

## Original Article

# Camphor Burns on the Palm: An Unusual New Presentation

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ABSTRACT

**Introduction:** Camphor burns on the palm are uncommon and rarely encountered by a plastic surgeon. **Aim:** This study aims to analyze different patterns of camphor burns on the palm. **Methods:** Five women and one man presented with camphor burns on their palm. All patients had burns on their right palm. The shape of camphor, the duration of contact with the ignited camphor on the palm, and post-burn treatments were evaluated. **Results:** Three types of camphor burns were noted: Type 1 (a ring-shaped or a dome-shaped blister with unburned skin in the center), Type 2 (an oval-shaped partially thick burn with unburned skin in the center), and Type 3 (a full-thickness burn exposing the palmar fascia). **Conclusion:** Different types of camphor burns on the palm are described in this study. This is the first study to report ring-shaped blisters and ring-shaped partially thick camphor burns caused on the palm.

**KEYWORDS:** Camphor, palm burn, ring burns, skin graft

## INTRODUCTION

Camphor burns on the palm presented in this article have a different clinical presentation, and the reasons for the difference in clinical presentation are hypothesized. The skin on the palm is a specialized structure. It is hairless, thick, glabrous, inelastic, and tightly adherent to its underlying structures. The lighting of camphor called Aarti is a traditional practice in southern part of India. This is done usually to seek blessings of almighty. A burn on the palm occurs when people are misguided to do Aarti by placing an ignited camphor directly on their palm. Sometimes, this is done to prove an individual innocence in a crime.<sup>[1]</sup> The belief is if the lighted camphor on palm does not burn the hand then the person is legitimate. In the literature, the reported camphor burns on the palm have been full-thickness burn injuries or caused by a scar secondary to an old camphor burn. These patients might have been psychologically abnormal and might not have sought medical attention early. In the countryside, many patients receive treatment from a nearby doctor or through alternative medicine, and these cases go unreported. Plastic surgeons rarely get an opportunity to observe palm burns caused by camphor and to properly manage them. In this study, camphor burns on the palm have been analyzed in detail and classified.

## METHODS

The author treated patients with camphor burns in 2 years from October 2013 to October 2015 during his rural service. A total of six patients with camphor burns on the palm were treated, with each patient having a unique clinical presentation. All the patients underwent psychological counseling, but they did not have a regular follow-up.

### Patient 1

A 19-year-old woman presented with a history of a coin-shaped burn caused by placing an ignited camphor on her right palm 3 days back. She did this to offer her prayers to the almighty. Although she held the ignited camphor on her palm, she feared and dropped it in few seconds. On examination, her palm had a ring-shaped blister burn with the skin of the central area being healthy. The diameter of the ring was 4 cm. She was administered an antibiotic ointment and managed conservatively [Figure 1]. The palm burn wound healed after the treatment.

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### Patient 2

A 22-year-old woman presented with a 5 cm × 5 cm, dome-shaped blister on her right palm. She reported a history of placing an ignited camphor on her palm 3 days back to offer her prayer to god. She also indicated that because of pain, her hand started trembling and she eventually dropped the camphor. The patient was administered an antibiotic ointment and managed conservatively [Figure 2].

### Patient 3

A 32-year-old woman presented with a 2-week-old, ovoid-shaped, partially thick, healing burn on her right palm. The center of the ovoid burn had unburned healthy skin. The major and minor axes of the ovoid were 3 × 2 cm in size. She had a history of placing oval-shaped, burning camphor on her palm for approximately a minute. She dropped it before full sublimation. She did not consult a doctor immediately and received home treatment. The patient was managed conservatively but was lost to follow-up [Figure 3].

### Patient 4

A 31-year-old man presented with a granulating raw area on his right palm. He reported a history of camphor burns on the palm that were treated conservatively with dressing for 3 weeks. He was asked to prove his innocence by the family head in a crime. On examination, he had a granulating raw area on the palm, extending from the center to the ulnar region and measuring 5.5 cm × 5.5 cm in size. The groin flap was used for the palm ulcer [Figures 4 and 5].

### Patient 5

A 29-year-old woman had a full-thickness camphor burn on her right palm. She reported a history of holding an ignited round camphor on her hand 2 days ago. She was mentally ill and asked to do this ritual to correct her mental illness by a local temple priest. She held it till the camphor sublimed completely. She developed an ulcer measuring 4 cm × 4 cm in size, exposing thick smoky fascia. She was advised surgery, but she refused treatment and absconded [Figure 6].

### Patient 6

A 27-year-old woman presented with a ring-shaped scar on her right palm. On questioning, she reported a history of placing an ignited camphor on her right palm 1 year and 8 months ago to offer her prayer to god. However, she had dropped the burning camphor because of pain [Figure 7].

## RESULTS

Of the six patients, five were women. All the patients had burns on their right palm. They all came from a rural



Figure 1: Ring shaped blister burn on the right palm



Figure 2: Dome shaped blister burn on the right palm



Figure 3: Oval shaped partial thickness burn on right palm with center normal skin

background and had not received education. The age of these patients ranged from 19 to 32 years. These patients also differed in their clinical presentation. This difference in presentation might be due to differences in the method



Figure 4: Raw area due to camphor burns on right palm



Figure 5: Groin flap was done on right palm



Figure 6: Full thickness burns right palm exposing smoky fascia



Figure 7: Ring shaped scar on right palm



Figure 8: Cupping of right hand with camphor

of holding the ignited camphor on the palm and the duration of contact with the ignited camphor on the palm.

