

A SHORT REVIEW ON DIFFERENT TECHNIQUES OF *SIVANKARMA* IN *AYURVEDA*

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ABSTRACT

Acharya Sushruta well explained eight different types of *shastra karma* i.e. *Ashtavidha shastra karma* and Suturing i.e. *Sivana Karma* is one of them. Suturing has its own importance in both traumatic and elective wound closure. Suturing is utilized for closing the wounds and ligating the bleeding vessels during surgery. *Sushruta* very well established the methods of suturing and its importance in practice and described well in various classical literature of *Ayurveda*. In modern science newly modified different techniques of suturings are available but the basic principle depends on *Ayurveda*.

KEYWORDS: *Sivana karma, Ashtavidha shastra karma.*

INTRODUCTION

Ayurveda is the most ancient, reliable and incredible medical science. Basically it is derived from the 'Vedas.' *Ayurveda* is *aupang* of "*Atharva Veda*".^[1] Father of Indian surgery is *Sushruta* and he established surgery branch very nicely, hence developed a highly skilled branch of *Ayurvedic Science* known as *Shalya Tantra*. *Acharya Sushruta* well explained eight types of surgical procedures described as "*Ashtavidha Shastrakarma*"^[2] are methods which helps to treat the surgical diseases in ancient time as well as in present era.

Table 1: Ashtavidha Shastrakarma.

Sr. no.	<i>Ashtavidha Shastrakarma</i>	
	<i>Ancient procedures</i>	<i>Modern procedures</i>
1	<i>Chedana</i>	Excision
2	<i>Bhedana</i>	Incision

3	<i>Lekhana</i>	Scraping
4	<i>Vedhana</i>	Puncture
5	<i>Eshana</i>	Probing
6	<i>Aaharana</i>	Extraction
7	<i>Vishravana</i>	Drainage
8	<i>Sivana</i>	Suturing

Importance of Seevan karma

Suturing is the last but the most important surgical procedure which makes that particular surgery successful if done skillfully perfectly otherwise complete procedure will hamper. *Acharya Sushruta* describes suturing in very detail in his *samhita* in *sutra sthan*.^[3] Suturing is not a new technique because *Sushruta* had already explained procedure since ancient era. This is the branch basically evolved for the purpose of wound approximation, healing and its management. i.e. suturing is one of the primary surgical procedure. and has got great importance as the success of surgery depends on careful approximation of tissues and wound healing. *Sushruta* the great Indian Surgeon who had given a complete account on wound healing and various techniques of wound healing used for various types of wounds. *Sushruta* defined the suturing procedure as a process of tying two ends of thread for union of wound edges and is done with the help of needle and appropriate suturing material.

The purpose of *Sevana Karma* is to approximate the wound edges for proper and faster healing i.e. *Vrana Sandhan*.^[4] *Sandhan* means to unite, to heal. Primary aim is to unite, repair and support the injured tissue until healing is completed. This will achieve complete haemostasis and normal restoration of tissue function. With advancement of time, science is expanding its wings in every field. But basic principles remain always unchanged. That's why modern surgery also follows all those ancient surgical principles. *Acharya Sushruta* had described in details about how to perform suturing in a proper way avoiding complications. This review article emphasized on suturing principle laid by *Acharya Sushruta* in concern to *Vrana Sandhan Karma* i.e. wound healing.

AIMS AND OBJECTIVE

1. To discuss the various methods of wound closure described in *Sushruta samhita*.
2. To correlate them with the modern day surgical techniques.

MATERIAL AND METHODS

The all reference of *Sandhan Karma* are compiled from *Sushruta samhita* and other *Ayurvedic* classical texts and various modern textbooks of surgery. Variety of methods are discussed with their importance and effect on wound healing.

