

MANAGEMENT OF POST-BURN FLEXION CONTRACTURE OF A FINGER THROUGH SANDHAN KARMA AND FOLLOWED BY APPLICATION OF CHANDANADI TAIL

Singh Balendra¹, Singh Shweta², Gopesh Kumar³, Haritha A H³

¹Professor & HOD, PG Dept. of Shalya tantra, GAC Raipur C.G., India

²Lecturer, PG Dept. of Samhita Siddhant, GAC Raipur C.G., India

³MS Scholar, Department of Shalya Tantra, GAC Raipur C.G., India

Corresponding Author: drbalendrasingh@gmail.com

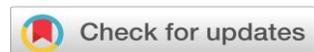
<https://doi.org/10.46607/iamj4710032022>

(Published Online: March 2022)

Open Access

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Article Received: 23/02//2022 - Peer Reviewed: 05/03/2022 - Accepted for Publication: 06/03/2022



ABSTRACT

Introduction- Burn contracture of the finger can cause loss of finger extension and psychological effect inpatient because it can produce a significant impact on the quality of life by decreasing the ability to perform activities of daily routine work¹. This study mainly concentrates on *Sandhan karma* (reconstruction) of post-burn scar contracture which is performed to restore the function of the finger and achieve adequate wound healing by the use of *Chandanadi Taila*. **Material and Method-** This work includes the study of a patient who underwent *Sandhan karma* for post-burn contracture of the finger along with an application of *Chandanadi Taila*. **Result-** After one month patient got a functionally useful ring finger to carry out activities of daily living withholding things, grasping, and wearing rings and no complications were found in this study. **Conclusion-** Contracture release by *Sandhan Karma* followed by application of *Chandanadi Taila* is effective in providing an adequate range of the ring finger extension.

Keywords: Burn, Contracture, *Sandhan karma*, wound, *Chandnadi Taila*.

INTRODUCTION

The Fingers are commonly involved in all severe burns. The hand is one of the most frequently affected parts of burn, scar contracture and deformity which can interrupt the functional abilities of a person. The post-burn contracture of the finger is externally exposed and constantly reminds the patient. Burns of the finger cause devastating consequences for the functional outcome but also the cosmetic prospect. An aesthetically acceptable *Sandhan Karma* (reconstructive surgery) is very beneficial to society. The main causes of post-burn contracture are improper medical treatment and open wounds healed by secondary intention. Acharya Sushruta has illustrated *Dagdha Vrana* (burn wound) management from its manifestation to complete healing². Acharya Sushruta has described sixty measures for wound management like *Chedan karma*(excision), *Bhedan karma* (incision), *Seevan karma* (suturing), *Sandhan Karma* (reconstructive surgery or grafting) and *Ropniya karma* (wound healing) etc³. Much of plastic surgery is predicated on the fundamental of wound healing and tissue regeneration which is achieved by adequate vascularity. Dysfunctional wound healing may lead to undesirable thickening of tissue and heals after a long time and also can cause keloid(*granthi*) or scar formation. It occurs if the dressing is removed on the second day⁴. Hypertrophic scar or stricture should be treated by Sandhan karma. Acharya Sushrut has described *Chandanadi tail* for the treatment of traumatic wounds in chikitsa sthan and also advocated good wound healing properties of this tail. So, I have taken this formulation for wound healing after *Sandhan karma*⁵.

Aim of the Study-

1 To study the role of *Sandhan Karma* (reconstruction) for the management of post-burn flexion contracture of the finger.

2 To assess the efficacy of *Chandanadi taila* formulation for wound healing and prevention of infection.

3 To study the functional and cosmetic outcomes. Functional assessment – by increasing the range of movements of affected joints, the finger must restore the pinch and ability to grasp things.

