

WOUND HEALING WITH SHASHTI UPAKRAMA

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ABSTRACT

Ayurveda is the most ancient medical science of our civilization. In Ayurvedic text the *Sushruta Samhita*, written by legendary surgeon of ancient age. *Acharya Sushruta* is the founding father of surgery. He has given special attention on describing basics of surgery. *Acharya Sushruta* known as first ancient plastic surgeon (rhinoplasty and nasoplasty) in the world. *Sushruta Samhita* (written by *Acharya Sushruta*) purely based on surgery and also the management of wounds. *Sushruta Samhita* broadly described anatomy and dissection (*Shavachhedana*) in *Sharira Sthana* (chapter *Sharirsankhyavyakaranasharira*, *Pratyekamarmanirdeshasharira*, *Sira varna vibhakti sharira*, *Dhamanivyakaranasharira*). *Shashtiupakrama* broadly described in *Chikitsa Sthana* in the management of wounds either wound is surgical or traumatic. Different stages of wounds have

to do different type of procedure and *Sushruta Samhita* described the different procedure for different stages of wounds known as *Shashtiupakrama*. *Shashtiupakrama* classified into *Saptoupakrama* of *Vranashopha*. Some special or specific *Upakrama* described in *Sushruta Samhita* such as *Krishna karma*, *Pandu karma*, *Vakritapaham* etc.

KEYWORDS: *Shashtiupakrama*, *Saptoupakrama*, *Vakritapaham*, *Sushruta Samhita*, *Krishna karma*, *Pandu karma* etc.

INTRODUCTION

Sushruta Samhita was written in the holy city of *Kashi* around 600 to 1000 B.C.^[1] In *Sushruta Samhita* various surgical procedure are described in very simple and scientific manner. To understand surgery it is very important to know or understand the stages of

wounds. *Sushruta Samhita* have detail description of wound management. *Acharya Sushruta* mentioned sixty *Upakrama* (method) of treating wound in *Chikitsa Sthana*.^[2]

Acharya Charaka has explained 36 *Upakramas* for the treatment of *Vrana*: *Shodhana*, *Patana*, *Vyadhana*, *Chhedana*, *Lekhana*, *Pracchana*, *Seevana*, *Avapeedana*, *Nirvapana*, *Sandhana*, *Swedana*, *Shamana*, *Eshana*, *Shodhana Kashaya*, *Ropana Kashaya*, *Shodhana lepa*, *Ropana lepa*, *Shodhana taila*, *Ropana taila*, *Shodhana ghrita*, *Ropana ghrita*, *Patrachadana* (bahaya), *Patrachadana* (abhyantara), *Bandhana*, *Pathya ahara*, *Utsadana*, *Avasadana*, *Ksharakarma*, *Agnikarma*, *Kathinykara lepa*, *Mridukara lepa*, *Dhoopa*, *Alepa*, *Varnyakara lepa*, *Ropana*, *Lomapaharana*.^[3]

Acharya Sushruta also describe the basic principle of surgery and *Vranasopha* in form *Saptoupakarma*. *Saptoupakrama* are *Vimlapana*, *Avasechana*, *Upanaha*, *Patana*, *Shodhana*, *Ropana* and *Vakritapahama*.^[4]

Table showing inclusion of *Shashtiupakrama* into *Saptoupakrama*.

