

**A CRITICAL REVIEW ON NIDANA AND SAMPRAPTI OF DADRU KUSHTA
WITH RESPECT TO DERMATOPHYTOSIS (FUNGAL INFECTION)
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Abstract

Human skin is the largest organ of the Integumentary system, forming a major interface between man and his environment. The skin is the first line of defence from the external factors. Due to modern lifestyle, food habits and usage of lots of chemicals, cosmetics, pesticides, fast foods, industrialization, and poor sanitation leading to many skin problems. In recent years, skin conditions are the burning cosmetic problem. Itching, redness etc. Symptoms of skin make people thoroughly miserable and frustrate the person with no end. Since ancient days to till date, skin ailments are a challenge for the physician and society as well. All the skin diseases are explained under the heading of *Kushta*. *Dadru Kushta* is one of the commonly occurring skin diseases, which has been considered as one of the *Mahakushta* by *Acharya Sushruta* and *Vagbhata*¹ and *Kshudrakushta* by *Charakacharya*². The involved *Dosha* is *Kapha Pittaja*³. *Ayurveda* has given much more importance to *Nidana* (causative factor) and *Samprapti* (pathology) as these two are the important components of *Nidana Panchaka* in understanding the pathogenesis of disease and its management.

Key words – Kushta, Dadruksuhta, Smparapti, Skin

INTRODUCTION

Human skin is the largest organ of the Integumentary system, forming a major interface between man and his environment. The skin is the first line of defence from the external factors. Due to modern lifestyle, food habits

and usage of lots of chemicals, cosmetics, pesticides, fast foods, industrialization, and poor sanitation leading to many skin problems. In recent years, skin conditions are the burning cosmetic problem. Itching, redness etc. Symptoms of skin make

people thoroughly miserable and frustrate the person with no end. Since ancient days to till date, skin ailments are a challenge for the physician and society as well. In *Ayurveda Twak Shareera* has an important place. *Twak* is the main seat of *Vaayu Mahabhoota* (air element) and it is one among *Panchagyanendriya* (five sensory organs) which has function of *Sparsha* (touch) ⁴. All the skin diseases are explained under the heading of *Kushta*. *Dadru Kushta* is one of the commonly occurring skin diseases, which has been considered as one of the *Mahakushta* by *Acharya Sushruta* and *Vagbhata* and *Kshudrakushta* by *Charakacharya*. *Acharya Charaka* mentioned *Dadru Kushta* under *Chaturtha* layer⁵. The involved *Dosha* is *Kapha Pitta* characterized by *Kandu* (itching), *Raga* (redness), *Mandala* (circular patches) and *Pidaka* (Papules) ⁶. In modern science, it can be correlated with *Tinea Infection* commonly called Ringworm infection. It is a fungal infection of the skin, which is highly contagious. It is also called as *Dermatophytosis*. The main cause of this infection *Dermatophyte* which spreads by contact because of improper lifestyle, uncleanliness of

body, sharing clothes, pets that might carry fungi⁷.

DADRU KUSHTA

Kushta is *Santarpanajanya*⁸, *Raktapradoshaja Vikara*⁹. It is also called *Mahagada*¹⁰. It is further divided into *Mahakushta* and *Kshudrakushta*. *Dadru Kushta* being one among *Kushta* is explained under *Mahakushta* by *Acharya Sushruta* and *Vagbhata* and *Kshudrakushta* by *Acharya Charaka*. It is a *Kapha Pitta Pradhana Tridoshaja Vyadhi*.

NIDANA

As there is no direct explanation of *Nidana* of *Dadru Kushta Samanya Nidana* of *Kushta* can be considered here^{11, 12}.

Viruddha Ahara –

Intake of *Samyoga* (combination) and *Virya* (potency) *Viruddha* (incompatibility) *Ahara* like Fish and milk in combined form leads to *Agni Dushti* leading to *Ama*. By this there will be *Tridosha Prakopa*. Even by its *Abhishyandi* property it also causes *Raktadushti*.

Adhyashana –

*Bhuktasya Upari Bhojanam*¹³ that means having food just after previous meal. This will make *Agnimandya* leading to *Ajeerna*. There is increased

Kleda (unctuousness) *Utpatti* in body leading to *Kushta*.

Vishamashana-

That means having food in irregular time leading to *pittakopa* and *Raktadushti* inturn lead to *Vishamagni*. Excessive intake of *Tila* will cause *Pittakopa* *Kushtakara*, *Guda* is *Krimikara*, *Lakucha* being *Nindya*¹⁴ (not to be used) *phala* is *Vishtambhaka* and *Tridoshakopaka*. Excessive intake of *Madhura Rasa* and *Guru Ahara* leads to *Ama* and *Ajeerna*. *Amla Rasa* leads to *Pittakopa*, *Raktadushtikara* and *Mamsashaithilyakara*. *Dadhi* being *Abhishyandi*¹⁵ leads to *kapha* and *Pitta Dushti* which may leads to increase in *Kapha Pittaja Vyadhi* like *Dadru Kushta*.

