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ABSTRACT

In *Ayurvedic* text the *Sushruta samhita*, written by legendary surgeon of ancient age *Acharya Sushruta* is the foundation of *Ayurvedic* medicine as well as surgery. He has given special attention on describing basics of surgery. There is a general impression that *Sushruta samhita* is the only an ancient Indian *Ayurvedic* text book of surgery. *Sushruta samhita* contains 184 chapters, divided into five *sthana*, having description of 1120 illness, 700 medicinal plants, detailed and elaborated knowledge of accurate anatomy, 64 preparation from mineral and 57 preparation based on animal sources. It still retains landmark position in the field of surgical text. *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 type of skin disease as *kustha*, *panchkarma* procedure, toxicology, pediatrics, eye diseases, psychiatry, obstetrics and gynaecology etc. A very limited conceptual work has been performed on the selected chapters of *Sushruta samhita*. Therefore a review conceptual study has been carried out on the *Shastiupakrama* of *vrana* of *sushruta samhita*. Outcome of the study shows that *Sushruta samhita* is written in the aphorism form and technique describe in it regarding treatment of *vrana* in its various stages are the basic of whole surgery. The all 60 *upakrama* can be simplified and included in 7 *upakrama* of *sopha*. It is need of hour to explore the hidden truth by decoding the versions of the text.

KEY WORD: *Sushruta samhita*, *shastiupakram*, *Shaptopakrama*, *Vrana*

INTRODUCTION: *Ayurveda* is the most ancient medical science of our civilization. *Ayurveda* considered as fifth¹ *veda* along with the *Rigveda*, *Samveda*, *Yajurveda* and *Atharva veda*. The *vedas* are considered to be the first record of the ancient knowledge and civilization. Among these four *vedas* maximum description of *Ayurveda* is found in *Atharvaveda*². Later on *Ayurveda* developed as a separate system of medical science and upgraded as *upveda* of *Atharva veda*. *Ayurveda* initially have main two stream i.e. medicine and surgery. *Agnivesh tantra* is the prime literature of medicine and *Sushruta samhita* is the main pillar of *Ayurvedic* surgery. In *Sushruta samhita* various surgical procedure are described in very simple and scientific

manner. As we know in any kind of surgery there is a common thing that is wound. Either we made it or it already present in the patient. So to understand surgery it is very important to understand the wound first. *Sushruta samhita* was written in the holy city of *Kashi* sometimes around 1000BC³. *Sushruta* was primarily a surgeon and recognized as the Father of surgery⁴ in the world. The management of wound is describing in *Sushruta samhita* in very detail manner. He advises sixty *upakrama* (method) of treating wound is lot of different conditions known as *shashtiupakram*⁵ in *Chikitsa sthanam*. In present study a attempt is made to understand various *upakrama* in nowadays surgical aspects.

AIM AND OBJECTIVE:

1. To evaluate, elaborate and discuss the various surgical concepts of *Shashtiupakrama* of *Sushruta Samhita*.
2. To understand the basic principle of wound management.

MATERIAL AND MATHOD:The all reference of *Shashti upakrama* are collected and compiled from *sushruta smahita* and other *Ayurvedic* classics and various modern textbooks of surgery. The various *upakrama* are discussed with their method and importance of there in enhancing wound healing.

OBSERVATION: As *Acharya Sushruta* mentioned *Shashtiupakrama* in chapter one of *Chikitsa sthanam* of his *Samhita* in reference to management of *Vrana*. He describe almost all the basic principle of surgery in form of *saptoupakrama* of *sopha*⁶, he shows very close and practical approach towards the patient of *vrana sophaa*. He started *shashti upakrama* with the *Aptarpana*, that means *Langhana*. *Langhana* is used probably to brake the pathology in very initial stage, as we know according to *Ayurvedic* text most of the *nija vyadhi* starts with the development of *Aama*, later on that after association with *Doshas* produces *vyadhi*. In case of *sophaa* when *Aam*⁷ associates with *Dosha* and brings them in *vidagdhavastha*, that cause *pakva sopha* leading to *puya* formation that require active and aggressive management. So with the first *upakrama* *shushruta* wants to break pathology very early to limit progression of disease.

