

International Research Journal of Ayurveda & Yoga

Vol. 6 (6),122-125, June,2023

ISSN: 2581-785X : <https://irjay.com/>

DOI: [10.47223/IRJAY.2023.6620](https://doi.org/10.47223/IRJAY.2023.6620)



An Ayurvedic approach on *Pādadāri* (Cracked foot).

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Article Info

Article history:

Received on: 10-05-2023

Accepted on: 19-06-2023

Available online: 30-06-2023

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ABSTRACT:

Cracked Foot referred to as *Pādadāri* (Cracked foot) in Ayurveda is a common cosmetic foot problem for both men and women. It is reported to be found more in females than in males. The Ayurvedic literature shows that the occurrence of *Pādadāri* (Cracked foot) can be traced back to ancient times. It is a *Vāta* (vatha dosha) predominant condition characterized by dry skin, roughness, hardness around the rim of the heel and cracks or fissures on the outer edge of the heel. In persons who are in the habit of too much walking on rough ground without footwear *Vāta* (vatha dosha) gets increased producing fissures in the sole of feet, this is called *Pādadāri* (Cracked foot). Cold climate leads to aggravation of *Vāta* (vatha dosha). This article highlights the importance of *Pādābhyāṅga* (foot massage with oil) as *Dinacarya* (daily regimen) aspect by collecting information regarding *Pādadāri* (Cracked foot) from various classics. In Ayurveda, it is clearly mentioned that *Abhyāṅga* (oil massage) controls *Vāta dosa* (vatha dosha) and the person develops both physical and mental strength.

Key words: *Pādadāri*, Cracked Foot, Heel fissures, *Pādābhyāṅga*.

INTRODUCTION

Cracked foot is a common cosmetic problem for both men and women. It is reported to be found more in females than in males¹. Normally people ignore this problem due to lack of consciousness about foot care. Cracked foot is characterized by dry skin, roughness, hardness around the rim of the heel and cracks or fissures on the outer edge of the heel². As per Ayurvedic Science, symptoms of Cracked foot can be correlated to that of *Pādadāri* (Cracked foot). In persons who are in the habit of too much walking on rough ground without footwear *Vāta* (vatha dosha) gets increased producing fissures in the sole of feet, this is

called *Pādadāri* (Cracked foot). *Pādadāri* (Cracked foot) is described in Ayurveda under *Kśudra roga* (minor disease) by *Suśruta*, *Mādhava Nidāna*, *Bhāvaprakāśa* and *Yogarātnākara*. According to *Suśruta Saṁhita*, the predominant clinical features of *Pādadāri* (Cracked foot) are *Pādayo dāri* (Cracks on foot), *Saruja* (Associated with pain) and *Rūkṣata* (Roughness and dryness)³. As far as *Bṛhatrayi* is concerned, *Caraka Saṁhita* and *Aṣṭāṅga Hṛdaya* haven't mentioned *Pādadāri* (Cracked foot). Skin is the largest organ in human body⁴. It protects the body in various ways from microbes, abrasion, heat and



chemicals⁵. In Ayurveda, it is termed *Twaca* (skin) which is derived from *twak dhātu* which means the ‘cover’⁶. Heel skin is composed of a thick stratum cornea to support the pressure of body weight. There are so many sweat glands on the sole of feet, so there is a chance of water loss on the skin surface⁷. Socio-cultural practices such as barefoot walking and the late presentation of foot lesions have all been found to contribute to the development of hyperkeratosis and heel fissures⁸.

The first sign of getting a Cracked heel is the development of dry, thickened skin around the rim of the heel. This is called callus and may be a yellow or dark brown discoloured area of skin. Initially, small cracks over the callus are visible. Increased pressure on the fat pad under the heel causes it to expand sideways, leading to the splitting or cracking of the callus. If left untreated and as more pressure is placed on the heel, these cracks become deeper, and walking and standing will eventually be painful. These cracks may be so deep that they begin to bleed⁹. In extreme cases, cracked heels can get infected and lead to cellulitis¹⁰. Cracked heels are of particular concern for diabetic patients, who may suffer neuropathic damage (loss of feeling particularly of the feet) as the fissures may lead to diabetic foot ulcers. From these points of view, it is clear that even if it is a *Kśudra roga* (minor disease), negligence will lead to serious complications. So proper care should be given at the proper time.