OBSERVATIONS

In Ayurveda, *Sivana Karma* described in detail in various classical literature of *Ayurveda* especially in *Brihatrye*. *Acharya charaka* included *Sevana Karma* in *Shatvidha Shalya Karma* in *chikitsa sthanam* of *Dividhvraniya chikitsa* chapter.^[5] *Acharya Sushruta* advocated *Sevana Karma* in the *Asthvidha Shalya Karma* for the management of surgical disease and described in detail in *Asthvidhshashtrakarmiyam adhyayay* of *sutra sthan*. In this chapter he described all the aspects of suturing regarding managements of wound.

As we all know *Sushruta* the father of surgery in India so we accept the principles laid by *Sushruta* for wound management. It includes such as preparation of wound for suturing, methods of suturing, required material used in wound closure, indications, contraindication, benefits of suturing and complication of incorrect suturing etc.

Preparation of wound before suturing

Before suturing the wound, it should be cleaned thoroughly under aseptic precautions. The devitalized tissue or any foreign material like dirt, dust, hair, sequestrations of bones, clotted blood all need to be removed from the wound^[7,8,9] This will reduce the chances of sepsis. Then try to keep the detached parts of tissues, fractured bones are placed in their normal position. Well haemostatis is achieved at every step of procedure and wound is stitched with suture material guided by appropriate needle.

The process of wound infection and its disadvantages were not unknown to ancients.

Sushruta has clarified that blood clots, foreign materials like stones, hair, nails, fragment of fractured bone etc should be removed and wound should be thoroughly cleaned and then apply suture.^[10] If these materials are not removed, the wound will proceed to *Pakavastha* i.e. suppuration infection will increase pain over affected part.

Methods of Wound Closure (*Sivana Karma*)

Four methods of suturing techniques are described in *Sushruta Samhita* and other ancient *Ayurvedic* texts as *Sevana Karma*.^[11]

Table 2: Types of Sivana karma/ suturing.

Sr.no	Types of Sivana karma	Types of Suturing	Method
1	<i>Vellitaka</i>	Continuous type	This is done by suturing continuously along the length of the wound rapping the wound edges inside it.
2	<i>Gophanika</i>	Interlocking or blanket type suturing	The wounds which are shaped as footprints of crow, they are sutured with Gophanika type of suturing
3	<i>Tunnasevani</i>	Zigzag type or subcuticular	It is done as like as the torn up garments are sutured.
4	<i>Riju granthi</i>	Straight and interrupted Type	This type of suturing thread is inserted from two edges of wound and knot is tied.

Materials used in suturing

Sushruta Samhita is one of the Indian surgical texts which includes detail description about different types of suture materials both vegetative and animal origin which are either absorbable or non-absorbable. *Sushruta* had worked with many natural materials like fine threads, flax of *Ashmantak* (*Bauhinia vahlii*), *Guduchi Pratan* (*Tinospora cordifolia*), *Trinaushadhi* like *Shanaj* (a type of grass), Cotton threads, Silk threads, hairs of horse and *Snayu*^[13] (tendons/ligaments).

There is also a peculiar reference of using the heads of Giant Ants to effectively staple a wound over intestine while performing surgery for perforations. The live creatures were affixed to the edges of the wound, which they clamped shut with their pincers. Then the surgeon cut the insects' bodies off, leaving the jaws in place.

Indication of wound closure

Brihatrayi were agreed on the fact that suturing should be resorted to the case of an open ulcer due to the action of the deranged fat after its vitiated contents has been fully scrapped out as well as in the case of an uncomplicated *Sadyo Vrana*. Importance is given to *Sadyo Vrana* and clearly mentioned that the wound should be sutured at the same day.

