

Indigenous Medicine Intervention in Management of *Padadari* (Cracked Heel): A Case Study

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ABSTRACT:

Cracked heels may be unappealing, but they usually don't cause serious issues in human beings. But some people have cracked heels and they have disturbed their day-to-day life. Apart from that, because of the pain, bleeding, and difficulty in walking the patients seek medical treatment from Ayurveda and allopathic medicine. Cracked heels correlate with *Padadari* in Ayurveda medicine. For the cracked heels traditional physicians recommended different Ayurveda herbal or herbo-mineral pastes with more effective results. Mango seed paste is a commonly prescribed paste by traditional physicians for patients having cracked heels. This paste includes a combination of the inner portion of mango seeds (*Guthli*) and neem oil equally and is very cost-effective for the patients. Therefore, this case study was conducted to find out the effectiveness of this mango seed paste on a patient having a cracked heel with pain and difficulty in walking for nearly two years. The results showed that the patient's cracked heels were reduced and also the pain in only four weeks of time.

KEYWORDS: Cracked heel, Mango seed, Neem oil, *Padadari*.

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INTRODUCTION

In persons who are in the routine of too much walking on rough ground without footwear, *Vata dosha* increases and produces fissures in the soles of the feet, this is named *Padadari* [1]. As per modern science, it can be correlated with a Cracked heel. Disease '*Padadari*' makes the sole rough and it affects the beauty and smoothness of the foot. Patients with *Padadari* have symptoms of *Twak rukshata* (roughness), *Darana* (fissures/cracks), pain and sometimes

bleeding from the cracks [2]. Ayurveda texts like Sushruta Samhita explained this disease under the group of '*Kshudraroga*'. The meaning of *Kshudra* is minor, it can be minor in the causes of the disease and also the medicaments of the disease. However, some patients suffer severe pain from this disease. The *Samprapti* (etiopathogenesis) of this disease can be considered due to *Atichankraman* (too much walking), an increase in the *Ruksha guna* of *Vata dosha* and then *Vata prakopa* occurs. [1] This leads

to *Padagata twak rukshata* (roughness), *Darana* (cracks), and *Ruja* (pain). *Twak* (skin) is *Updhatu* of *Mansa*. Increase in *Ruksha guna* of *Vata dosha*, *Kledata* (*Drava guna*) of the skin is reduced. The reduction of *Kledata* leads to improper *Rasa dhatu poshana*. Due to improper *Rasa dhatu poshana*, *Twak poshana* (nutrition) also decreased. Hence, the *Rukshata* of *Twak* helps in developing the disease *Padadari*. Due to severe pain, high recurrence propensity, and beauty-conscious patients seek Indigenous medical treatments rather than any other treatment methods. Therefore, it is high time to find a more appropriate and acceptable solution to this ailment. The preference of the majority is to have medications such as external applications. Traditional practitioners recommended many applications for *Padadari* and this study was carried out to record a successful story of a patient with *Padadari* who was treated only by using a paste; an external application. The paste included neem oil (oil pressed from the fruits and seeds of the *Azadirachta indica*) and seeds (*Guthli*) of mango (*Mangifera Indica* Linn) and the ratio is 1:1. First ground the *Guthil* of mango and then mix with the neem oil to make a paste.

CASE REPORT:

48-year-old male patient visited Bandaranayake Memorial Ayurveda Research Institute (BIMARI), Navinna, Maharagama, Sri Lanka in January 2023 with a painful crack in both feet. The cracks arose due to long-term usage of rough and hard footwear and also sometimes due to walking barefoot. He was unable to walk properly due to the pain that arose from an affected

area at the time he came for the treatments. The symptoms of pain worsened all over the crack sites when the affected site was pressed. Initially, the length of the major crack was nearly 6 cm and there were many other cracks around his sole. He had been suffering from the above symptoms for nearly 2 years. The patient was not suffered from any other chronic diseases such as Diabetes mellitus, hypertension, dyslipidaemia, heart disorders, kidney diseases etc.

For this patient, the paste was provided and advised to cleanse both feet with lukewarm water before applying the paste. The paste is recommended to spread over the sole only at night and the patient was directed to apply the paste continuously for two weeks. Also, he was strictly advised not to wear rough and hard footwear and not to walk barefoot. In addition to that, he was asked to attend the clinic every week. The response to the treatment was assessed through symptomatic relief of the patient. The reduction of symptoms of pain, difficulty in walking, and size of the cracks were considered. The symptoms were graded and recorded rendering to grading systems that were designed for the study in every subsequent visit (once a week). The lesion was measured by placing a white, transparent sheet over the lesion and coloring all the margins with a marker. The follow-up period is one month.