Next *upakrama* *Alepa* and *Parisheka* are mainly use for the *saman* of local *kupita Doshas* and reduces sign and symptoms when used with different specific *yoga* stated in *sutrasthana mishrak adhyay*. Here approach of

sushruta was to subside mainly *Vedna* and *Daha* locally.

Abhyang is the next *upakaram*, look more important when we see with the angle that by local *Abhyanga* pathology can be broken down, to prevent progression of disease. As we know according to *Ayurvedic* principle disease mostly starts due to *srotorodha*, play important role in producing *sophaa*. So with the help of *Abhyanga Srotorodha* might be relieved and opening *srotasa* at the site of *sophaa*.

Swedana is the next *upakrama* that help both locally and systemically. As with the help of *swedana*, *Aama pachan* affects systemically and reduces *kupita vata* and *kaphadosha* at the site of *vrana sopha*. In coteest to *vrana sopha* *Abhyanga* may be very useful for dilution of *Dosha* to break *srotosangha*, responsible for *Samprapti*.

Vimlapana is the next *upakrama* advocated by *sushruta* is with the help of finger tip, thumb, or with green stick softly rubbing at the site of *sophaa* that may work by dispersing the accumulated *Doshas* in the corresponding *srotas* so that *srotosangha* may be release and pathology may break. If we discuss within light of modern medical science, that before developing a cutaneous abscess⁸, mostly the focus lays in side any sweat gland, hair follicle root or close sebaceous gland, so with the help of *vimlapana* may be there is opening of mouth of that particular gland or focus so that progression of disease is checked.

Upanahupakrama is a form of *swedna*, which is used for the purpose to subside or aggravate the process of *Sopha Paka*. As if *Doshas* involved in *sophaa* are *vidaghdha* then after *upanah*, *sophaa* will go under *pakvastha* and if *Doshas* are *avidagha* then due to effects of *upanah*

,the *Doshas* after *vilayana* circulate in to whole body. *Upanah* breaks the *Samprapti* of *sopha* and *sopha* subsided completely. *Pachana* is the next *upakrama* describe by *Acharyasushruta*, when *upanah* unable to show result locally and *sopha* neither subsided nor become *pakva*, now *Acharya* taken a general or systemic approach for the *pachan* of *aam Doshas* by administering *pachana* drug by oral route. If involved *Doshas* are *avidagdh* then with the use of *pachana* drug the local focus is broken and *Doshas* left free into blood stream.

Next *upakrama Vishravan*⁷ is a kind of *rakta mokshana* with the use of *Sringa*, *Alabu*, *jalauka* and *siravedha*. The vitiated (*Kupita*) *dosas* are removed from the site of *sopha* with the *rakta mokshana*. Here different method of *rakta mokshana* is used according to prominence of involved *dosa*⁹ and level of *dosas* in body¹⁰, as if *dosas* are present superficially/ skin then method of *rakta vishravana* should be *jalaukavcharana*. If *dosas* are little deep then *alabu*, *shringa* and *Prachan* should be method of choice. If *dosas* are spread throughout body and deep seated, then method of bloodletting should be *Siravedha*. This may work as illuminating the *dosas* outside the body and diminishes the local sign and symptoms. Leech therapy is specially indicated in toxic inflammation may be internal or external.