Sr. No.	<i>Saptoupakrama</i> (7 procedure)	<i>Shashti Upakrama</i> (60 procedure)	Total no. of <i>Upakrama</i> included under <i>Saptoupakrama</i>
1.	<i>Vimlapana</i>	<i>Apatarpana</i> , <i>Aalepa</i> , <i>Parisheka</i> , <i>Abhyanga</i> , <i>Swedana</i> , <i>Vimlapana</i> .	06
2	<i>Avasechana</i>	<i>Rakta visravana</i> , <i>Sneha paan</i> , <i>Vamana</i> , <i>Virechana</i>	04
3	<i>Upanaha</i>	<i>Upanaha</i> , <i>Pachana</i> .	02
4	<i>Patana</i>	<i>Chedana</i> , <i>Bhedana</i> , <i>Dharana</i> , <i>Lekhana</i> , <i>Eshana</i> , <i>Aharana</i> , <i>Vyadhana</i> , <i>Visravana</i> , <i>Seevana</i>	09
5,6	<i>Shodhana</i> , <i>Ropana</i>	<i>Sandhana</i> , <i>Peedana</i> , <i>Shonitasthapana</i> , <i>Nirvapana</i> , <i>Utkarika</i> , <i>Kashaya</i> , <i>Varti</i> , <i>Kalka</i> , <i>Sarpi</i> , <i>Taila</i> , <i>Rasakriya</i> , <i>Choorna</i> , <i>Dhoopana</i> .	13
7	<i>Vakritapaham</i>	<i>Utsadana</i> – <i>Rakshavidhana</i>	26

AIM AND OBJECTIVE

To elaborate and discuss the various surgical concepts of *Shashtiupakrama* in the wound management either surgical or traumatic in *Shusruta Samhita*.

MATERIAL AND METHOD

The all reference of *Shashtiupakrama* are collected from *Sushruta Smahita*, *Charak Samhita* and other *Ayurvedic* classics and various modern text books of surgery. The various

Upakrama are discussed with their method and importance of their in enhancing wound healing.

Sr. No.	Shashtiupakrama	Description
1.	<i>Apatarpana</i> (Fasting): ^[5]	first <i>Upakrama</i> of <i>Vrana Chikitsa</i> and <i>Apatarpana</i> means <i>Langhana</i> . It is used to break the <i>Samprapti</i> in very initial stage. Most of the <i>Nija Roga</i> starts with the development of <i>Aam</i> , later on that after association with <i>Doshas</i> produces <i>Roga</i> . In case of <i>Shoph</i> when <i>Aam</i> associates with <i>Dosha</i> and brings them in <i>Vidagdhavastha</i> , that cause <i>Pakva Shoph</i> leading to <i>Puya</i> formation that require active management. To alleviate the aggravation of <i>Doshas</i> , <i>Apatarpana</i> should be done. A person suffering from <i>Urdhamaruta</i> , thirst, hunger, dryness of the mouth, fatigue, <i>Garbhini</i> , <i>Vridhdha</i> and children <i>Apatarpana</i> should not be done. ^[6]
2.	<i>Alepa</i> (Application of paste of drugs)	<i>Alepa</i> means application of paste of appropriate drugs mentioned in <i>Mishrak Adhyaya</i> , is used to reduce swelling of wound and pain. ^[7]
3.	<i>Parisheka</i> (Spraying)	<i>Parisheka</i> means spraying. 1. Warm spray with <i>Sarpi</i> , <i>Taila</i> , <i>Dhanyamla</i> , <i>Mamsarasa</i> , decoctions of drugs in order to mitigate <i>Vata Dosha</i> . 2. In <i>Sopha</i> caused by <i>Pitta</i> , <i>Rakta</i> , <i>Abhighat</i> (trauma) and <i>Visha</i> , cold spray should be done with milk, ghrita, honey, sugar solution, juice of sugarcane, decoction of <i>Madhura rasa</i> and <i>Panchavalkala</i> drugs. 3. In <i>Sopha</i> caused by <i>Kapha</i> , warm spray should be done with <i>Tail</i> , <i>Mutra</i> , <i>Kshara</i> , <i>Sura</i> (beer), <i>Shukta</i> (vinegar), and decoctions of <i>Kapha</i> mitigated drugs. ^[8]
4.	<i>Abhyanga</i> (Massage/ oil bath)	By local <i>Abhyanga</i> , <i>Samprapti</i> can be broken down, to prevent progression of disease. Disease mostly occur due to <i>Srotavrodha</i> , play vital role in producing <i>Shoph</i> . So <i>Abhyanga</i> should be done to relieve <i>Srotorodha</i> . ⁵ It is to be done prior to <i>Swedana</i> , <i>Vimlapana</i> and later in <i>Vishravana</i> (draining out fluid from wound).
5.	<i>Swedana</i> (Fomentation)	It should be done for painful, indurated and hard swelling. ^[9]
6.	<i>Vimlapana</i> (Kneading/massaging)	Gentle massage around the swelling & wound with help of <i>Vata hara taila</i> . A surgeon should carry out gentle local massage with bamboo reeds, the palm or the thumb. ^[10]
7.	<i>Upanaha</i> (Warm poultice)	It is a form of <i>Swedana</i> . It should be applied for the purpose to subside or aggravate the process of <i>Shoph</i> and <i>Paka</i> . <i>Shoph</i> which are unripe and ripening; by this, unripe <i>Shoph</i> subsides and that which is ripening ripens (forms pus) quickly. ^[11]
8.	<i>Pachana</i> (Ripening)	<i>Shoph</i> which does not subside even after doing <i>Upanaha Karma</i> then <i>Pachana</i> should be done. Curd, buttermilk, beer, vinegar, sour gruel are used to prepare <i>Utkarika</i> (pan cake). This paste should be bandaged over swelling with leaves of <i>Eranda</i> . Intake the foods which promote ripening, in the stage of ripening is also beneficial. ^[12]