MITHYA VIHARA

*Swedasya Kleda Vidhruti*¹⁶ that means *Sweda* does the *Kleda Dharana* (withholds). Due to climate variations (hot and cold), excessive hot and humid climate leads to *Swedavaha Shrotodushti*¹⁷ leading to *Kushta* (skin ailments).

VISHESHA NIDANA OF DADRU KUSHTA

Dadru Kushta in the lights of *Aupasargika Roga*¹⁸:

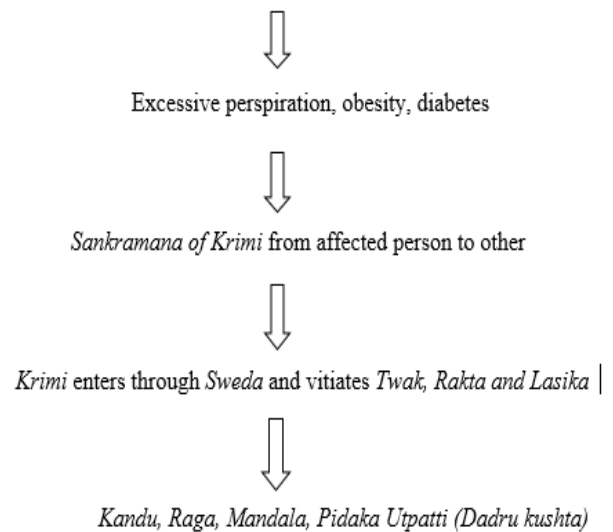
Kushta spreads from one person to another by *Nishwasat* (Inhalation of fungal spores in infected environment directly) *Gasrasamsparsha* (by contact and touch), *Sahashayyasana* (by sharing beds) *Vastra* (sharing clothes, fomites etc). The mode of spread of *Dadru kushta* is similar to these; hence *Dadru Kushta* is an *Aupasargika Vyadhi*. In modern literature there is a striking similarity of this *Aupasargika Roga* with Dermatophytosis.

Vishesha

(Aupasargika)

Samprapti

Vishishta Nidanans like wearing wet and tight garments, synthetic garments,



INCIDENCE OF DISEASE

There is an increase in the incidence of skin conditions especially in the tropical and developing countries due to poverty, overcrowding, poor sanitation and personal hygiene, low standards of living along with high

humidity environments, pollution etc. Skin disease accounts for prevalence rate 10-20% of all consultation in general practice and out of them, fungal infection constitutes up to 20%¹⁹. In India after scabies and pyoderma Ringworm is the next common skin disease²⁰. 39% of world population is suffering from it. In India also 5 out of 1000 people are suffering from Tinea infections²¹. North Karnataka is well known for its hot and humid conditions making its population at risk of many dermatophytic infections. Most common are Tinea Corporis and Tinea Cruris. These are common in age group of 21 to 40 years²².

GEOGRAPHICAL DISTRIBUTION OF DERMATOPHYTOSIS²³:

Fungal infections of the skin, hair, and nails due to Dermatophytes are a common problem across the globe. In Depending on the climate and culture, the clinical picture can differ. Tinea pedis and onychomycosis are the most prevalent clinical forms in western countries, while tinea capitis and tinea corporis are the most frequent forms in tropical areas.

RISK FACTORS²⁴:

- Although dermatophytosis occurs worldwide, individual dermatophyte species may vary in their geographic distribution and self-virulence. These disorders cannot be differentiated by ethnicity or socioeconomic status, but poverty and overcrowded living conditions are important underlying social determinants. Factors contributing to the high frequency and chronic occurrences of dermatophytosis in developing countries may also include poor living conditions, children interaction patterns, and poor health seeking behaviour.
- Individuals of both sexes and all ages are susceptible to dermatophytoses; however, tinea capitis is more common in prepubescent children, and tinea cruris and tinea pedis are primarily diseases of adult males.
- Illness such as Obesity, Diabetes
- Extreme climate – Rainy season, Excessive heat, Humid climate, Moist conditions, damp areas
- Wearing tight fitting and wet clothings
- Infected fomites
- Immunocompromised conditions

There are approximately 40 different species of dermatophytes, of which the most common species that cause disease in human are *Trichophyton rubrum*, *Trichophyton tonsurans*, *Trichophyton interdigitale*, *Trichophyton mentagrophytes*, *Microsporum canis* and *Epidermophyton floccosum*. On a worldwide scale, *T. Rubrum* and *T. Mentagrophytes* account together for 80% to 90% of all dermatophytosis²⁵.

