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SHASHTI UPAKRAMA BY SUSHRUTA IN THE MANAGEMENT OF VRANA W.S.R.TO WOUND -A LITERATURE REVIEW

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ABSTRACT

Sushrutha Samhita by *Acharya* Sushruta gives practical knowledge about surgery and its procedure, methods and line of treatment which are written before many years ago, but still useful in the modern era. *Vrana* which is referred to as a wound is one of the challenges in the surgical practise for surgeons. The management of wound is described in Sushruta Samhita in a very detailed manner. Acharya Sushruta has advised *Shashtiupakrama* (60 procedures to treat wound) of treating a wound in *Chikitsasthana* of Sushruta Samhita. A very limited conceptual work has been performed on the selected chapters of *Sushrutasamhita*. so here in this article, I am representing the conceptual study of *Shashtiupakrama* by acharya Sushruta in Sushruta Samhita.

Keywords: Vrana, Sushruta Samhita, wound, Shashtiupkrama, Ayurveda, Surgery.

INTRODUCTION

Shalyatantra is a branch of *Ashtanga Ayurveda*. Sushruta Samhita is one of the ancient Samhita which is written by Acharya Sushruta which was a dedicated surgeon in ancient times. *Acharya Sushruta* is worldwide known for his historical work on plastic surgery, he has also made similar numerous contributions on various aspects of medicine, such as fracture and dislocation, urinary stone, various types of skin diseases as Kushtha, Panchkarma procedure, toxicology, paediatrics, eye diseases, psychiatry, obstetrics and gynaecology etc. Sushruta is well known in the field of surgery. Acharya Sushruta has explained many surgical and Para-surgical techniques in the management of various diseases. He provides us with a detailed description of the conditions the surgeons face in their daily practice like wounds, fractures, dislocations, torn or damaged ears, nose, limbs etc which either had to be amputated or reconstructed, haemorrhage, pains, intestinal obstruction, ascites etc. Vrana is one of them. In modern science, we can correlate Vrana with a wound. The wound is very common in both developed and developing countries. The prevalence of wounds in the population studied (n = 6917) was 15.03 per 1000. The prevalence of acute and chronic wounds was 10.55 and 4.48 per 1000 of the population respectively ⁽¹⁾. Vrana is an important chapter of Shalyatantra due to its involvement in many surgical conditions. Vrana is not only limited to the cutaneous lesion but may also extend up to muscles, blood vessels, ligaments, bones, joints, visceral organs and other vital parts of the body. The healing process of Vrana is a natural process, which starts immediately after an injury. Acharya Sushruta described Vrana at different places

Sr.No.	Shashti Upkarma	Their mode of action on <i>vrana</i>
1.	Apatarpana (abstinence from	Apatarpana means langhana, abstinence from food (fasting) is the first procedure
	food)	this is very important to break the wound pathology, usually employed for treating all types of inflammations.
		Abstinence from food is advised for patients afflicted with excessively vitiated
		Doshas to pacify them. Apatarpana helps to stimulate the Kayaagni (digestive fire)
		which also stimulates its constituent <i>Dhatwagni</i> (fire or energy required to absorb nutrition at tissue level) ⁽³⁾ .
2.	<i>Aalepa</i> (Application of paste)	<i>Aalepa</i> means the application of a medicinal paste of drugs of the appropriate group usually useful to manage early stages of inflammation and very painful ulcerative lesions. It is just like a fire of a burning house is immediately controlled by pouring of water, similarly the pain is also controlled by the application of paste i.e., <i>Aalepa</i> . <i>Aalepa</i> is soothing; it also cleanses the wound, reduces swelling and heals wound.
3.	Parisheka (spraying)	 <i>Parisheka</i> means spraying 1) For the alleviation of the pain due to vitiated <i>Vata</i>, warm spraying should be done. It should be done with <i>Ghrita</i>, oil, sour gruel, meat juice or with the decoction of the drugs possessing <i>Vata</i> pacifying qualities. 2) When pain is caused due to vitiation of <i>Pitta</i> or <i>Shonita</i> or due to trauma or poi-

in different context. The management of wounds is described in *Sushrutasamhita* in a very detailed manner. He advised *Shashti Upkrama* (method of treating wound) in *Sushrutasamhita Chikitsasthana* ^{(2).} In this review article, we tried to describe different types of *Vranas*, their *lakshanas* (signs & Symptoms), *Sthanas* (locations), and their management according to *Sushruta Samhita* in *Ayurveda*.