Material And Method-

Case History

This work was done on one patient who underwent reconstruction for post-burn flexion construction of the ring finger at OPD of *Shalya Tantra* of our institute. Written informed consent was obtained from them after explaining the purpose of the study. The patient was treated between December 2021 to March 2021. The entire course of *Sandhan karma* (reconstruction surgery) is divided into three stages- *Purva Karma* (Preoperative Measures), *Pradhan Karma* (Operative Procedures) and *Paschat Karma* (Post-Operative Care)⁶.

Poorva Karma (Pre-operative Procedure)

1. All information like patient name, age, sex, chief complaints, history of present illness or deformities, the onset of disease, causes, time of exacerbation of the disease, etc. Obtained through questioning (History)⁷.
2. **History-** A 20-year-old patient came to OPD of *Shalya Tantra* and presented with flexion contracture of the ring finger of the left hand. The patient had a history of burns in his left hand 6 months back. Thirty days following the burn, the patient noticed his ring finger gradually bending, range of movement decreasing, and loss of finger function.
3. Detailed **physical examination** of post-burn Contracture was obtained-
 - By **darshan (Inspection)** of that specific area are bending, unable to the extension of a finger, changes of colour, thick *vrana vastu* (Hypertrophic scar) formation with significant architectural distortion etc⁷.
 - By touch or **Sparshana (palpation)** of that specific area are roughness, hardness, diminished joint or range of movement (ROM) of post-burn contracture finger etc⁷.
4. **Investigation** - All necessary routine haematological, biochemical and viral markers investigations such as CBC, BT, CT, FBS, ESR, RFT, LFT, HIV, HBsAg, were done and assess the status. All reports were found normal. A plain X-

ray of a hand was performed before *Sandhan Karma*. No bony deformity was seen in the X-ray.

- 6 The patient was informed about the *Sandhan Karma* (preoperative, operative, post-operative care) and the application of *Chandanadi Taila*.
- 7 Written Consent was taken regarding the anaesthesia and *Sandhan karma*. Surgical procedures should be done only after obtaining the consent of the well-wisher or the patient⁸.
- 8 Injection Lignocaine 0.3ml I.D. sensitivity test was done one day before Surgery or Sandhan Karma.
- 9 The essential material was arranged as per requirement (e.g., Suture-Silk thread, Suchi-Cutting body needle (Triangular bodied), dressing material- gauze piece (*Vikeshika*), cotton pad

(*kawalika*), bandage (*Vastra patta*), *Chandanadi Taila*^{9,10}.

- 10 **Chandanadi Taila** – Acharya Sushruta has given authentic descriptions about wounds and adequate healing of wounds. *Chandanadi Taila* is mentioned in Sushruta Samhita for the management of the traumatic wound. This formulation has two basic properties, *Krimighna* (antimicrobial) and *Vranaropana* (wound healing). Ingredients of *Chandanadi Taila* are *Chandan*, *Padmaka*, *Lodhra*, *Utpal*, *Priyangu*, *Haridara*, *Yashtimadhu*, Cow milk and Tila taila. These eight ingredients are cooked with oil (Tila taila). *Chandanadi Tail* was prepared in the pharmacy of our institute and freely available for patients. This oil is best for the healing of wounds¹¹.

Table 1: BOTANICAL NAME AND ACTION (KARMUKTA) OF CHANDANADI TAIL¹²⁻¹⁹

S NO	DRUG NAME	BOTANICAL NAME	FAMILY	USEFUL PART	DOSH NASHAK	ACTION (KARMUKTA)
1.	Chandan	Santalum album	Santalaceae	Stem	Pitta kaphashamaka	Dahaprasghmana Vishaghna Raktashodhka
2.	Padmak	Prunus cerasoide	Rosaceae	Bark	Kapha pitta shamaka	Vedanasthapana Kandughna Raktastambhana Dahaprashmana
3	Lodhra	Symplococcus Recemosa	Symplocaceae	Bark	Kapha Pitta Shamaka	Shothahara Raktastambhak Vranaropana
4	Utpal	Nymphaea stellata	Nymphaceae	Flower	Tridoshhara especially vata pitta shamaka	Dahaprashmana
5	Priyangu	Callicarpa macrophylla	Verbenaceae	Flower	Pittahara Kaphahara	Vedanasthapana Dahaprashamaka Raktashodhaka
6	Haridra	Curcuma longa	Zingiberaceae	Root	Kaphahara Pittahara	Shothhar, Vednasthapan, Vranashodana, and Ropana
7	Yastimadhu	Glycyrrhiza glabra	Leguminosae	Root	Vatahar, Pittahara	Vedanasthapana Sandhaniya Vranashodana, and Ropana
8	Cow milk	–	–	–	Vatapittahara Rakta pitta hara	Jivaniya