9.	<i>Rakta vishravana</i> (Blood letting)	It should be done in order to mitigate pain and ripening. It is beneficial in wounds having swelling, <i>kathin</i> , black, containing blood, painful, deep and uneven. ^[13] In swelling containing poison, blood letting should be done either by using Jalauka or by <i>Shastrapada</i> .
10.	<i>Sneha paan</i> (Internal oleation)	For person who have developed complication, who are very emaciated and those who have consumption due to wounds, drinking of medicated oil and ghee which are appropriate to the <i>Doshas</i> . ^[14]
11.	<i>Vamana</i> (Emesis)	It should be done for swelling which have raised granulation tissue and those having aggravation of <i>Kapha</i> and in those wounds where blood is clotted and become slightly black. ^[5]
12.	<i>Virechana</i> (Purgation)	<i>Virechana Karma</i> should be done for wounds which are vitiated by <i>Vata</i> , <i>Pitta</i> and in those persisting for long time. ^[15] <i>Snehana</i> , <i>Vamana</i> and <i>Virechana</i> all these Upakrama are important part of <i>Panchkarma</i> . By these methods the <i>Doshas</i> are expelled through body via <i>Urdhva</i> and <i>Adho marga</i> and diseases do not progress further. These reduces sign and symptoms locally as well as systemically. ^[5]
13.	<i>Chedana</i> (Excision)	<i>Chedana</i> (excise and remove the dead tissue) should be done in wounds which are <i>Apakava</i> , hard and static and in suppuration of ligaments. ^[16]
14.	<i>Bhedana</i> (Incision)	It should be done in wounds having pus inside and not having an opening, in those which have bulged up and those having sinuses inside. ^[17]
15.	<i>Darana</i> (Bursting)	<i>Darana</i> means promoting bursting by local application of drugs. It should be done instead of <i>Shastra Karma</i> in children, old, intolerant, debilitated, timid, women and in wounds situated over fatal spots. Drugs which causes squeezing used for this purpose. By their squeezing action <i>Pakva Shopha</i> bursted itself. ^[5]
16.	<i>Lekhana</i> (Scraping)	It should be done in hard wound with thick rolled lips which burst often and have a hard and raised granulation tissue. <i>Kshhauma</i> , <i>Plota</i> , <i>Pichu</i> , <i>Yavakshara</i> , <i>Samudrafen</i> , <i>Saindhav Lavana</i> and rough leaves for scraping should be used. Scraping should be done uniformly, without leaving remnants; to the thickness of the eyelids, using a sharp instrument. ^[18]
17.	<i>Eshana</i> (Probing)	It is useful in the sinuses, wound with foreign objects, Unmargi Bhagandara and Utsangi tracks with the help of <i>Karira</i> , <i>Baal</i> (hair), <i>Anguli</i> (finger) or metal probe. ^[19]
18.	<i>Aharana</i> (Extraction)	Extraction is used for the extraction of foreign objects from wound either by a narrow or a wide opening. ^[5]
19.	<i>Vyadhana</i> (Puncturing and draining)	It should be done by sharp instrument in wounds which are treatable with <i>Vedhana Karma</i> and in the accumulated <i>Doshas</i> . ^[5]
20, 21	<i>Seevana- Sandhana</i> (Suturing and repairing)	Wounds which are not infected, localised in the muscle and having wide opening should be sutured and repaired by using <i>Shastra</i> . ^[20]
22.	<i>Peedana- Pradeha</i> (Squeezing poultice)	It is used for the <i>Vrana Shopha</i> occur in soft, <i>Marma Pradesh</i> in our body. <i>Shastra Karma</i> is contraindicated in <i>Marma</i>