AIM AND OBJECTIVES:

1. To elaborate and discuss the various surgical concepts of *Shashti Upkrama from SushrutaSamhita* in the management of *Vrana W.S.R to wound*.

2. Analysis of the application of *Shashti Upkrama* with modern medical science.

MATERIAL AND METHOD: All reference to *Shashti Upkrama* is collected from Sushruta Samhita. All *Shashti Upkrama* are discussed with their method and their importance in *VRANA* MANAGEMENT (wound healing).

LITERATURE REVIEW:

The specific concept of the origin and development and management of wounds has been taken from Sushruta Samhita and the various websites, research papers and many modern surgery textbooks like SRB's Manual of Surgery, Manipal Manual of surgery.

		son, cold spraying should be done with milk, <i>Ghrita</i> , honey, sugar solution, sugar cane juice, with a decoction of <i>Madhura</i> and latex groups of drugs.
		3) For the alleviation of the pain due to <i>Kapha Dosha</i> , warm spraying should be done with oil, cow's urine, caustic solutions, wine, <i>Shukta</i> , and decoction of <i>Kapha</i> eliminating drugs, as the fire gets extinguished by a sprinkling of water similarly fire of <i>Doshas</i> gets immediately pacified by spraying.
4.	Abhyanga (anointing)	Anointing after taking into consideration the <i>Doshas</i> is capable of pacifying and mobilizing them. It has been advised to be done before local fomentation and gentle massage therapies etc. and as an after-treatment following bloodletting.
5.	<i>Sweda</i> (sudation, fomenta-tion)	<i>Sweda</i> means hot fomentation it should be employed for the painful, indurated and hard swelling.
6.	Vimlapana (Gentle local massage)	<i>Vimplapana</i> is a gentle local massage with bamboo reeds, the palm or the thumb. Which is indicated for fixed swellings associated with mild pain, have given olea- tion and sudation therapies.
7.	<i>Upnaha</i> (application of hot poultices)	<i>Upnaha</i> means the application of hot poultices, it should be applied in case of unsupported or partially suppurated inflammation, they resolve the unsuppurated (inflammation) and soften it.
8.	Pachana (induction of suppuration	<i>Pachana</i> means induction of suppuration in case the inflammation fails to subside after previously described procedures (abstinence from food) and ending with pur- gation have been employed suppuration, should be induced by appropriate drugs. The drugs mixed with yoghurt, buttermilk, wine and sour gruel should be cooked after adding oil and salt to make it in the form of an <i>Utkarika</i> . <i>This</i> hot paste should be bandaged over the inflamed area covering the same with the leaves of the castor.
9.	Vistravana (bloodletting)	<i>Vistravana</i> means bloodletting, should be carried out in inflammation of the recent origin to reduce pain and obviate suppuration. Bloodletting is useful for ulcerative lesions with hard, black, congested painful indurate and irregular margins.
10.	Snehapana (Internal olea- tion)	<i>Snehapana</i> means internal oleation It includes oily drinks processed with appropriate drugs and should be given in ulcerative lesions with complications to alleviate pain and obviate suppuration.
11.	Vamana (emesis)	<i>Vamana</i> means emesis. It is beneficial for patients with ulcerative lesions having inflammation and excessive granulation tissue formation with adherent clots and associated with vitiated <i>Kapha</i> .
12.	Virechana (purgation)	<i>Virechana</i> means purgation. It is useful in the purgation of chronic ulcerative lesions affiliated with vitiated <i>Vata</i> and <i>Pitta</i> .
13.	Chedana(Excision)	<i>Chedana</i> means excision. It is useful in non-suppurative, hard, fixed and necrotizing soft tissue lesions.
14.	Bhedana (incision)	<i>Bhedana</i> means incision. It is indicated for deep-seated collection of pus without any opening, and for pockets of pus with (fistulas) opening and sinuses.
15.	<i>Darana</i> (inducing bursting by local applications)	<i>Darana</i> means inducing bursting by local applications of medicines. It is indicated in the children, the aged, the apprehensive, the debilitated, the timid, the ladies and when the lesions are situated over the vulnerable areas. When the inflammatory lesions are localized and well-ripened, drainage should be achieved by drugs and used for <i>Pidana</i> , when the suppurative lesions are pointing, an experienced surgeon should induce bursting by the application of a fine paste of the drugs described for <i>Darana</i> or by application of caustics.
16.	Lekhana (scraping)	<i>Lekhana</i> means scraping. It should be useful in hard ulcerative lesions with thick rolled margins, which tend to crack repeatedly and have a hard and raised granulating surface. Scraping should be done uniformly, scraping should leave no pock-

