

AN OUTLOOK OF AN AYURVEDA AND MODERN SEEVANA KARMA - A REVIEW ARTICLE

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ABSTRACT

Suturing is the closing technique of surgical as well as the traumatic wound and also final step of every surgical procedure. Suturing technique is called *Seevana Karma* in *Ayurveda*. *Acharya Sushrutha* “Father of Surgery” has mentioned ‘*Ashta vidha Shastra karma*’ (eight different surgical practice) in *Sushrutha Samhita* they are as follows *Chedana* (Excision), *Bhedana* (Incision), *Lekhana* (Scarification), *Vyadhana* (Puncturing), *Eshana* (Probing), *Aharana* (Extraction), *Visravana* (Evacuating) and *Seevana* (Suturing). Among these *Seevana Karma* is of prime importance as proper suturing with specified suture materials leads to early healing of the wound and avoids scar formation. *Sushruta Acharya* mentions clearly the *Seevana dravya* which are required for *Seevana karma* i.e., *Seevana sutra* and *Seevana suchi*. As *Seevana karma* is *pradhana karma* its indication, contraindication and procedure are mentioned in *Samhita* which is relevant present day also. At present era many of suturing materials are developed as per the need of surgical procedures. These suture materials vary accordingly in compatibility. In our classics mentioned many suturing materials which were developed as per the need of surgical procedures at olden times. These suture materials vary accordingly in their absorption, tensile strength and viability. The suturing materials which are mentioned in our classics if developed according to need of the hour using modern techniques and utilized will be an immense contributor to our science and society.

Keywords: *Seevana karma*, Suture, *Suchi*.

INTRODUCTION

Surgery is an art and suturing is a fine art. Suturing technique in an *Ayurveda* called as *Seevana karma*. *Seevana karma* is one of the *shastra karma*. *Shastra karma* is the procedure or treatment done using sharp instruments. It comes under “*Ashtavidha shashtra karma*”. The reference of *seevana karma* in our classics can be obtain from the following chapters *Sushruta Samhita* in *Sutra sthana* 5th and 25th

chapter, *Chedana*, *Bhedana*, *Lekhana*, *Vyadhana*, *Eshana*, *Aharana*, *Visravana*, *Seevana*. *Charaka Samitha* in *chikitsa sthana* 25th chapter. *Acharya Vagbhata* in *Astanga sangraha* 38th chapter. *Bhela samhita* in *chikitsa sthana* 27th chapter, have explained *seevana karma*. Especially *Acharya Sushruta* given detailed description beginning from materials used to suture, indication and contra-

indication, site of *seevana karma*, its different types. The suturing materials used by *Acharya Sushruta* consist of both plant origin and animal origin. Suturing is the procedure of mechanical wound closure with the help of suturing material. The principle role of suture material is to hold wound edges so that healing can proceed without delay and prevention of infection of the tissue until healing is completed. Thus sutures play an important role in wound repair by providing support to healing wound.

SEEVANA KARMA

Joining of the two bifurcated tissues is called *seevana karma*. The surgical procedure which is carried out with the help of *suchi* is called *seevana karma*.

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INDICATION

Sushruta Acharya as a practical man indicated the conditions where *Seevana Karma* has to be done. These are diseases arising from *Medas*, *bhinna vrana* (incised wound), *Sadyovrana*, and wounds over the moveable joints².

CONTRAINDICATION

Acharya given equally importance to contraindication for *Seevana Karma*. Wound caused by *Kshara* (alkali), *Agni* (fire), *Visha* (poison), gangrene, *Antar lohita Shalya*³. When there is presence of *Pamshu* (sand), *Roma*, *Nakha*, bones which are present and moving inside the wound, these will cause pus formation in the wounds and give rise to many kinds of pain. So *Seevana* has to be avoided in above conditions.