		<i>Pradesh</i> . So some medicines are used in form of <i>Pralepa</i> for purpose of <i>Peedana</i> . ⁵ <i>Pralepa</i> should be done in the manner so that the mouth of <i>Shopha</i> left open, and let it dry. After some time dried <i>Pralepa</i> provide a pressure on cavity by squeezing that results into drainage of pus collected inside the cavity.
23.	<i>Sonitasthapana</i> (Haemostasis)	When excess of blood flows out, then haemostasis should be achieved by <i>Sandhana</i> , <i>Skandana</i> , <i>Pachana</i> and <i>Dahana</i> . ^[21]
24.	<i>Nirvapana</i> (Cooling measures)	<i>Lepa</i> and <i>Sheka</i> of <i>Dravya</i> which are cold in potency should be applied on wounds which are accompanied with <i>Daah</i> (burning sensation), <i>Paak</i> (suppuration), <i>Jwara</i> (fever). ^[22]
25.	<i>Utkarika</i> (Warm measures)	<i>Vatahara Dravya</i> are used in the form of warm paste for <i>Vrana</i> to subside the symptoms developed due to the vitiation <i>Vata Dosha</i> . ^[5]
26.	<i>Kashaya</i> (Medicinal decoction)	<i>Shodhana</i> should be done in wounds which release bad smell, discharge slimy fluids using decoction of drugs having <i>Shodhana</i> properties. ^[23]
27.	<i>Varti</i> (Medicated wicks)	<i>Varti</i> smeared with <i>Kalka</i> of cleansing drug should be placed in the wound which have foreign bodies deeply embedded the muscles and where the wound has a very small opening. ^[24]
28.	<i>Kalka</i> (Medicated paste)	Wound which are covered with foul smelling flesh and which have great aggravation of <i>Doshas</i> , should be cleansed by placing <i>Kalka</i> of cleansing drugs. ^[25]
29.	<i>Sarpi</i> (Medicated ghrita)	<i>Ghrita</i> medicated with cleansing properties, together with fruit of <i>Karpas</i> should be used to treat wound vitiated by <i>pitta</i> , deep and accompanied with burning sensation and suppuration. ^[26]
30.	<i>Taila</i> (Medicated oil)	Mostly mustard oil processed with drugs is used to clean the wound which have hypertrophied granulation tissue, which are dry and have less exudates. ^[27]
31.	<i>Rasakriya</i> (Thick decoction)	<i>Vrana</i> which fail to get purified by medicated oil and which have granulating surface should be treated by using <i>Rasakriya</i> prepared from decoction of cleansing drugs adding powders of <i>Saurashtra</i> , <i>Kasisa</i> , <i>Manahshila</i> and <i>Haritala</i> , juice of <i>Matulunga</i> and honey. This is kept applied in the wound for 3 days. ^[28]
32.	<i>Avachurnana</i> (Dusting of medicinal powder)	Dusting of fine powder of cleansing drugs should be done in shallow and foul smelling wounds associated with vitiated <i>Meda</i> . ^[29]
33.	<i>Dhupana</i> (Fumigation)	<i>Dhupana</i> with <i>Kshauma</i> (linen), <i>Yava</i> (barley) and <i>ghrita</i> should be done for wound which are vitiated by <i>Vata</i> and are extremely painful and associated with exudation. ^[30]
34.	<i>Utsadana</i> (Promoting granulation tissue formation)	Wounds which are dry, poorly granulating and deep should be treated by <i>ghrita</i> processed with drugs of <i>Utsadana</i> group. ^[31]
35.	<i>Avsadana</i> (Removing granulation tissue)	It is indicated for wounds with excessive, raised and soft granulation tissue. for this purpose powder of appropriate drugs mixed with honey should be applied. ^[32]
36.	<i>Mridu Karma</i> (Softening)	It is used in <i>Vrana</i> which are hard, which have little granulation tissue and those vitiated by <i>Vata</i> . In <i>Mridukarma</i> specially <i>Vataghna Dravya</i> are used. ^[5]