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		ets unclear and the margins should be scraped well by an appropriate sharp instru- ment to make them level <i>Kshauma</i> , <i>Plota</i> , <i>Pichu</i> , <i>Phena</i> , <i>Yavakshara</i> with rock salt and leaves possessing rough surfaces should be used for scraping procedures.
17.	Aesana (probing)	Aesana means probing it is useful in the sinuses, wounds with foreign bodies, Un- margi fistulae-in-ano, and Utsangi tracks with the help of tender bamboo sprouts, hairs, fingers or probes. Sinuses with narrow openings in the vicinity of the eyes and the anus should be probed by the fine stems of Upodaka, and Karira.
18.	Aaharana (extraction)	<i>Aharana</i> means the extraction which is used for the extraction of foreign bodies from wound either by a narrow or a wide opening.
19.	Vyadhana-vistravanana (drainage by puncturing)	<i>Vyadhana</i> means drainage by puncture. It should be done by sharp instruments at the proper site and of adequate size for effectively draining out the <i>Doshas</i> (pus with the foreign body).
20.	Sivana (suturing)	<i>Sivana</i> means suturing. It should be useful for the closure of the wound. Suturing of wound margins is helpful for early recovery of the wound.
21.	Sandhana (approximation of edges by suturing)	<i>Sandhana</i> means an approximation of edges by suturing. Union by suturing is indicated for wounds that are widely gaping, involve the muscles and are uncomplicated by infection(suppuration).
22.	<i>Pidana</i> (squeezing pressure by medicinal pastes)	<i>Pidana</i> means squeezing pressure by medicinal paste. Drainage with the help of an application of paste of <i>Pidana</i> drug is indicated for an abscess with small opening should not be covered by the paste to allow the <i>Dosas</i> (pus) to come out.
23.	Shonitasthapana (haemosta- sis)	<i>Shonitasthapana</i> means when there is excessive haemorrhage due to its various causes, haemostasis should be achieved by different methods like applications of medicated pastes, caustics, cauterization.
24.	Nirvapana (cooling measures)	<i>Nirvapana</i> meaning cooling measures. It should be used in the lesions caused by vitiated <i>Pitta</i> , which are engorged with blood, associated with burning sensation, suppuration and fever, the drugs processing cooling properties should be pasted in milk, and processed with <i>Ghrita</i> and then should be used with plenty of cold irrigations (prepared from the same drugs).
25.	Utkarika (warming measures)	<i>Utkarika</i> means warming measures which are indicated for non-suppurative, poorly granulating, hard and rough ulcerative lesions, with scanty discharge and associated with pain of pricking and spasmodic nature and throbbing, effective for indurated and painful (lesions) because paste having <i>vata</i> pacifying qualities, drugs of a sour group, as well as <i>Kakoli</i> group are mixed with oil seeds and then cooked in the form of paste.
26.	Kashaya (medicinal decoc- tion)	<i>Kashaya</i> means medicinal debridement of the wound by decoctions of <i>shodhana</i> drugs. It is indicated for the foul-smelling, sodden and slimy wounds.
27.	Varti (medicated wicks)	<i>Varti</i> means medicated wicks which are prepared from <i>Shodhana</i> drugs and indicated for removing foreign bodies deeply embedded in the muscles and where the wound has a very small opening.
28.	Kalka (medicated paste)	<i>Kalka</i> means debridement by medicinal pastes, indicated for medicinal ulcerative lesions covered with putrefied flesh and associated with vitiated and aggravated <i>Doshas</i> .
29.	Sarpi (medicated ghrita)	Sarpimeans medicated Ghrita used in ulcers afflicted by vitiated Pitta, which are deep and associated with burning sensation and suppuration should be treated by Sarpi processed with cotton seeds and Shodhana drugs.
30.	Taila (medicated oils)	<i>Taila</i> is medicated oil mostly mustard oil processed with drugs, should be indicated for medicinal debridement of dry ulcers with hypertrophied granulation tissue, and with insignificant discharge.