Next *Snehan*, *Vamana* and *Virechana* all these *upakrama* are very important part of *panchkarma* therapy. Basically this is again a conservative approach of *Acharyas*, by these method the *dosas* are expelled through body via *urdhva* and *adho marga*. Because prior to *panchkarma dosas* circulated in body are brings in to *mahasrotas* by *Snehan* and

swedana so that make easy to *sodhana* of *sharira*, by these means the severity of inflammation reduces markedly. *Vamana* is indicated when *kaphaja lakshana* are more prominent and *virechana* is indicated when *pitta dosha* is prominent. By these *sodhana karma* diseases limits at the stage and not progress further. These reduces sign and symptoms locally as well as systemically.

Next *upakrama* from *Daran* to *shivana* all these are describe as *shalya karma* used in different types of *Nija* and *Agantuja vrana* to remove *puya* from *pakva sopha*. The *Puya* (pus) included dead pathogen and cellular debris. Pus¹¹ consists of a thin, protein-rich fluid, known as *liquor puris*, and dead leukocytes from the body's immune response (mostly neutrophils).

During infection, macrophages release cytokines which trigger neutrophils to seek the site of infection by chemo taxis. There, the neutrophils engulf and destroy the bacteria and the bacteria resist the immune response by releasing toxins called leukocidins. As the neutrophils die off from toxins and old age, they are destroyed by macrophages, forming the viscous pus. *Puya nirharan* is used to clear the pathogens in modern prospects and *Dosas* in *Ayurvedic* prospects. Beside *shastra karma* some other method are also used for *puya nirharan*. Some drugs are advised for local application for this purpose¹². By their chemical action *pakva sopha* ruptured itself without using any *shastra*. *Acharya sushruta* advised some drugs as *Yavakhara*, *Samudrafen* and *saindhav lavana* for the *lekhana karma* by their chemical debridment. Next four *upakram Eshana*, *Aharana*, *Vedhana* And *Vidravana* are performed by *Shastra*. *Shivana* and *shandhana karma* are used to

approximate the edges of non infected wounds by using *shastra*.

Peedan is the next *upakrama* used mainly for the *vrana sophaa* appear in soft ,vital organs define as *marma Pradesh* in our body. Because *shastra karma* in contraindicated in *marma Pradesh*. Some medicines are used in form of *pralepa* for purpose of *peedana*¹³. *Pralepa* should be done in the manner so that the mouth of *sopha* left open, and let it dry. After some time dried *pralepa* provide a pressure on cavity by contraction that results into drainage of us collected inside the cavity. *Peedana karma* is a kind of *vidravana* without using *shastra*.

Sonita sthapan is the next *upakrama* describe just after *shastra karma* as we know every where, when *shastra* is use there is bleeding. So after drainage of *puya*, some amount of *rakta* is also discharge at the site of *shalya karma* that may be acceptable. But to avoid excessive loss of blood *Acharya* dictated *sonitha sthapan*. As blood being most important *dhatu* said by *Acharya* shushrut himself “*Dehasya rudhiram moolam rudhiyam dharyat,tasya yatnen sanrakhsyam raktam jivit sthitah*”¹⁴. So when there is bleeding we should stop immediately to avoid excessive loss. *Raktasthapan* is achieved by four method advised by *Acharya sushruta* are *Sandhan,Skandan Pachan* and *Dahana*. From here *Acharya* concentrate on *sodhana* and *ropana* of *vranasopha*.

Nirvapana is the next *upakram* in which *lepa* and *sheka* of *sheetal dravya* are applied. It may help in *sandhan karma* and subside the local symptoms. *Daha, paak* due to *Kupita pitta* and *kapha* and *rakta*. So these *upakram* may help in *sandhana karma*.

Utkarika is the next *upakram*, in which *vataghna dravya* are used in the form of warm semisolid (paste like) formulation. May it subside the symptoms developed due to *Vata prakopa*. This is indicated in inflamed or/ & necrosed wound.