CAUSES:

The infection is very common among children and people who have pets that may carry the spores of fungi, have wet skin condition, wearing wet clothings specially undergarments, who are having skin injuries or abrasions, improper lifestyle, by contact, use public showers, walking barefoot, and share hairbrushes or unwashed clothing and other fomites with other people which carry fungi in it²⁶.

The fungi often tend to linger on clothes, towels, surfaces, and within brushes or combs.

The course of the disease is affected by Obesity, Diabetes, hot weather, humid climate; use of soaps and detergents and other fomites and those who have

an increased risk of developing the infection, immunocompromised patients²⁷.

PATHOGENESIS²⁸

Dermatophytes can survive solely on outer cornified layers of the skin. The ability of certain fungi to adhere to particular host arises from numerous mechanisms and host factors, including the ability to adapt to the human body. Natural infection is acquired by the deposition of viable arthrospores or hyphae on the surface of the susceptible individual. After the inoculation in the host skin, suitable conditions favor the infection to progress through the stages of adherence and penetration. Development of host response is mostly by a T-cell mediated response of delayed-type hypersensitivity. Antibody formation does not seem to be protective. Natural defenses against dermatophytes depend on both immunological and nonimmunological mechanisms.

DEVELOPMENT OF HOST RESPONSE²⁹

Fungal metabolic products diffuse through the malpighian layer to cause erythema, vesicle or even pustule formation along with pruritus. There *in*

vivo activity is restricted to the zone of differentiation, newly differentiated keratin and Adamson's fringe within the hair shaft.

DISCUSSION:

Dadru Kushta is a *Kaphapitta Pradhana Tridoshaja Vyadhi*.

Because of *Mahaupakrama, Anubandhi Prakarsha, Kalaprakarsha Asadhyatvat* it is considered under *Mahakushta* by *Sushruta*. That is as *Dadru* is a deep rooted recurring *Vyadhi* and involves deeper *Dhatu*s and as the chronicity grows the treatment becomes difficult. Hence *Sushruta* considers under *Mahakushta* and *Dalhana* considers it under *Asitha Dadru*³⁰.

But *Acharya Charaka* opines that *Sukhyasadyatvat* that is easy for the treatment, *Uttarottara Dhatu Anupravesha* Abhavat that it doesn't involve deeper *Dhatu*s like *Majja* and *Shukra*, it is limited to *Rasa, Rakta, Mamsa. Atyartha Peeda Abhavat* there is no excessive pain as such. Hence he considers it under *Kshudra Kushta* and *Dalhana* includes under *Sitha* type of *Dadru*³¹.

Vagbhata while explaining *Dadru* told it as *Anushangi*³² that is remains for

longer period (*Deergha Kaala Anubandha Vyadhi*) explains about the adaptability of the Fungi in the body for longer period and even modern texts explains that the fungi can survive (extreme conditions like cold and summer season).

In rainy season air is saturated with moisture. This makes the weather humid and everything else damp. This makes it an ideal breeding season for fungi.

Even study suggests that *C.Auris* can live in extreme high temperature above 37-40⁰c

In Diabetes the skin of the patient is moist, fragile due to impaired lipid metabolism more prone to breaking of skin and is nidus for the growth of different organisms.

In Obese patients due to excessive perspiration often there is an accumulation of skin debris and due to more folds of skin there is a more chance of remainant of these particles make susceptible for the fungal growth. Even excessive folds does the rubbing of skin results in friction and causes breakage or skin abrasions

makes skin susceptible for fungal growth

The fungal spores inhabit on the unused utensils, clothes, tables, combs, brushes and other fomites for longer period in an inactive shield form and whenever there is favourable environment that is during the moist and humid climates it becomes active and causes disease in human and as well as animals. Hence there is a recurrence of this disease.

Due to wearing of tight and wet undergarments there is a lack of aeration hence makes favourable environment for fungal growth and even tight fittings makes skin rub and cause friction and makes skin abrasions.

Menstrual unhygiene – Using unclean pads and even wearing a pad for longer duration results in fungal infection and causes severe itching.

Postcoital unhygiene- after having sex if private parts are not washed properly the ejaculations which are in contact with skin for longer period makes favourable for the growth of fungus. Jock itch (fungal infection of groin) is common that too in males.

In females it is common around waist and under breastfolds.

Fungal infections are opportunistic. Hence in children and in other immunosuppressed patient it will stay for longer period and even may involve systemic infection.

CONCLUSION

Dadru kushta is a Kaphapitta Pradhana Tridoshaja Aupasargika Roga (highly contagious). As this disease is *Anushangi* (remains in the body for long time) though proper treatment is given there is a recurrence of disease. *Ayurveda* in treatment mainly focuses on avoiding the etiological factors (*Nidana Parivarjanam*) and breaking of pathology (*Samprapti Vighatana*) and ultimately is *Dhatu Samya* so by avoiding etiology and by improving the lifestyle one can be free from disease.

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**Source of Support: NIL
Conflict of Interest : None declared**