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31.	Rasakriya (thickened ex- tract)	In this method drugs decoction cooked with alum, <i>Kasisa, Manashila, Haritala,</i> according to standard technique and should be mixed it by rubbing with <i>Matulunga</i> and honey and it is kept applied for a maximum of three days on the ulcer. It is used in those ulcers which fail to get cleansed by the application of oils, as well as those ulcers which is having granulating surfaces.
32.	Avachurnana (dusting of medicinal powders)	<i>Avachurnana</i> means dusting of medicinal powders. It is used in shallow and foul-smelling ulcerative lesions associated with vitiated <i>Medas</i> , should be treated by dusting very fine powder of <i>shodhana</i> drugs.
33.	Vranadhupana (fumigation)	<i>Vranadhupana</i> means fumigation and it should be done with <i>Yava</i> , <i>Ghrita</i> , and drugs of <i>Dhupana</i> group for the lesions which are afflicted with vitiated <i>Vata</i> and are extremely painful and are associated with discharge.
34.	<i>Utsadana</i> (encouraging granulation tissue formation)	<i>Utsadana</i> is the procedure to encourage granulation tissue formation and it is indicated for poorly granulating, deep, and dry ulcers by local application of <i>Ghrita</i> processed with <i>Utsadana</i> group of drugs.
35.	Avasadana (medicinal cau- terization of granulation tis- sue)	<i>Avasadana</i> is medicinal cauterization of granulation tissue. It is indicated for ulcers with excessive, raised, and soft granulation tissue formation. It should be carried out with powders of appropriate drugs mixed with honey.
36.	<i>Mrudukarma</i> (softening procedures)	<i>Mrudukarma</i> is softening procedures. It is used in indurated <i>Vatika</i> ulcers with little granulation tissue formation should be subjected to the softening procedures and bloodletting, oleation and irrigation with <i>Vata</i> eliminating drugs should also be carried out. Firm bandaging causes softening of the ulcerative lesions and heals them fast.
37.	<i>Darunakarma</i> (induction of fibrosis)	Darunakarma is induction of fibrosis. It is used if granulating tissue in the ulcera- tive lesion is soft, hardening procedures would be beneficial. Finely powdered Dhava, Priyangu, Ashoka, Rohini bark, Triphala, Dhataki flowers, Lodhra and Sarjarasa in equal proportions should be sprinkled over the ulcers for Darunakar- ma.
38.	<i>Ksharakarma</i> (application of the caustics)	<i>Ksharakarma</i> is the application of caustics. It is useful in indurated, itching, and chronic ulcers which are hard to clean and have raised granulation tissue. <i>Kshara</i> helps to debride the slough and also has an action against Staphylococcus, pseudomonas etc. ^[5]
39.	Agnikarma (cautery)	<i>Agnikarama</i> is cautery. It is used in Calculogenic urinary fistulae, bleeding wounds, as well as those which have cut through the entire joints should be treated by fire cautery.
40.	<i>Krushnakarma</i> (pigmenting procedures)	<i>Krushnakarma</i> is the pigmenting procedure that is beneficial in cases with white scars caused due to poor healing of <i>Vrana</i> . <i>Bhallataka</i> oil is generally used for <i>Krushnakarma</i> procedures.
41.	<i>Pandukarma</i> (restoration of the normal skin colour of the scar)	The procedure of whitening is beneficial for those scars which have turned into black colour due to improper healing. For this procedure fruit of <i>Rohini</i> should be left for seven days in goat's milk and then well pasted on the black portion of the scar.
42.	Pratisarana(rubbing by me- dicinal pills)	<i>Pratisarana</i> means rubbing by medicinal pills. The shell of hen's egg, <i>Kataka</i> and <i>Madhuka</i> in equal part along with powders of seashells and gemstones added to it should be pasted with cow's urine and made into pills these should be used for rubbing over the lesions.
43.	<i>Romasanjanana</i> (encourag- ing re-growth of hairs)	<i>Romasanjanana</i> means encouraging re-growth of hairs. Application of the paste of burnt ivory powder with <i>Rasanjana</i> of good quality will make hairs grow even on palm and the sole, and also <i>Kasisa</i> and leaves of <i>Naktamala</i> well pasted in the juice