37.	<i>Daruna karma</i> (Induction of fibrosis)	It should be done in wounds which have soft granulation tissue, to make these hard. ^[33] It is used to avoid long time wound healing. Fine powder of barks of <i>Dhava</i> , <i>Priyangu</i> , <i>Ashoka</i> , <i>Rohini</i> (<i>Katphala</i>), <i>Triphala</i> , <i>Dhataki puspa</i> , <i>Rodhra</i> and <i>Sarjarasa</i> in equal ratio should be sprinkle over the wound.
38.	<i>Kshara Karma</i> (Alkali cauterization)	It is beneficial in indurated, itching, chronic non healing wound and which are difficult to clean and have raised granulation tissue. ^[34]
39.	<i>Agni karma</i> (Thermal cauterization)	It is indicated in calculogenic urinary fistulae, bleeding wounds, wounds of joint in which the part below the joint is completely cut off. ^[35] Different type of <i>Shalaka</i> are used for <i>Agnikarma</i> .
40.	<i>Krishna Karma</i> (Producing black colour)	It is used in cases with white scar due to improper healing of <i>Vrana</i> , Hoofs of domestic animals and of marshy region are burnt by fire and then powdered nicely, this ash mixed with <i>Bhallataka Taila</i> should be applied on scar. ^[36]
41.	<i>Pandu Karma</i> (Restoration of the normal skin colour of the scar)	It is used to treat the hyper pigmented skin occur due to improper healing. <i>Rohini Phala</i> is soaked into goat's milk for 7 days and then well pasted on the hyper pigmented scar. ^[5]
42.	<i>Pratisarana</i> (Rubbing by medicinal powder)	Powder of <i>Mulethi</i> , <i>Kutkutandtvak</i> , <i>Nirmali</i> and <i>Muktashukti</i> mixed with gomutra is used to rub on the surface of healed wound to make it rough which was very shiny after wound healing. So the healed area becomes enough rough as healthy skin. ^[37]
43.	<i>Roma Sanjanana</i> (Regrowing hair)	<i>Hastidanta mashi</i> is used for <i>Romsanjana</i> . <i>Kasisa</i> and leaves of <i>Naktamala</i> macerated in the juice of <i>Kapittha</i> and applied is best to cause growth of hairs. ^[38]
44.	<i>Romapaharna</i> (Removing hair growth)	Two parts of <i>Sankh churna</i> and one part of <i>Haritala</i> pasted with vinegar or oil of <i>Bhallataka</i> with <i>Snuhi Ksheer</i> applied on the area is best to remove hairs. ^[39]
45.	<i>Basti Karma</i> (Enema therapy)	It is used specially for wound which are vitiated with <i>Vata</i> , dry, very painful and situated in the lower part of the body. ^[5]
46.	<i>Uttarabasti Karma</i> (Urethral and vaginal douching):	Administration of <i>Uttara basti</i> is useful for the urogenital tract disease i.e. <i>Mutraghata</i> , <i>Mutradosha</i> , <i>Shukradosha</i> , <i>Artava Dosha</i> and wounds caused by <i>Ashmari</i> (calculus). ^[40]
47.	<i>Bandhan Karma</i> (Bandaging)	By bandaging, the wound becomes clean, soft and heals without doubts. ^[41]
48.	<i>Patradana</i> (Placing leaves on the wound)	<i>Patradana</i> is a kind of <i>Bandhan</i> . ⁵ It is used to treat the wounds having little granulation tissue and not healing due to dryness. 1. Leaves of <i>Eranda</i> , <i>Bhurja</i> , <i>Putika</i> , and <i>Haridra</i> for <i>Vrana</i> caused by <i>Vata</i> . 2. Leaves of <i>Asvabala</i> , <i>Kasmari</i> for <i>Vrana</i> caused by <i>Rakta</i> and <i>Pitta</i> . 3. Leaves of <i>Patha</i> , <i>Murva</i> , <i>Guduci</i> , <i>Kakamaci</i> , <i>Haridra</i> and <i>Sukhanasa</i> for <i>Vrana</i> caused by <i>Kapha</i> . ^[42]
49.	<i>Krimighna</i> (Disinfection)	It is used to decrease load of pathogenic microorganism from the wound. This is done by irrigating wound with <i>Kwath</i> , applying <i>Lepa</i> prepared by <i>Krimighna</i> drugs and <i>Ksharodaka</i> . ^[43]