Dalhana in his commentary on *Sushruta* has elaborated this principle as wounds over head, forearm, face, ears, lips, nose, cheek, neck, upper extremities, abdomen, gluteal region, reproductive organs, penis, scrotum etc. are to be sutured immediately. *Acharya Vagbhata* stated that immediate suturing should be done in excised or hanged out tissues. *Charakacharya* described that the flanks, bowels, abdomen etc which are subjected to deep surgery should be sutured.^[14]

Contraindication of wound closure

Acharya Sushruta clearly mentioned that the wounds contaminated with dust, poisonous wounds, diabetic wounds, skin diseases, putreficated, gangrenous wounds, wounds from which air is leaking, burns due to alkali (*Kshar*) or heat (*Agni*), infected wounds are not to be sutured.^[15] In case if the wound is contaminated, one should clear the wound then suture it in all possible aseptic precautions.

The wounds containing any foreign body inside it like bony sequestrations in osteomyelitis or the wounds where complete haemostasis is not achieved i.e. fresh bleeding in the wounds, penetrating injuries where there is presence of internal haemorrhage or haematoma, in such conditions wound should be left open and should not undergo suturing procedure. *Dalhanacharya* comments that the wounds over the joints like knee, elbow etc where bones are fractured or dislocated and where much tissue is lost should not be sutured.

Benefits of suturing

Acharya explained in various way that *Sevana* is an important karma among the *Asthavidha Shastra Karma* specially the wounds made during surgical procedure or appeared in traumatic injury. The suture approximate the both edges of wound, prevent hemorrhage, prevent contamination to various infective organisms and promotes healing and decrease scar formation that also decrease the pain to patients.

Complication of improper suturing

Acharya Sushruta explain the two conditions in complication of suturing first one is that if during suturing if bite are taken at very near of edge the margin may be tear and results in wound dehiscence and if the suture are taken very far from the margin there may be tension suture which cases very much pain at the operative site^[16] So the needle should be passed neither very far nor very near from the margins of wound for the accurate and perfect suturing.

DISCUSSION

Our *Acharyas* were very much aware about management of wounds. *Acharya Sushruta* described sixty *Upakramas* (procedures) for the treatments of wound^[17] The *Sivana Karma* is an important procedure in *Shalya tantra*. As I described earlier the method of suturing are similar in modern day surgical practice are also same. Sutures neither only facilitates wound healing but also stop the bleeding which occurs during surgery. The ancients well knew that

interference of blood in repair and regeneration of wounds. The *rakta* vitiated by *vata* causes dehiscence of wound, vitiated by *pitta* causes suppuration, vitiated by *kapha* causes itching of the wounds. Large amount of bleeding causes inflammation and ischemia hampers the wound healing. Blood is a vital factor of wound edges, which is very important in wound healing. Keeping this very important factor in view, *Sushruta* had advised to confirm the circulation of the part before uniting.

If there is poor blood flow and marked ischemia of the part then one should scrap the wound margin and improve the blood flow and thereafter proceed for suturing.

Sushruta had given great importance to achieve haemostasis while performing any surgical intervention. For the purpose, the act of tying bleeding vessels i.e. ligation was well known also various other methods like *Sandhan*^[18] (union) with suturing the wound will stop bleeding by applying pressure effect over small vessels and oozes, *Skandana* (coagulation) with *kashayaushadhi* and cold application so that the cut edge of bleeding vessel will shrink and bleeding will stop, *Dahana* (cauterization) with *Agni* and *Pachana* (chemical cautery) by means of *bhasmas* (alkalis). Acharya *Sushruta* gives the very much importance to wound closure to prevent secondary infection because open wounds are more prone to be infected. Infected wounds take more time in healing because suturing is contraindicated in the infected wound, in that particular condition we first drain the pus and debridement of unhealthy tissue and make a good environment for the healing. So with the proper correct suturing save the wound to be infected and well approximation of edges provides small scar of surgery.

CONCLUSION

After going thorough *Ayurvedic* as well as modern concepts we can conclude that our ancients had very enormous sense of not only wound management but also the deep knowledge about absorbable and non absorbable suture. Also, in present scenario we follow the basic principles and *siddhantas* of *Sushruta* for the closure of wound.

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