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A case series on the role of *Ayurveda* in the management of Plantar Corn

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ABSTRACT

Plantar corn characterized by painful, circumscribed horny thickening is often intractable to conservative management and the symptoms affect persons gait and activities. In *Ayurveda* it is described as *Kadaram* under *Kshudraroga*, being caused by aggravated *Dosas* along with *Medas* and *Raktha*. Treatment described for *Kadaram* according to *Ayurveda* is surgical excision followed by cauterization with *Sneha*. In this case series, a deviation from the prescribed treatment protocol was followed by doing surgical enucleation of corn and management of the excised site using *Triphala Kasayam* and *Jathyadi Ghritam*. The cases were prospectively followed up for three months for incidence of recurrence. No recurrence was observed during the follow up period. Thus, surgical enucleation followed by proper wound care can be effectively used in the management of plantar corn.

Key words: Plantar corn, Kshudraroga, Kadaram, Triphala Kasayam, Jathyadi Ghritam

INTRODUCTION

A corn represents a circumscribed, sharply demarcated area of traumatic hyperkeratosis.^[1] It is also known as calvus, heloma, focal intractable plantar hyperkeratosis. Its size varies from 1mm to 2cm and is conical in shape. It presses upon the adjacent tissues and causes severe pain when pressed due to pressure on nerves.^[2] They are classified in to two:

- Heloma durum / hard corn - a dry horny mass most commonly found on the dorsolateral aspect of fifth

toe or the dorsum of the interphalangeal joints of the lesser toes or on the plantar surface.

- Heloma mole / soft corn - is an extremely painful lesion that occurs interdigitally in between the toes.^[3]

Corns typically result from repeated accumulated mechanical trauma as well as other contributing factors like ill-fitting footwear or by abnormal pressure if there is a deformity of the foot like prominent condylar projection, malunion of a fracture or toe deformity. The body attempts to protect the irritated skin by accumulation of the horny layer of the epithelium, but this accumulation itself causes a prominence that increases the pressure. Ultimately a keratin plug is formed which presses in to the dermis and causes pain.^[4]

Etiopathogenesis of corn has been elaborated in *Ayurveda* texts. *Kadaram* is the terminology used for plantar corn developing as a result of assault/ trauma to the feet by walking on uneven gravels or prick injury. *Medas* and *Raktha* in association with *Dosas* produce wedge shaped hard swelling over the sole.^[5] It is to be

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treated by surgical excision followed by cauterization using *Snehadravya*.^[6]

METHODOLOGY

4 cases from the outpatient department diagnosed with plantar corn were selected for the study. The presentation of the cases was as follows:

CASE 1

A 30-year-old male presented with tender, circumscribed lesion over sole of left foot, below the 4th toe, about 1.5cm in diameter since 2 years. Patient had a history of thorn prick at the site, after which the lesion gradually developed. It was intractable to previous conservative medical treatment. On examination, circumscribed, well defined area of hyperkeratosis was found, painful on exertion of perpendicular digital pressure.

CASE 2

A 12-year-old female presented with localized growth associated with pain over the sole of right foot, below second toe, about 5mm in diameter for the last 6 months. On examination, a firm and tender lesion was noted over the sole, not associated with signs of inflammation or ulceration.

CASE 3

A fifty-eight-year-old female presented with painful, hard growth over the sole of right foot about 2 cm diameter since 40 years. It was intractable to various modes of treatment like paring and application of salicylic acid plasters. It had affected patient's gait and the shape of the foot was deformed as the patient adopted a gait pattern to avoid pain during ambulation by the affected part of the foot not touching the ground. On examination, a well localized tender lesion was found with a central core.

CASE 4

A 57 year old female presented with four circumscribed lesions over the sole of right foot associated with difficulty in walking since two years. One was located overlying the head of the first

metatarsal, three overlying the head and shaft of fourth metatarsal bones. They were about 0.5 cm diameter and tender on palpation.

MATERIALS AND METHODS

- No. 15 surgical blade
- BP handle
- Lignocaine 2% injection
- Allis tissue holding forceps
- *Triphala Kasayam*
- *Jathyadi Ghritam*

Table 1: Ingredients of *Triphala Kasayam*

SN	Sanskrit name	Botanical name	Part used
1.	<i>Amalaki</i>	<i>Emblca officinalis</i>	Fruit rind
2.	<i>Haritaki</i>	<i>Terminalia chebula</i>	Fruit rind
3.	<i>Vibheetaki</i>	<i>Terminalia bellirica</i>	Fruit rind

Method of preparation

12 g of fine powder of drugs was boiled in 200 ml of water and filtered to obtain *kasayam*.