From *kashaya* upto *Dhoopa*¹ all the *upakrama* are used for *Sodhana* and *ropana* of *vrana*. The medicines used in *upakrama* decide the function of *upakrama* . If drug taken having *sodhana* properties then it clean the wound and if drugs having *ropan* properties then it enhances the healing of the wound. For example *brihati,kantkari ,hartaal* and *manahshila sadhita tail* and *ghrita* are for *sodhan*¹⁵ *karma* and *kanguka, triphla, rodhram, kasheesh, shravanhya, dhav, & ashvakra tvak* are used for *ropan*¹⁶ *karma* From *Dhoopan* upto last *upakrama Rakhsavidhan* all may be considered into the last *saptaupakrama* of *sopha* i.e. *Vaikritapaham*¹⁷. As we know in our body when any *nija vyadhi* tends to develop then there must be some disturbances in the *samyavastha* of *Dosas*. So to resolve this *vaikritavasth* of *dosas* i.e. *vikriti vaikritapaham* should be employed.

This process of *vaikritapaham* is divided into Local and systemic. Among the *Shashtiupakrama* from *utsadana* to *lomapaharan* acts locally as *utsadana* ,means the wound having depressed or deep floor due to less developed granulation tissue are treated with some drugs which improve granulation tissue so that floor is raised in some extent. Next *upakrama avshadna* is used to remove unhealthy, unnecessary hyper granulation tissue from floor of the wound which produces delayed healing. *Mridukaran* is the next *upakrama* in which wound margins and edges are make soft. Because

hard fibrosed edges may hamper wound healing and produces chronicity. In *mridukaran* specially *vataghna dravya* are used.

Daruna karma is the next *upakrama* just opposite to *mridukaran* as some wound having less tensile strength so that wound margin easily separate causing early dehiscence and wound healing delayed. So to avoid long time wound healing *daruna karma* should be done.

Next *upakrama kshara karma* is used especially in chronic non healing wound for chemical debridement¹⁸ so that fresh healthy granulation tissues appears and improve healing.

Next *upakrama Agnikarma* is a very important and describe separately as a *upyantra* in *sutra sthanam*. It is very important therapy for treatment of many diseases, but in concern to wound management, it is especially employed when there is any kind of blood or liquid discharge from wound¹⁹. The different type of *shalaka* are used for *Agnikarma*. *Agnikarma* stop bleeding immediately as well as do a kind of sterilization due to heat. As *Acharya* stated *dahana*²⁰ is the method of *rakta sandhan*. So it important in discharging wound.

Krishna karma is the next *upakrama* that is very important method of *vaikritapaham* stated in *saptaupakrama* of *sopha*. Where ever there is a hyper pigmentation occurs after wound healing. We must try to make that area similar to surrounding skin surface that look cosmetically better. For this purpose some drug like *Bhallataka* is used for this purpose, so that *vikriti* developed due to disease may be resolved.

Pandu karma is the next *upakrama* similar to previous *upakrama* where hypo pigmented area is treated with drug like

Haritaki with *Ajaksheera* that make skin similar to surrounding skin.

Pratisarana is the next *upakrama* in which some rough powder of *Mulethi*, *Kutkutandtvak*, *Nirmali* and *Muktashakti* mix along with *gomutra* tablets are prepared. These tablets are now rubbed 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.

Romasanjanan is the next *upakrama* in which ashes of elephant teeth is used for increasing growth of hairs. It may be used at the site where hairs are lost due to any kind of injury, that may re appear by *romasanjanan*.

Next *upakrama Lomapaharana* used to remove excess hairs present at the site of injury. For this purpose, *shankha churna&harital* in 2:1 ratio .mix with *amla dravya* and apply as *lepa*.

Vasti is the next *upakrama* used especially for *vataja* wound which having sever pain & present in lower portion of body. *Vatshamaka drugs* are used for *vasti* that may act on *vata dosah*. In the continuation *Uttarvati upakram* used for the urogenital tract disease i.e. different *mutraghata*, *mutradosh*, *sukradosh* , *Artava dosha* and wounds caused by *Ashmari*.