50.	<i>Brimhana</i> (Stoutering therapy)	All types of nourishing therapies should be undertaken in person who are chronically ill, emaciated and consumption from wound. ^[44]
51.	<i>Vishaghna</i> (Neutralization of poison)	It is used for the treatment of wound caused by the toxic effect of any substances. Identification of the toxins and treatment described in detail in <i>Sushruta Samhita Kalpa Sthana</i> . ^[5]
52.	<i>Sirovirechana</i> (Purgation of the head)	<i>Sirovirechana</i> is used in case of wound situated above the collar bone which are associated with itching and inflammation. ^[45]
53.	<i>Nasya</i> (Nasal medication)	<i>Nasya</i> means snuff means nasal medicated drops of oil or ghrita. It is employed in the wound of <i>Kantha</i> and above region which have pain and vitiated by <i>Vata</i> . ^[46]
54.	<i>Kavalagraha</i> (Gargling)	In ulcer of the mouth, in order to eliminate the <i>Doshas</i> , mitigate pain, burning sensation, remove the mala accumulating on the tongue and teeth to promote cleansing and healing, administration of mouth gargles either warm or cold is desirable. ^[5]
55.	<i>Dhumapana</i> (Smoke inhalation)	It is used mainly for the <i>Kapha-Vataja Vikara</i> and <i>Vrana</i> with <i>Shopha</i> and <i>Peeda</i> above <i>Jatru Pradesh</i> . ^[47]
56, 57.	<i>Kshaudrasarpi</i> (Applying mixture of honey and ghee)	Mixture of honey and ghrita is used in order to control the heat of the wound, joining the separate part and in traumatic wounds which are wide. ^[48]
58.	<i>Yantraopayoga</i> (Instrumentation)	<i>Yantra</i> are used for extracting <i>Shalya</i> and for debridment of <i>Vrana</i> . ^[5]
59.	<i>Ahara</i> (Dietary regimen)	For all <i>Vrani</i> persons, warm, <i>Laghu aahar</i> should be given always in less quantity. ^[5]
60.	<i>Rakshavidhana</i> (Protective measures)	It is the last <i>Upakrama</i> . <i>Shalya Karmagar</i> and <i>Shashtra</i> should be fumigated with <i>Guggulu</i> and <i>Mantrochcharna</i> is advised that may kill micro-organisms. ^[5] The <i>Vrani</i> person should be protected always from <i>Krimi</i> , <i>Jantu</i> etc. ^[5]

CONCLUSION

Shashtiupakrama provide us lot of option for the management of different stages of wound. In modern surgery there is no any definitive method to managing the scar that develops after surgery. *Krishna Karma* and *Pandu Karma* are specific *Karmas* for the management of scar after surgical and traumatic wound. Like as *Kshar Karma*, *Utsadana*, *Avsadana* are also having importance in the management of chronic ulcers.

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