Some factors that contribute to cracking include intake of *Vāta dosa* (vatha dosha)aggravating foods, excessive weight or obesity, prolonged standing especially on hard floors, open-backshoes and sandals as they provide no support to hold the fat pad under the foot and not following proper daily routine¹¹.

MATERIALS AND METHODS

Literature of present study has been reviewed from various Samhitas like *Suśruta Samhita*, *Caraka Samhita*, *Aṣṭāṅga Hṛdaya*, *Mādhava Nidāna*, *Bhāvaprakāśa*, *Yogarātnākara*, *Cikitsa Mañjari*, *Sahasrayoga*, *Gadanigraha*, *RasaRatna Samuccaya* etc.

***Pādadāri* (Cracked foot) in *Āyurveda Samhitas* and its treatments:**

Ācāryās used different terms like *Pādasphuṭana*, *Pādaprabhedana*, and *Pādadāri* for Cracked foot. As per *Amarakośa* and *Śabda tārvāli*, the terms *Sphuṭana*, *Vidāraṇa*, and *Bhedana* are used synonymously. Acharya *Suśruta* have mentioned about *Pādadāri* (Cracked foot) in

Nidānasthāna 13th chapter and in *Cikitsāsthāna* 20th chapter. *Dalhaṇa* says that first unction and sudation should be done and then bloodletting, perhaps his reading might be different.(Table 1)

RESULT AND DISCUSSION

Pādadāri (Cracked foot) is one of the most frequent and underserved disorders. Most individuals labour in moist dirt or water without wearing shoes. Such etiological variables result in a development of cracks in the skin of the foot, which is known as *Pādadāri* (Cracked foot). Cracks in the heel or heel fissures are especially frequent in the elderly or those who walk barefoot all the time. It might affect both heels, or just one of them. However, it is most usually observed on both heels. Females are more likely to suffer than males, "due to more indulgence in water, causing cracks." Unfortunately, those living in dry areas have a greater frequency than those living in rainy climates. According to the NPD Group's 2012 National Foot Health Assessment for the Institute for Preventive Foot Health, 20% of US individuals aged 21 and older (about 44 million people) have cracked skin on their feet. The situation is worse among women, who report the disease at a rate that is more than half that of men. It is described in Ayurveda under *Kśudra roga* (minor disease) by *Suśruta*, *Mādhava Nidāna*, *Bhāvaprakāśa* and *Yogarātnākara*. In Ayurveda Samhitas, diseases are classified as *Kśudra roga* (minor disease) and *Maharoga* (major disease) as per severity. *Ācāryās* have mentioned classical symptoms of *Pādadāri* (Cracked foot) as well. All *Cikitsa upakrama* (treatment) according to different *Ācāryās* aim to the importance of the moisturization of skin especially on foot. In *Pādadāri* (Cracked foot), aggravated local *Vāyu* (vatha dosha) give rise to peculiar painful cracks by its *rūkṣa guṇa* (roughness). The signs, symptoms, pathogenesis and treatment of *Pādadāri* (Cracked foot) are mentioned in our classics. Ayurvedic therapy concepts for *Pādadāri* include external drug application, *padabhyāṅga*, and so on. In Ayurveda, there are many herbs described which has excellent *Vranaropak* or healing properties. Here first line of treatment is to control over the localized *Vāta* (vatha dosha), that may be the reason why *Ācāryās* did not mention about internal medications. Everyone who wants to live a long and healthy life is expected to follow the rules of conduct which are given in *Dinacarya* (daily regimen) in Ayurveda. *Abhyāṅga* (oil massage) is one among the Ayurvedic theories explained in *Dinacarya* (daily regimen). Ayurveda advised daily practice of

abhyanga (oil massage) especially on *śira* (head), *karna* (ears) and *pāda* (foot). *Ācāryās* emphasize the importance of *Bahiparimārjjana Cikitsa* (external treatment) in *Pādadāri* (Cracked foot). Here importance was given on *Pādābhyanga* (foot massage with oil), as a *Dinacarya* (daily regimen) aspect.