Some of the patients had dropped the ignited camphor within few seconds because of fear and pain. Thus, a

Table 1: Camphor burns on the palm types

Types	Description
Type 1	A ring-shaped blister with central unburned skin or a dome-shaped blister
Type 2	An oval-shaped partially thick burn with unburned skin in the center
Type 3	Full-thickness burns exposing the palmar fascia

brief period of contact with a round ignited camphor may produce ring-shaped blisters around the contact surface, as observed in Patient 1. Sometimes, because of fear, the hand might shake, making the camphor ball to roll over on the palm, creating a dome-shaped blister, as observed in Patient 2.

A patient may flex the metacarpophalangeal joints to hold the camphor firmly on the palm [Figure 8]. This can create a cupping effect, producing an oval-shaped burn. If a patient dropped the camphor before its complete sublimation, the central skin remained unburnt with a ring-shaped partially thick burn in the periphery.

Full-thickness skin burns can develop when camphor sublimates entirely on the palm, which usually happens in

**Table 2: Camphor burns described in Journals**

Author/year	Journal	Age/sex	Time interval	Hand	Thick	Size (cm)	Treatment	Result
Chittoria RK 2014	IJPS	20 males	-	Right	Full	4×5	Refused	Not known
		32 females	6 months	Right	Scar	2×2	Release FTSG	Flexion contracture of the finger corrected
		27 females	6 months	Right	Scar	2×2	Psychiatry opinion	Psychosis treated
Lewis DM 2007	Burns	28 females	10 days	Right	Full	3×3	FTSG	healed
Tay YG 1996	Burns	27 females	1 week	Both	Full	3×3	Refused	Bilateral contractures of the palm
		23 males	3 weeks	Right	Full	3×3	SSG	Healed
		18 females	1 week	Right	Full	2×3	SSG	Healed
		29 females	3.5 week	Left	Full	7×7	SSG	Healed
		25 females	1 week	Left	Full	3×4	Instep	Healed

FTSG: Full-thickness skin grafts, SSG: Split skin grafts

3–4 min. This may produce an ulcer exposing the palmar fascia. In this case, the area burnt was larger than the size of the camphor because of an increased contact duration.

The author does not claim it to be a new classification. However, the classification of camphor burns into types helps in the appropriate management of the wound. Type 1 and Type 2 patients can be managed conservatively with dressings and antibiotic ointments. Type 3 patients require surgical intervention. A split skin graft, instep graft, or flap can be used to treat Type 3 palm burns [Table 1].

## DISCUSSION

In 1987, Pensleretai reported that the use of split-thickness skin grafts for the palm can be beneficial.<sup>[2]</sup> The raw area on the palm can also be resurfaced with an instep graft from the foot<sup>[3]</sup> or a full-thickness graft or flap.<sup>[4]</sup>

In Ayurveda, camphor is a medicine. It is a white flammable solid with a strong odor. The US-FDA in 1980 discouraged the medicinal use of camphor, except for skin conditions. Camphor has a soothing effect on the skin, acts as a slight local anesthetic, and is antimicrobial in nature. It is also used as a cough suppressant and a nasal decongestant.<sup>[5]</sup> Edible camphor is used as flavoring agents for sweets in South Asia.<sup>[6]</sup>

Camphor is used in Aarti (igniting camphor balls on a metal plate for Pooja) in Hindu temples. Hindus light camphor at the end of prayer. The devotee places cupped hands over the flame and touches the eyes and head, denoting purity of vision and thought. The camphor burns itself without leaving any residue and produce sweet fragrance in the air. The symbolism is with human ego. It means human ego, I, dissolves such as camphor and join superior consciousness.<sup>[7]</sup> Temples in South India stopped using coated camphor in the Sanctum Sanctorum because it produces thick dark carbon deposits on burning. However, it is still used in the open areas of temples. A burn on the palm occurs when people are misguided to perform Aarti by placing a camphor directly on their palm.

Sometimes, a patient is psychologically abnormal to submit to such a nonsuicidal self-inflicted injury. Uncommonly, an individual is forced to prove their innocence or immense faith in a deity by placing an ignited camphor on the palm. These patients feel guilty because they believe that God has punished them for their wrongdoing. A patient may not seek immediate medical attention because of lack of education or mental incapacity.<sup>[1]</sup>

Usually, camphor tablets take 3–4 min to sublime totally, resulting in a full-thickness burn on the palmar skin. When a camphor burns on a palm, the area of injury is usually larger than the size of the camphor. This could be due to an increased contact duration with the palm. The pattern of a burn depends on the length of burning camphor on the palm and the method of holding it on the palm.

Camphor burns are infrequent and rare in the literature with only nine reported cases [Table 2].<sup>[1,8,9]</sup> Of these nine patients, three underwent split-thickness skin graft, two underwent full-thickness skin graft, one received an instep graft, and three left the treatment. Of these nine patients, six had a burn injury on their right hand. The right-hand predominance observed in this study was similar to that reported in the literature. Burns on the palm occur mostly in the countryside. Because of poverty and lack of education in the countryside, these injuries go unreported.<sup>[10]</sup> Camphor burn cases reported in the literature have usually been full-thickness burns of the palm or a scar secondary to a previous camphor burn.<sup>[11]</sup> Further research is needed to understand the less explored camphor burns on the palm.

## CONCLUSION

This is the first study to report ring-shaped blisters and ring-shaped partially thick camphor burns caused on the palm. The proposed classification of camphor-induced palm burns might help us to guide in treatment. Psychological evaluation of these patients would be

helpful to prevent the future development of self-inflicted wounds.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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### Conflicts of interest

There are no conflicts of interest.

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