Table 2: Ingredients of *Jathyadi Ghritam*^[7]

SN	Sanskrit name/ Common name	Botanical name	Part used
1.	<i>Jathipatram</i>	<i>Jaminum grandiflorum</i>	Leaves
2.	<i>Nimba patram</i>	<i>Azadirachta indica</i>	Leaves
3.	<i>Patola patram</i>	<i>Trichosanthes diocea</i>	Leaves
4.	<i>Katuka</i>	<i>Picrorrhiza kurroa</i>	Rhizome
5.	<i>Darvi</i>	<i>Berberis aristata</i>	Stem bark
6.	<i>Nisha</i>	<i>Curcuma longa</i>	Rhizome
7.	<i>Shariba</i>	<i>Hemidesmus indicus</i>	Root
8.	<i>Manjishta</i>	<i>Rubia cordifolia</i>	Root

9.	Abhaya	<i>Terminalia bellirica</i>	Fruit rind
10.	Siktham (Bee's wax)	-	-
11.	Tutham (Blue vitriol)	-	-
12.	Madhukam	<i>Glycyrrhiza glabra</i>	Root
13.	Nakthahva	<i>Pongamia pinnata</i>	Seed

Method of preparation

1 part of coarse paste of drugs (except Sl. No. 11 and 12), 4 parts of ghee and 16 parts of water are boiled together over medium flame till it attains *Khara Paka*. It is then filtered and powdered *Siktham* and *Tutham* are added as *Patra Pakam*; stirred well to obtain the *Ghrita*.

Pre-operative procedure

Investigations for assessing hemoglobin percent, bleeding time, clotting time, blood sugar were done. TT injection was taken and sensitivity to local anesthetic tested. Written informed consent was obtained and the patient was made to lie in supine position.

Operative procedure

Part was prepared and local anesthesia given. Toes were actively dorsiflexed and incision was made using the no. 15 surgical blade around the lesion. The margins of the lesion were held using Allis tissue holding forceps and the incision was gradually extended up to the core. The mass was then excised and pulled out.

Post-operative procedure

Pressure bandage was applied and the dressing was changed on the second day. Cleaning and dressing of the post-operative wound was done on alternate days using *Triphala Kasayam* and *Jathyadi Ghritam* until complete healing. The patients were also administered *Triphala Guggulu* tablet in the dosage of 1 bd to promote wound healing.

Figure 1: Post-operative wound

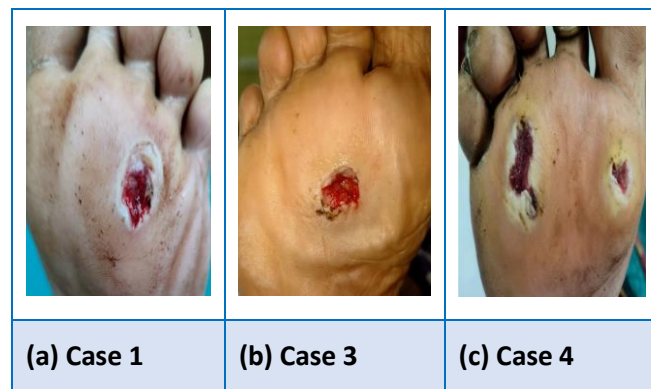
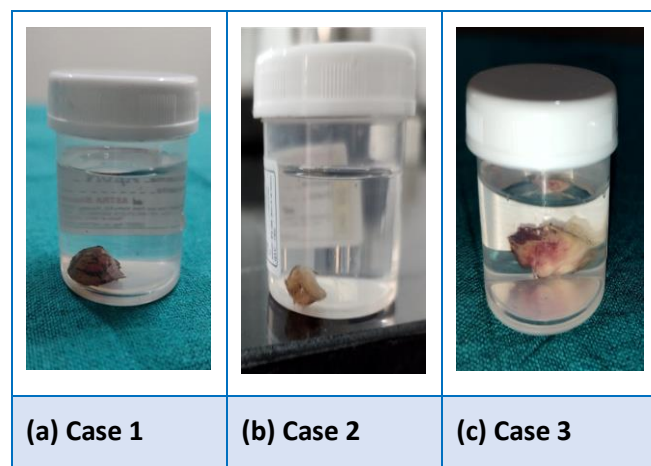


Figure 2: Excised corn



DISCUSSION

Pressure applied to the skin of the foot overlying the bony prominences either by a tight shoe or during walking results in the accumulation of the horny layer of the epithelium, in an attempt of the body to protect the irritated skin. But this accumulation itself causes a prominence that presses in to the dermis and produces pain.^[8] Surgical excision followed by cauterization with *Sneha* has been described as the treatment of *Kadaram* which is suggestive that complete excision up to the core was not done during the ancient times, as no indication of anesthesia was described while elaborating treatment of *Kadaram*. To overcome this shortcoming, cauterization with *Snehadravya* was indicated to completely remove the lesion. Contrary to this, surgical enucleation under local anesthesia helps in complete removal of the painful mass. Post-excision, the operative wound is cleaned using *Triphala Kasayam* and dressed with *Jathyadi Ghritam*. Various studies have concluded the wound healing, anti-

inflammatory, anti-bacterial and anti-oxidant activities of *Triphala*.^[9,10] Research has demonstrated the wound healing potential of *Jathyadi Ghritam* by faster re-epithelialization, reduction of inflammation, collagen fibers deposition, and TGF- β 1 expression.^[11]