CONCLUSION

This study concludes with whole review on the literature of *Pādadāri* (Cracked foot) about its definition and treatments from the different Vedic periods. All the *Ācāryās* have mentioned almost same classical symptoms, but the number of formulations are varies in different classics. In all cases, the medium of medicinal application is oil or ghee. That means the first line of treatment is to pacify *Vāta dosa* (vatha dosha). Here *Ācāryās* emphasizes the importance of moisturization of skin especially on foot or *Pādābhyanga* (foot massage with oil), as a *Dinacarya* (daily regimen) aspect. All *Cikitsa upakrama* (treatment) according to different *Ācāryās* aim to the importance of *Pādābhyanga* (foot massage with oil). In Ayurveda, it is clearly mentioned that *Abhyanga* (oil massage) controls *Vāta dosa* (vatha dosha) and the person develops both physical and mental strength. So there is much scope for further clinical research to prove the effectiveness of these formulations.

Acknowledgment- I express my sincere gratitude to my guide Dr Vivek P, Dr Manoj Kumar N, Associate Professor and Head of the Department for their valuable suggestions and discussions.

Conflicts Of Interest- Nil

Source of finance & support – Nil

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How to cite this article: Rinimol C E, Vivek P, Kumar M “An Ayurvedic approach on *Pādadāri* (Cracked foot).” IRJAY. [online] 2023;6(6);122-125.

Available from: <https://irjay.com>.

DOI [link- https://doi.org/10.47223/IRJAY.2023.6620](https://doi.org/10.47223/IRJAY.2023.6620)