Pradhan Karma (Operative Procedure)

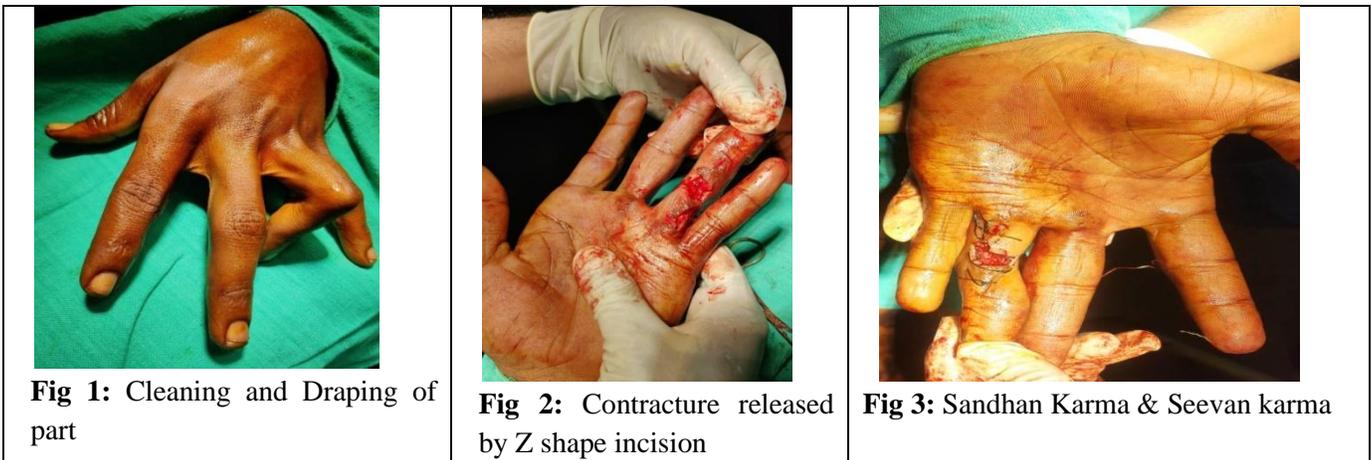
Position of patient- First patient was made to lying down position.

Preparation of the operative field- Post-burn Contracture part and surrounding area was prepared by scrubbing, cleansing, and painting with an antiseptic solution followed by the draping of the part by sterile linens (Fig:1).

Anesthesia (Ring block)-Injection lignocaine 1% (Plain) was given in the dose of 3-4mg/kg body weight in a fan-shaped direction at the base of the finger.

Method of Sandhan Karma (Reconstructive Surgery)-

Incision- Linear type of contracture has occurred in this study. Thick burn contracture was released by multiple “Z” Shape (*Tiryak*)²⁰ incisions. The incision was made in one stroke in the direction of Z Shape. Such type of incision is mostly used to increase the length of a contracted (*thick vrana vastu*) scar. The dissection of the tissue started carefully, protecting the vulnerable areas, veins, ligaments, joints, bones and arteries then scalpel (knife) was withdrawn swiftly²¹ (Fig:2).



Cleaning of part-After incision, blood came out from the operated site then that area was washed with alcohol and lukewarm water²⁵.