Assessment Criteria:

The grading system of pain, difficulty in walking ⁽³⁾, size of the cracks, and the number of cracks present in the sole are mentioned in Tables 1,2, 3, and 4 respectively.

Table 1: Pain in the cracks:

| Grade | Type of Severity of the Pain |
|-------|---|
| 0 | No pain |
| 1 | Mild pain, when applying pressure on the cracks, can be easily unnoticed, not disturbing the day-to-day activities |
| 2 | Moderate pain, when applying pressure on the cracks, cannot be easily ignored, presents most of the time, difficult to continue day-to-day activities |
| 3 | Severe pain occurred when applying pressure on the lesion, remaining throughout the day, and unbearable |

Table 2: Difficulty in walking:

| Grade | Type of Severity |
|-------|---|
| 0 | No pain when walking |
| 1 | Mild pain reported when walking, but managed to walk without any abnormality or without disturbing the pattern of walking |
| 2 | Moderate pain when walking, can walk, but the pattern of walking is disturbed |
| 3 | Severe pain, very difficult to walk, the pattern of walking is disturbed very much |

Table 3: Length of the cracks:

| Grade | Length of the cracks in centimeters |
|-------|-------------------------------------|
| 0 | No lesion |
| 1 | Length between 0 – 2 cm |
| 2 | Length between 2 – 4 cm |
| 3 | Length between 4 – 6 cm |

Table 4: Number of cracks present in the sole:

| Grade | Number of cracks |
|-------|------------------|
| 0 | No cracks |
| 1 | 3 to 5 cracks |
| 2 | 6 to 8 cracks |
| 3 | 9 to 12 cracks |

Table 5: Results of the before and after treatment:

| Symptom | Before Treatment (Grade) (Figure 1) | During Treatment (Grade) | | | |
|-----------------------|-------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| | | After 1 st week (Figure 2) | After 2 nd week (Figure 3) | After 3 rd week (Figure 4) | After 4 th week (Figure 5) |
| Pain | 3 | 2 | 2 | 1 | 0 |
| Difficulty in walking | 3 | 2 | 2 | 1 | 0 |
| Size of the cracks | 3 | 3 | 2 | 1 | 0 |
| Number of cracks | 3 | 3 | 2 | 1 | 0 |

**Fig.1: Before treatment****Fig.2: After 1st week****Fig.3: After 2nd week****Fig.4: After 3rd week****Fig.5: After 4th week****RESULTS AND DISCUSSION:**

At the beginning, the patient was suffering from severe pain around the affected area and the pain remained throughout the day and pain at the beginning was graded as Grade 3. Also, the patient was unable to walk, and also seems that her walking pattern was disturbed very much due to the severe pain aroused from the affected area. Consequently, the symptom of difficulty in walking was graded as Grade 3. Initially, the length of the lesions was nearly 6 cm. According to the length of the cracks, it was also graded as Grade 3. The number of cracks present in the sole was 12 cracks (Figure 1). After four weeks of treatment, all signs and symptoms of the patient were completely reduced from Grade 3 to Grade 0 (Figure 4). The patient could walk without any

difficulty, and the size of the lesion was reduced gradually and vanished at last. Table 5 shows the results before and after treatment according to the grading system with figure numbers.

According to the Ayurveda *Aushadha Samgraha* (pharmacopeia), mango seeds, kernel or *Guthli* have the ulcer-healing effect [4]. Apart from that the research studies proved that mango seeds have anti-oxidant activities [5] also. Neem oil has the effects of wound healing, is analgesic, and is beneficial for the skin [6]. Also, neem oil has antioxidants, detoxification, DNA repair, cell cycle alteration, programmed cell death mitigation and autophagy, immune surveillance, anti-inflammatory, anti-angiogenic, and anti-metastatic activities, and the ability to modulate various signaling

pathways [7]. Therefore, the action of these two ingredients is beneficial to reducing pain and healing the cracks.

CONCLUSION:

The study revealed that the treatment with local application of Neem oil mixed with mango seeds powder was successful for the patient with a cracked heel.

Limitation of study:

Further clinical trials are necessary to validate the therapeutic effects of this particular cost-effective external application and also it is essential to carry out research studies that reveal the actions or chemical reactions of mango seeds (*Guthil*) and neem oil with the disease condition. The extended procedure of the research study will help to understand drug interactions, pharmacodynamics, pharmacokinetics, etc. with regard to the configuration of the paste.

Consent of patient:

Before starting the case study, written consent from the patient was obtained to publish the case report and images.

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