Following advantages and disadvantages were noticed during the study:

Advantages

- Complete removal - as the entire hyperkeratotic mass is removed up to the central core; it produces pain relief to the patient due to the absence of pressure produced by the lesion over the nerves. This in turn results in reduced chances of recurrence.
- Day case surgery - it is relatively simple, minor operative procedure with no/ minimal complications.
- Suitable for large corns - multiple lesions can be removed in a single sitting and also suitable for removing large corns.

Disadvantages

- 2 week healing time - the wound produced by excision takes an average time of two weeks to heal completely by second intention.
- Presence of comorbidities adversely affects wound healing.
- Can lead to recurrence in patients with plantar corns produced by intrinsic factors like presence of bony prominences and cavovarus foot.

CONCLUSION

Surgical enucleation followed by wound management using *Triphala Kashayam* and *Jathyadi Ghritam* is a simple and safe procedure in the management of plantar corn. No incidence was reported during the follow up period as the whole corn with the central core was excised. Thus, it is an effective treatment method for intractable plantar keratosis, significantly improving quality of life of affected individuals.

REFERENCES

1. Somen Das, A Manual on clinical surgery, Dr S Das Publication Calcutta, Fourth edition Reprint 1998.
2. Sacchidanand S, Mallikarjuna M, Purohit V, Sujaya SN. Surgical enucleation of corn: a novel technique. J Cutan Aesthet Surg. 2012 Jan; 5(1):52-3. doi: 10.4103/0974-2077.94329. PMID: 22557862; PMCID: PMC3339135.
3. Al Aboud AM, Yarrarapu SNS. Corns. [Updated 2022 Oct 24]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK470374/>
4. Singh D, Bentley G, Trevino SG. Callosities, corns, and calluses. BMJ. 1996 Jun 1; 312(7043):1403-6. doi: 10.1136/bmj.312.7043.1403a. PMID: 8646101; PMCID: PMC2351151.
5. Susrutha, Susrutha Samhita, with the Nibandhasangraha commentary of Sri Dalhanacharya & Nyāyacandrika Panjika of Sri Gayadasacharya on Nidanasthana, Edited by Vaidya Yadavji Trikamji Acharya & Narayan Ram Acharya 'Kavyatirtha', Chaukhamba Sanskrit Sansthan, Varanasi, Reprint 2015, Nidanasthana 11/10,11,12; page 312.
6. Susrutha, Susrutha Samhita, with the Nibandhasangraha commentary of Sri Dalhanacharya & Nyāyacandrika Panjika of Sri Gayadasacharya on Nidanasthana, Edited by Vaidya Yadavji Trikamji Acharya & Narayan Ram Acharya 'Kavyatirtha', Chaukhamba Sanskrit Sansthan, Varanasi, Reprint 2015, Chikitsasthana 11/10,11,12; page 312.
7. Vagbhata, Ashtangahrdaya, Sarvangasundara commentary of Arunadatta & Ayurvedarasayana of Hemadri, Edited by Pt. Hari Sadasiva Sastri Paradakara, Chaukhamba Sanskrit Sansthan, Varanasi, Reprint, 2016, Uttarasthana 29/23,24,25; page 883
8. Singh D, Bentley G, Trevino SG. Callosities, corns, and calluses. BMJ. 1996 Jun 1; 312(7043):1403-6. doi: 10.1136/bmj.312.7043.1403a. PMID: 8646101; PMCID: PMC2351151.
9. Kumar MS, Kirubanandan S, Sripriya R, Sehgal PK. Triphala promotes healing of infected full-thickness dermal wound. J Surg Res. 2008 Jan; 144(1):94-101. doi: 10.1016/j.jss.2007.02.049. Epub 2007 Jul 27. PMID: 17662304.

10. Peterson CT, Denniston K, Chopra D. Therapeutic Uses of Triphala in Ayurvedic Medicine. *J Altern Complement Med.* 2017 Aug;23(8):607-614. doi: 10.1089/acm.2017.0083. Epub 2017 Jul 11. PMID: 28696777; PMCID: PMC5567597.
11. Gupta V, Tyagi A, Bhatnagar A, Singh S, Gaidhani SN, Srikanth N. Topical application of Jatyadi Ghrita and Jatyadi Taila accelerates wound healing in Sprague-Dawley rats: a study in gamma-radiation-induced skin wound model. *Int J Radiat Biol.* 2021; 97(7):1003-1019.

doi: 10.1080/09553002.2021.1913526. Epub 2021 Apr 19. PMID: 33872127.

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