		of <i>Kapittha</i> is a good <i>rec</i> ipe for growing hairs.
44.	<i>Lomapaharana</i> (depilation)	<i>Lomapaharana</i> means depilation of hairs. It is used in the lesions which are no healing properly due to excess hair growth. For this procedure, a razor or a pair of scissors and forceps should be used. Also, two parts of conch shell powder and one part of <i>Haritala</i> pasted with vinegar are beneficial for removing excess hairs.
45.	Bastikarma (enema therapy)	<i>Basti</i> karma means enema therapy which is indicated for ulcers that are vitiated with <i>Vata</i> and very painful and especially for those situated in the lower part of the body.
46.	<i>Uttarbastikarma</i> (douching and irrigation procedures)	<i>Uttarbastikarma</i> is a douching and irrigation procedure that is beneficial for cases of retention of urine, urinary disorders, seminal disorders, lithotomic wounds and menstrual disorders.
47.	Bandhavidhi (Bandaging)	<i>Bandha</i> means bandaging. Bandaging keeps the wound clean, soft and undoubtedly helps in its healing so bandaging should be done over <i>Vrana</i> .
48.	<i>Patradana</i> (covering the wound surface by leaves)	<i>Patradana</i> is covering the wound surface by leaves. Application of leaves should be done over the indolent ulcers, have little granulation tissue and which do no heal due to dryness, after due consideration about <i>Dosas</i> and seasons. In case of ulcers due to <i>Vata</i> leaves of castor plant, <i>Bhurjapatraka</i> should be used.
49.	Krumighna (disinfection)	<i>Krumighana</i> karma means disinfection of wound, when flies flock to the wound and beget organisms, they feed upon and produces very severe inflammation re- sulting in excessive pain of various types and haemorrhage. In this condition drugs of <i>Sursadi</i> group are beneficial for washing and filling up the wound.
50.	Bruhana (Restorative measures)	<i>Bruhana</i> karma means restorative measures. All restorative measures should be undertaken in chronically ill patients in the cachectic and in those who have be come emaciated due to the wound at the same time preserving their digestive pow- er with care.
51.	<i>Vishaghna</i> (neutralization of poisons)	<i>Vishaghna</i> means neutralization of poisons. The clinical features of poisoning and identification of poisons, and their respective management should be described in <i>Kalpasthana</i> .
52.	Shirovirechana (use of er- rhines)	<i>Shirovirechana</i> means the use of errhines. Useful for cleansing the head for the wounds situated above the collar bones and which are associated with itching and inflammation.
53.	Nasya (nasal medication)	<i>Nasya</i> means snuff means nasal medicated drops of oil or <i>Ghrita</i> . It is used for the wounds above the clavicular region which are caused by <i>Vata</i> and are dry.
54.	Kavaldharana (Gargling)	<i>Kavalgraha</i> means gargling, hot-cold gargling is advisable to dislodge the <i>Dosas</i> to alleviate pain and burning sensation also to remove the <i>mala</i> accumulated on the teeth and tongue and for the cleansing and healing of ulcers in the mouth.
55.	Dhumapana (smoking)	<i>Dhumapana</i> means smoking of medicated fumes. It is used in the diseases of the regions above collar bone and the ulcers due to <i>Kapha</i> and <i>Vata</i> when associated with inflammation, discharge and pain.
56.	Madhu (internal use of hon- ey)	<i>Madhu</i> is the internal use of honey. It should be used in recent and large traumati wounds. Honey has the inherent capability to increase the formation of granulation tissue, stimulate tissue growth, and reduce oedema and inflammation. ⁽⁴⁾
57.	Sarpi (internal use of ghrita)	<i>Sarpi</i> is the internal use of <i>Ghrita</i> . It should be used in recent and large traumati wounds to bring down the heat of injury and to help the healing. Ghee contain several saturated and unsaturated fatty acids which are capable of taking part in metabolic processes involved in the healing of any wound ⁽⁶⁾ .
58.	Yantra (instrumentation)	Yantra means instruments. It should be used in deep, ulcerative lesions, and have

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		small opening, also for lesions that contain Shalya.
59.	Ahara (dietary regimen)	Ahara means dietary regimen, all patients which have ulcerative lesions should
		give a light demulcent, warm, and appetizing diet in small quantities by the wise.
60.	Rakshavidhana (protective	Rakshavidhana means protective measures the ulcer patient should always be pro-
	measures)	tected from invisible creatures by the different procedures described earlier. It is
		the measure adopted to protect the Vrana from Krimi, Jantuetc.