Bandhan is the next *upakram* used for the open wounds .*Acharya* provide it's complete detail in *sutrasthanam*. This protects wound being infected and fibrosed and keeps it *mridu* so that heal quickly.

Patradanam is the next *upakrama* is a kind of *bandhan*. Some chronic wound with fix and less fleshy areas are covered by some plants leaves poured with different *Doshashamak* drugs.

Krimighna is the next *upakrama* used specially for infected wounds. The

main aim is to decrease load of pathogens from wound site. This is done by washing with *kwath* (Decoction) applying *Lepa* prepared by *krimighna* drugs and *Kharodaka*. The extraction of *krimi* from wound site.

Brinhad karma is the next *upakrama* employed in the person that became *ksheerna* (emaciated) due to long time illness. So keeping mind the status of *Jatharagni* patient should be treated with *brinhad* drugs and *karma*.

Vishaghna is the next *upakrama* used for the treatment of wound made by the toxic effect of any substances. *Acharya Sushruta* described in detail in the *kalpasthanam*.

Sirovirechana is the next *upakrama* mainly used for the wounds with *kaphaj lakshan* and present in the head, neck and throat areas.

Nasya is the next *upakrama* employed in the wound of *kantha* and above region which are affected by *Vata Doshas*.

Kanvala is the next *upakrama* used specially for the wounds of oral cavity, on gums and teeth. According to involvement of *Doshas Usna* and *sheetal kanvala* is advised.

Dhoom is the next *upakrama* used mainly for the *Kaphavataja vyadhi* and *vrana* with *sopha* and *peeda* above *jatru (jatroridha) Pradesh*.

Madhusarpi is the next *upakrama* in which *madhu* and *sarpi* is used for *sandhana karma* of *vrana* especially in new and wide *vrana*. Here *madhu* and *sarpi* collectively acting for *sandhan karma*.

Yantra are used for the purpose of extracting *shalya* and used for debridement of *vrana*. *Acharya sushruta* consider these instruments for wound management as a *upakrama*.

Aahar is the most important part of management of any disease with the medicine. So patient having a large wound should avoid *guru* and *vidahi aahar*. So *laghu aahar* should be given in small amount but frequently

Raksha vidhana is considered as last *upakrama* of wound management. In this along with patient's *shalya karmagar* and *shastra* should be fumigated with *gugulu* and *mantrocharna* is advised that may kill the small pathogenic organisms. The *Yama* and *Niyama* should be advised to patient that may help him for management.

These 60 *upakrama* are described in *Sushrutasamhita* in *chikista sthanam* for the successful management of wound. One, or more than *upakrama* may used at any time of treatment state.

DISCUSSION: In the present work there is detailed study on *Shashti upakrama* has been done. The *Shashti upakrama* are described in *chikitsa sthanam* chapter one in detail. *Acharya Sushruta* describes the basic of surgery in the form of management of wound. As we know in any kind of surgery either there is wound already or we made it. So being a good surgeon we have to know that how we deal with the different stages of wound. *Acharya sushruta* advised 60 *upakrama* for the management of wound.

Among these *upakrama* one or more than one *upakrama* may be employed according to condition of wound, disease, condition of patient, availability of drugs and all that. All these 60 *upakrama* can be classified into the seven *upakrama* of *sopha*. *Saptopkrama* of *sopha* are stated in chapter 17 of *sutrasthanam* named *Aampakvaeshniyam adhyaay*. These *upakrama* are *Vimlapana*, *Avasechana*, *Upnaha*, *Patana kriya*,

sodhana, *Ropnam* and last *vaikritapaham*. These regimen of *saptopakrama* is described for both *aam* and *pakva sopha* means it included *Nija* and *Agantuja* both type of *vrana*.

