capitis**

Ringworm of the scalp in which the essential feature is the invasion of hair shafts by a dermatophyte fungus is known as tinea capitis. Tinea capitis occurs in children exclusively and is mainly due to *M. canis*. It invades the scalp stratum corneum and the hair cuticle (Ectothrix infection) causing pink scaling patches on the scalp skin and areas of hair loss caused by the breakage of hair shafts. It is easily spread by, e.g., the sharing of hair brushes. In another variety of ringworm of the scalp caused by a fungus known as *T. schoenlieni*, the fungus invades the interior of the hair shaft (Endothrix) and causes an area of intense inflammation on the scalp with swelling and pus formation with eventual scarring.



(iii) Tinea barbae

Clinically tinea barbae may present similarly to tinea corporis, with mild superficial scaling, erythema and broken, lustreless hairs. In deeper forms, perifollicular pustules, crusting and exudates are seen. This may progress to an inflamed boggy, tumour like mass resembling kerion of the scalp. Sinus tracts, scarring and alopecia may develop.



(iv) Tinea faciei

Tinea faciei often presents as erythematous, scaling, pruritic lesions on the face and neck. Some patients will have the classical annular pattern of tinea corporis with discrete raised, scaling borders while others will have indistinct flat erythematous patches.

(v) Tinea pedis:

Vesicular, with itchy vesicles occurring on the sides of the heel on a background of erythema. Plantar, in which the sole is red and scaling. Interdigital, in which the skin between the fourth and fifth toes in particular is scaling and macerated. Tinea pedis is very common and particularly so in young and middle age men who often seem to contract it from communal changing rooms. It tends to be itchy and is often very persistent. *Trichophyton rubrum* in particular, but also *T. mentagrophytes* and *E. floccosum* cause the infection.



(vi) Tinea manuum

Any species of dermatophyte but usually *Trichophyton rubrum* affect the skin of the hand. Hyperkeratosis of the palms and fingers affecting the skin diffusely is the commonest variety and is unilateral in about half the cases. The accentuation of the flexural creases is a characteristic feature. Other clinical variants include crescentic exfoliating scales, circumscribed vesicular patches, discrete red papular and follicular scaly patches and erythematous scaly sheets on the dorsal surface of the hand.



(vii) Tinea cruris

Tinea cruris is infection of the groin by a species of dermatophyte. Whatever the causal species, itching is a predominant feature. The lesions in the early stages are erythematous plaques, arciform with sharp margins extending from the groin down the thighs. Scaling is variable and occasionally may mask the inflammatory changes. Vesiculation is rare but dermal nodules forming beading along the edge are commonly found in older lesions. Some central clearance is usually present but is often incomplete with nodules scattered throughout the affected area. Satellite lesions if present are few in number and relatively large, spread to the scrotum is common.

**(viii) Tinea unguinum**

This condition is due to ringworm infection of the nail plate and the nail bed. The infection usually presents as a streak or a patch of discoloration, white or yellow at the free edge of the nail plate, often near the lateral nail fold. This shows through a relatively normal dorsal plate. It commonly spreads towards the base of the nail and may become darker, brown or black. The nail plate becomes obviously thickened in its depth and may crack as it is lifted up by the accumulation of soft subungual hyperkeratosis. [xxvii]



Prevention:

- Don't share clothing, towels, sheets or other personal items with someone who has ringworm.
- Change your socks and underwear at least once a day.
- Keep your skin clean and dry.
- Wear shoes that allow air to circulate freely around your feet.
- Wash your hands with soap and running water after playing with pets.

Prognosis: The disease is curable but relapses are very common so treatment and maintenance of hygienic conditions are required for moderate duration.

Discussion: The word '*Kustha*' stands for all types of skin diseases. It is not used specifically for any disease. Ayurveda has described almost all skin diseases under the broad heading of '*Kustha*'. *Mahakustha* and *Kṣudrakustha* are the further classifications of the term *Kustha* on the basis of their nature and various other aspects. In Ayurveda, skin fungal infection is termed as *Dadru*.

Dadru is one of the types of *Kustha* mentioned in the Ayurveda classics. *Dadru* is a common skin disease caused by superficial tinea infection, which is easily spread by contact and contamination. This disease exhibits many of the *Purvarupa* of *Kustha* as its *lakṣaṇa* like *Kaṇḍu*, *Raga*, *Piḍika*, *Utsanna Mandal*. This condition is caused by the predominance of *Kapha* and *Pitta Doṣha* affecting only the *uttana* dhatus like *Rasa* and *Rakta*. *Charak* states that *Dadru* manifests in the *chaturtha* layer of the skin [xxviii] whereas, *Sushruta* interprets that *Kustha* is formed in the *Tamra* and *Vedini* layers [xxix].

Infectious skin diseases are very common among the regional population, in which superficial fungal infections are very frequent. Fungal infection is produced by both internal and external causes.

According to Modern Medical science, warm and humid climate, sweating condition, unhygiene is the chief cause of Tinea infection. Living in polluted environment and unhygienic living conditions also predisposes to these diseases. *Dadru* can be defined as an entity manifested by intractable itching, scaling,

erythema with the lesions discoid in shape. But it is not true for all. Practically we get many variants of *Dadru* as per the involvement of sites. Hence the shape of the lesions is not one and the only same everywhere, it differs as the site of affection changes. *Dadru* is insidious in onset and persistent. Hence after successful treatment recurrences are common.

In the explanation of the *chikitsa* for *Dadru*, *Bahiparimarjana* type of treatment is mentioned. As a house on fire is brought to normalcy by sprinkling water likewise the *lepa* applied brings down the concerned *vikara* [xxx]. This simile by Acharya *Sushruta* imparts the importance of *lepa* which is one among the *bahiparimarjana chikitsa*.

It has been observed that the symptoms of *Dadru* can be observed in the *purvarupa* of *Kustha* like Raga, *Kañdu*, *Piḍika* and also *Utsanna Mandal*, *Ruksha*, *Daha*, *Visarpini* are also observed as *Purvarupa* of *Kustha*. Acharya *Sushruta* first time clearly described the *Anuvansika* and *Krimija Nidana* as a causative factor of *Kustha*[xxx]. *Kustha* has also been included in list of *Aupasargika Roga*, which may spread from one person to another [xxxii].

Conclusion:

The external appearance of all Tinea infections, none the less they all should be considered under the same heading '*Dadru*' because only their morphology changes due to the change of site of infections. The causative fungus and the symptoms of all, remains the same.

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