SEEVANA DRAVYA

Following dravyas are required for *seevana karma*,

1. *Seevana sutra*
2. *Seevana suchi*

SEEVANA SUTRA

Suturing done with following materials *Sukshma sutra* of *Ashmantaka valkala*, *Shanaja sutra*, *Snayu*,

Bala, *Murva*, *Guduchi*⁴. Heads of giant ant are used to staple a wound over intestine while performing surgery for *Chidrodara* (Intestinal perforation). The live Ant creatures are affixed to the edges of the wound, which they clamped, shut with their pincers. Then *Vaidya* cut the insect bodies off, leaving the jaws in place⁵.

SEEVANA SUCHI

Seevana sutra binds and holds the tissue together till wound gets healed where *Suchi* is sharp instrument which pierces the tissues and aids in suturing.

Types of Suchi

There are twenty types of *shastras* are mentioned, *Suchi* is one among them. According to *Sushruta* 3 types of *suchi* mentioned, they are *Vritta*, *Ayata*, *Dhanurvakra*. According to *Vagbhata* also three types they are, *Vritta*, *Tryangula*, *Dhanurvakra*.⁶

Qualities of Suchi.

Suchi must have *tiksanaagra* means its tip should be sharp, *susamahita* body should be equal in size. Its end should be *malati pushpa vrntagra parimandala*⁷.

PROCEDURE OF SEEVANA KARMA

Seevana karma is one of the *Astavidha shastra karma* as mentioned in *Sushruta Samhita*. *Acharya Sushruta* have explained procedure of *Seevana Karma* systematically begins with *poorva karma* *pradhana karma* and *paschat karma* here also same with *Seevana vidhi*.

Poorvakarma.

If wound is contaminated with any *Pamshu* (small stones), *Roma* (hairs), *Nakha* (nails) should be removed. After *samyak vishodana* (proper cleaning) of *Vrana*, wound edges are elevated.

Pradhana Karma

After proper shodana of wound the main procedure *seevana karma* is done using *Seevana dravya* and *suchi*.

Types of *Seevana Karma*,

1) **Vellitaka:** This is achieved by suturing continuously along the length of the wound rapping the wound edges inside it.

2) **Gophanika:** The *vrana* which are shaped as foot-prints of crow or are wide, they are sutured with *gophanika* type of suturing.

3) **Tunnasevani:** It is done as like as the torn up garments are sutured. It is advisable in *vrana* over the eyelids.

4) **Rujugranthi:** In this needle is inserted in *vrana* margins and sutured, keeping some distance between two stitches.

Paschat Karma

After proper suturing on suturing site *choorna* of *priyangu, anjana, yasthi, lodhra, shallaki phala* applied and covered with *kshuma pichu* and *bandhana*⁹ (bandage) done .

SUTURES

DEFINITION

The word suture describes any material which is used to ligate blood vessels, tubular structures and ducts or to approximate tissues and close wounds.

Type I

Table 1: Comparison of Monofilament v/s Multifilament

MONOFILAMENT	MULTIFILAMENT
Suture comprising of single strand of material	Comprising of multiple strand of material
Easy to tie but are delicate and can get broken easily	Have more tensile strength, pliability and flexibility
Suitable for use in vascular surgery	Suited for Intestinal anastomosis

Type II

1. Natural
2. Synthetic

Table 2: Different types of Natural v/s synthetic suture material

Natural	Synthetic
Surgical gut (plain or chromic)	Poliglecaprone 25
Collagen (plain or chromic)	Polydioxanone
	Polyglycolic acid
	Polyglactin 910
	Polycaprolactone
	Maxon
	Caprosyn

IDEAL SUTURE

Following properties

1. It should be devoid of any allergic, carcinogenic, capillary or electrostatic action.
2. It should be easy to sterilize.
3. It should not produce any magnetic field around it, as it happens in a steel wire.
4. It should be easy to handle.
5. It should cause minimal tissue reaction.
6. It should not promote growth of bacteria around it, in other words it should be resistant to infection.
7. It should have favourable tensile strength and hold the tissue securely throughout the phase of wound healing.
8. It should absorb with minimal tissue reaction after having served its purpose.
9. It should have high tensile strength.
10. It should hold tissue securely when knotted without cutting or fraying the tissue.