As in *nija vrana* dosha are involved from initial and in *agantuja vrana* involment of *dosh* occure lateron. In refrence to *sopha saptopakrama* are advocated from initial to last, *Vimlapana* in *aam sopha* and *vaikritapaham* for the wound made during surgery after *pakvavastha*. In *saptopakrama* from *vimlapana* to *upnaha* our approach is conservative and for this purpose from *alep* to *vaman* initial eleven *upakrama* are used for the same purpose. So initial 11 *upakrama* may be included into initial 3 *upakrama* of *saptopakrama of sopha*. Next *saptopakrama Patana* included all the *shastra karma* as *chedana*, *lekhana*, *bhedana*, *darana*, *eshana*, *Aaharana*, *Vedhana*, *Vishravana* and *sheevan karma*. Among these all *shastra karma* which one should be employed is depends upon the condition of disease, patient's condition, availability and choice of surgeon.

After *Patana* next two *upakrama* *Shodhana* and *ropana* included next 14 *Shashti upakrama* from *sandhna* to *vranadhupan*. These two *upakrama* are basically drug based so *Acharya* described the different drugs that act as *shodhana* and *ropana* purpose. As he described *khashaya upakrma* so for the *sodhana* purpose *shodhan dravya* are used as *kashaya* and for *ropana* purpose decoction of *ropana dravya* is used. Among all *Saptopakram vaikritapaham* is the most importanat and wast and included rest all the *Shashti upakrama*. As we *vaikritapaham* means the *upakrama* which is used for the purpose to reverse or decrease severity of the changes that

occurs during/after wound healing process. These all *upakrama* broadly can be categorizes into two types as systemic *vaikritapaham* and local *vaikritapaham*. During disease condition *Doshas* becomes unbalance and may *dhatus* becomes *kheerna* and any kind of unwanted material accumulates in body so by the use of *vasti*, *uttarvasti* *krimighna*, *sirovirechana*, *bandh*, *kanval*, *nas ya*, *dhoom*, *madhusarpi*, *yantra*, *ahar* and *Rakhsavidhana* the *doshas* may be in *samyavastha*.

The *upakrama* of local *vaikritapaham* plays an important role in the process of wound healing. These included *utsadna*, *avshadna*, *Mridu karma*, *daruna karma*, *kshara karama*, *Krishna karma*, *Pandu karma*, *Pratisarana*, *Lomapharana* and *Lomasnjan*. These above *upakrama* work as local *vaikritapaham*. *Utsadan karma* used to elevate the floor of wound by improving granulation tissue with the use of stated drugs in chapter and *Avsadan* is used to depress the over elevated surface of wound by removing excess granulation tissue which may produces hindrance in healing process. *Mridu karam* is used to soften the wounds margin that reduces speed of healing. *Krishna karma* used often after healing to reduce the hypo pigmentation produce on scar. *Pandu karma* is also used in contrast to reduce the discoloration on scar. *Lomapharan* and *Lomsanjanan* are also use according to *vikrity* produces on scar surface. This is the most important *upakrama* amongs *saptopakrama* and having lot of procedure under this.

CONCLUSION: The study can be concluded that *Acharya Sushruta* describe *Shashti upakrama* in the management of wound in detail. That can be employed

according to the different stages of wound .The concrete of study is that *Shashti upakrama* are expansion of *saptopakrama of vranasopha*. It is easy to learn and apply the principle of *saptopakramain* the management of surgical wounds. Where as *Shashti upakrama* provide us lot of option for the management of wound in different stages. Among all these *upakrama* those which comes under *vaikritapaham* are having more importance in present scenario. In modern surgery there is no any definitive method to managing the scar that develops after surgery. With the use of *krisna Karma* and *pandu* we thoroughly manage the deformity develop after surgery with the use prepration advocated in *samhita*. Beside this *Kshar karma*, *utsadana* and *avsadana* are also having lot of important in management of chronic ulcers. There is need of time to do more retrograde study on different procedure of *Shashtiupakrama* in clinical area of *Ayurveda*

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