DISCUSSION

In the present article, there is a detailed study on Shashti Upkrama has been explained. The Shashti Upkrama are the wound management procedure is described in Sushruta which samhita chikitsasthanamadhyaya number one (7). In this adhyaya Acharya Sushruta explains the basics of surgery and the management of the wound. And for being a good surgeon we must have to know that how we deal with the different stages of a wound. For this purpose, Acharya Sushruta advised sixty Upkrama for the management of the wound. Among these Upkrama one or more than one Upkrama may be employed at the same time according to the condition of the wound. These all shashtiupakrama is described for both aam and pakvaavastha means it included Nija and Agantuja both types of vrana. As in nijavrana dosha are involved from initial and in agantujavrana involvement of dosha occur later on. So initial 11 Upkrama may be included into initial 3 Upkrama of saptopakrama of shopha. Next Saptopakrama Patana include all the AshtavidhaShastra karma as Chedana, Lekhana, Bhedana, Darana, Aeshana, Aaharana, Vedhana, Vishravana and SivanaKarma. Among this all-Shastra karma which one should be employed is depends upon the condition or disease, condition of the patient. After Patana next two Upkrama Shodhana and Ropana included the next 14 Shashti Upkrama from Sandhana to Vranadhupana. These two Upkrama includes drug therapy so Acharya Sushruta described the different drugs that are mainly Shodhana and Ropana drugs. As Acharya described Kashaya Upkrama so for the Shodhana purpose Shodhana Dravya are used as Kashaya and for Ropana purpose decoction of Ropana Dravya is used. Among all Saptopakram Vaikritapaham is the most important karma from all the Shashti Upkrama. Vaikritapaham means the

Upkrama which is used for the purpose to reverse or decreasing the severity of the changes, also for cosmetic purposes that occurs during or after the wound healing process. These all Upkrama are divided into two types as systemic Vaikritapaham and local Vaikritapaham. During disease conditions, Doshas becomes imbalanced and unwanted material accumulates in body so by the use of Basti, Uttarbasti, Krimighna, Sirovirechana, Bandha, Kavala, Nasya, Dhoompana, Madhusarpi, Yantra, Aahar and Rakshavidhana the Doshas may be in Samyavastha. The Upkrama of local Vaikritapaham plays an important role in the process of wound healing. These included Utsadna, Avsadana, Mrudukarma, Daruna karma, Ksharakarma, Krushnakarma, Pandukarma, Pratisarana, Lomapharana and Lomasanjana. The above Upkrama work as local Vaikritapaham. Utsadana karma is used to elevate the floor of the wound by improving granulation tissue and Avsadana is used to depress the over elevated surface of the wound by removing excess granulation tissue. Mrudu karma is used to soften the margin of the wound that reduce the speed of healing. Krushna karma is used often after healing to reduce the hypopigmentation of the scar. Pandukarma is also used to reduce the discolouration of the scar. Lomapaharana and Lomsanjanana are also used according to Vikruti produced on scar surfaces.

CONCLUSION

The study can be concluded that *Acharya Sushruta* has explained *Shashti Upkrama* in the management of wounds in detail. That can be employed according to the different stages of the wound also in the management of surgical wounds. Whereas *Shashti Upkrama* provides us lot of options for the management of wounds in different stages. Among all these *Upkrama* those which come under *Vaikritapaham* are

having more importance in present-day surgical practice. In modern surgery, there is not any definitive method to managing the scar that develops after surgery so modern science also applies our *Shahstiupakrma* in the management of the wound. With the use of *Krushnakarma* and *Pandukarma* we thoroughly manage all the cosmetics default of wounds as well. With the help of *Kshar karma, Utsadana* and *Avsadana* are also having a lot of importance in the management of chronic ulcers. There is a need for recent conditions to do a detailed study on the different procedure of *Shashtiupakrama* in *Ayurveda and apply it in daily surgical practice*.

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