Suturing-Further, the area was made raw²⁵ and approximation done by the edge of the wound raised and brought into apposition with each other properly and suturing done by interrupted suture (*Rituandhi*) with 3-0 Silk thread (non-absorbable)²⁶. So that operated area is neither elevated nor devoid of a portion or irregular²⁵. The suture should not be applied in

case heaving impure blood or little bleeding²⁷. A small part of the operated area was not covered by skin which was healed by secondary intention with the use of *Chandanadi Taila* (Fig:3).

Dressing-After adequate haemostasis, the operated wound was dressed by gauze (*vikeshika*) which was neither too wet nor too dry but truly thoroughly soaked in *Chandanadi Taila*. After this Wound was covered by a cotton pad (*kawalika*) and bandaged²⁸(Fig:5).



Fig 4: Dressing and Splinting



Fig 5: Suture removed after 8th post-op day



Fig 6: Follow up after 30th Post Op Day

Splinting and Strapping bandaging- A small, thin piece of wood (bamboo) or wood tongue depressor which is used as a splint (*kusha*) and was placed on the dorsal surface of the entire finger. Secure the *kusha* or splint in the extension position of the finger by using a bandage and adhesive tape to immobilize the joint²⁹(Fig:4).

Paschat karma (post-operative care) – Postoperative care begins in the operating room with the completion of the operative procedure and extend till the patients completely recovered.

The management of the patient during this period is called *Paschat karma*.

- The dressing was changed after every three days³⁰.
- *Vednashamak* (pain-relieving) and *rakshoghna* (antibacterial) drug was advised for seven days²⁸.
- The patient was advised to avoid rubbing or physical trauma (exertion) in the operated site area³¹.
- The suture was removed after seven days of *Sandhan karma* (Fig:5).
- Regular monitoring was done to avoid complications like infection or recurrence.

Physiotherapy –

When the wound was completely healed without any complication and had attained a normal colour then the gradual and gentle exercise of the finger was advised³². The patient was instructed to hold a ball of mud in his hand first (for some days), then a ball of salt and later a stone. Holding the stone should be continued (for some days) even after the strength of the finger is regained³³.

Result - After *Sandhana Karma* (reconstructive surgery) the patient was evaluated on follow up for Pulp to the base of the finger, distance strength of finger extension, holding grip strength and total range of ring finger movement. The patient got a functionally useful ring finger of the left hand to carry out activities of daily routine work. Any complications were not found in this study (Fig:6).

DISCUSSION

- One patient with complete loss of extension movement of the ring finger of the left hand due to burning contracture was included in this study.
- Preoperative assessment -Restriction of extension movement of ring finger has occurred.
- Restored the extension and flexion movement of finger by *Sandhan karma* and complete healing of the wound was achieved by application of *Chandanadi taila* along with the use of a splint.
- After approximately 3 months follow up although there has been significant improvement such as normal colour, smoothness, mild linear scar (*Vrana Vastu*), full functional flexion and extension of ring finger was achieved
- *Chandanadi Taila* has *Krimighna* (antimicrobial) and *Ropniya* (wound healing) properties thus causing fast healing of a wound. The present study indicates that *Chandanadi Tail* enhanced the healing process.
- Greatly achieve the normal function of a finger along with the cosmetic value by the *Sandhan Karma* and application of *Chandanadi taila*.

CONCLUSION

The Sandhan karma and followed by the application of *Chandanadi Taila* is effective in post-burn Contracture treatment to provide an adequate range of finger movement. Postoperative physiotherapy and splinting are necessary to achieve an adequate functional outcome.

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Source of Support: Nil

Conflict of Interest: None Declared

How to cite this URL: Singh Balendra et al: Management Of Post-Burn Flexion Contracture Of A Finger Through Sandhan Karma And Followed By Application Of Chandanadi Tail. International Ayurvedic Medical Journal {online} 2022 {cited March 2022} Available from: http://www.iamj.in/posts/images/upload/839_845.pdf