Table 1- Different Treatments in books

Books	Ingredients
Suśruta Saṃhita	Application of the following combination is mentioned after Venepuncture, unction and sudation: * <i>Madhūcchiṣṭa</i> (bee-wax), <i>vasa</i> (muscle-fat), <i>majja</i> (marrow), <i>ghṛta</i> (ghee), <i>sarjarasa</i> (resin of <i>Vateria indica</i> L.), <i>yavaksāra</i> (an alkaline formulation) and <i>gairikam</i> (red ochre) ¹⁴ .
Yoga Ratnākara	The physician should undertake <i>Raktamokshana</i> (Bloodletting) in <i>Talasodhini Sira</i> (vein on foot), <i>snehana</i> (unction) and <i>swedana</i> (sudation) measures should be done over <i>Pada</i> (foot), then application of following <i>lepas</i> (external application) are suggested: * <i>Madhūcchiṣṭa</i> (bee-wax), <i>vasa</i> (fat), <i>majja</i> (marrow), <i>ghṛta</i> (ghee) and <i>yavaksāra</i> (an alkaline formulation). * <i>Sāla niryāsa</i> (<i>Shorea robusta</i> C.F.Gaertn), <i>saindhava</i> (rock salt), <i>madhu</i> (honey), <i>ghṛta</i> (ghee)and mustard oil (<i>Brassica nigra</i> L.). * <i>Madhu</i> (honey), <i>saindhava</i> (rock salt), <i>ghṛta</i> (ghee), <i>guda</i> (sarkkara), <i>Guggulu</i> (<i>Commiphora mukul</i> Hook.), <i>Sāla niryāsa</i> (resin of <i>Shorea robusta</i> C.F.Gaertn), <i>gairikam</i> (red ochre). * <i>Upodikādi Tailam</i> – Dissolve the ashes of equal parts of <i>Upodika</i> (Indian spinach), <i>Sarsapa</i> (<i>Brassica nigra</i> L.), <i>Nimba</i> (neem bark or leaf of <i>Azadirachta indica</i> A.Juss.), <i>Mocharasa</i> (<i>Salmalia malabarica</i> (DC.) Schott&Endl), <i>Karkkāruka</i> (<i>Cucurbita pepo</i> L./field pumpkin), <i>Ervārukam</i> (<i>Curcumis melo</i> /Snake cucumber) in water and then add a quarter of Mustard oil (<i>Brassica nigra</i> L.) and make it as a paste by adding <i>saindhavam</i> (rock salt) ¹⁵ . * <i>Madanaphalādi lepam</i> – Equal parts of <i>Madanaphala</i> (<i>Catunaregam spinosa</i> Thunb.), <i>siktham</i> (CuSO ₄), sea salt and mix it with Buffalo butter. * <i>Saindhavādi lepam</i> – <i>Saindhavm</i> (rock salt), <i>Rakta chandanam</i> (<i>Pterocarpus santalinus</i> L.f.), <i>Rāla</i> (gum extract of <i>Shorea robusta</i> C.F.Gaertn), <i>madhu</i> (honey), <i>ghṛta</i> (ghee), <i>Guggulu</i> (<i>Commiphora mukul</i> Hook.), <i>guda</i> (sarkkara) and <i>gairika</i> (red ochre). * <i>Madanādi yogam</i> – <i>Madanaphala</i> (<i>Catunaregam spinosa</i> Thunb.), <i>saindhavm</i> (rock salt), <i>Guggulu</i> (<i>Commiphora mukul</i> Hook.), <i>ghṛta</i> (ghee), <i>gairika</i> (red ochre), <i>madhu</i> (honey), <i>Rāla</i> (gum extract of <i>Shorea robusta</i> C.F.Gaertn), <i>guda</i> (sarkkara).
Cikitsa Mañjari	* Paste of <i>Āmalaki</i> (<i>Phyllanthus emblica</i> L.) and <i>ghṛta</i> (ghee) ¹⁶ .
Sahasrayoga	* <i>Sarjarasa</i> (resin of <i>Vateria indica</i> L.), <i>saindhava</i> (rock salt), <i>guda</i> (sarkkara), <i>Guggulu</i> (<i>Commiphora mukul</i> Hook.), <i>gairikam</i> (red ochre) and <i>ghṛta</i> (ghee) ¹⁷ .
Gadanigraha	* <i>Śukti bhasma</i> ,(Pearl Ash) <i>sarpi</i> (ghee), <i>Sarjarasa</i> (resin of <i>Vateria indica</i> L.), <i>saindhavm</i> (rock salt), <i>Snuhi ksīra</i> (latex of <i>Euphorbia nerifolia</i> Roxb.)
Bhāvaprakāśa	Mentioned the following combinations, after Venepuncture, unction and Sudation, * <i>Madhūcchiṣṭa</i> (bee-wax), <i>vasa</i> (fat), <i>majja</i> (marrow), <i>Ghṛta</i> (ghee), <i>kshāra</i> (an alkaline formulation). * <i>Sarja</i> (<i>Vateria indica</i> L.) <i>saindhava</i> (rock salt), <i>ghṛta</i> (ghee), <i>madhu</i> (honey), <i>Katu taila</i> (oil of <i>Brassica nigra</i> L.). * <i>Madhu sikta</i> ,(resin of <i>Vateria indica</i> L.) <i>gairikm</i> (red ochre), <i>guda</i> (sarkkara), <i>Māhisāksa guggulu</i> (<i>Commiphora mukul</i> Hook.), <i>Sāla niryāsa</i> (resin of <i>Shorea robusta</i> C.F.Gaertn). * <i>Unmatha bīja</i> (seeds of <i>Datura metel</i> L.), <i>mālkandha</i> (<i>Dioscorea alata</i> L.), <i>Katu taila</i> (oil of <i>Brassica nigra</i> L.) ¹⁸ .
RasaRatna Samuccaya	Apply these after Venepuncture, unction and sudation, * Massage with <i>Katu taila</i> (oil of <i>Brassica nigra</i> L.). * <i>Upodikādi tailam</i> as mentioned in <i>Yoga Ratnākaram</i> . * <i>Saindhavādi lepam</i> as mentioned in <i>Yoga Ratnākaram</i> . * <i>guda</i> (sarkkara), <i>lavana</i> (salt), <i>ghṛta</i> (ghee), <i>Tintidi</i> (<i>Tamarindus indica</i> L.), <i>mūtra</i> (urine) ¹⁹ .