CLASSIFICATION

1. Monofilament v/s Multifilament.
2. Natural v/s synthetic.
3. Absorbable v/s Non-Absorbable.

Type III

Absorbable suture

Table 3: Different types of Natural v/s synthetic absorbable suture material

Natural	Synthetic
Surgical gut (plain or chromic)	Monocryl
Collagen (plain or chromic)	Polydioxanone

Non-Absorbable

Those sutures which maintain their tensile strength more than 60 days are known as non-absorbable suture.

Table 4: Different types of Non-absorbable suture material

Natural	Synthetic
Surgical Silk	Polyamide
Surgical Linen	Polypropylene
Cotton	Polyester
Surgical steel	Nylon
	Coated polybutester suture

SURGICAL NEEDLES

They are made up of stainless steel alloy, which is resistant to corrosion and contain a minimum of 12% chromium.

Anatomy of needle

Swage: Site of attachment of the suture to the needle

Body: It is the portion grasped by the needle holder.

Point: needle point extends from tip of needle to the level of maximum cross section of the body. Types of needle point are as follows,

1. Cutting needle
2. Spatula needle
3. Taper point needle
4. Taper cut needle

Based on shape

Straight needle

¼ circle

¾ circle

½ circle

5/8 circle

J shaped

Curve needle.

Type of Suturing techniques

Following are the types of wound closure techniques:

- 1) Mattress –
 - a) Horizontal mattress suture
 - b) Vertical mattress suture
- 2) Continuous -

- a) Running Closure Baseball Stitch
- b) Running interlocking suture
- c) Running intracuticular suture
- d) Purse-string suture.

DISCUSSION

Wound healing has great importance in Surgery. Wound healing is of three types, primary intention, secondary intention and territory wound healing. Suturing comes under primary intention of wound healing. Suturing technique is called *Seevana karma*. *Seevana Karma* is one of the *ashta vidha Shastra karma*. As *Chedana karma* is the first *karma* mentioned and *Seevana* is last *karma* mentioned in *ashta viha shastra karma*. In any operative procedure incision or excision is first step and suturing is last step to close the operative site. Suturing indicated in diseases arising from *Medas* means muscular area, *Bhinna vrana* is incised wound *Sadyovrana* traumatic wound and wounds over the moveable joints as movement of joint delays wound healing so suturing enhances fast wound healing. Wound caused by *Kshara* (alkali), *Agni* (fire), *Visha* (poison), gangrene, *Antar lohita Shalya*, in these above conditions there will be extensive trauma to skin and if suturing done in these condition leads to formation of pus and secondary infection can occur. Due to loss of skin by trauma ap-

proximation of skin for suturing is impossible. In present day surgical practice also suturing is contra indicated in above condition. *Seevana dravyas* i.e., materials needed for *seevana karma* procedure are *seevana sutra* and *seevana suchi*. *Seevana sutra* mentioned in our classics can be divided into animal and plant origin. Plant origin are *Sukshma sutra* of *Ashmantaka valkala* (bark of *Bauhinia racemosa*) *Shanaja sutra* (Jute fibres), *Murva* (*Marsdenia Tenacissima*), *Guduchi* (*Tinospora cordifolia*). In present day the classically mentioned fibres are extracted from plant by retting method or by machine. These obtained monofilament fibres are made into multifilament by different process for suturing purpose. Animal origin *Snayu* (Tendons), *bala* (horse hairs), head of ants is used. Another classification of suture materials can be made based on its degradation i.e. Absorbable suture and non-absorbable suture. Plant origin is non absorbable suture material while *snayu* and ant head comes under absorbable suture. Usage of Ant head as a suturing material is explained under the treatment of *Parisravi udara* it acts as both mechanical and chemical support in healing of wound. Mechanical support by the pincers of ant head which keeps the incised wound together and serves the purpose. Some of the researchers are revalidated these *seevana dravyas* in their research works. *Seevana suchi* is another *seevana dravya* which is equally important to *seevana sutras*. *Suchi* is one of the *Shashtra* among twenty *shastras*. Based on shape of the *suchi* 3 types of *suchi* mentioned, they are *Vritta*, *Ayata*, *Dhanurvakra*. *Suchi* has 3 parts (1) Tip should be *teekshanagra* (2) Body it may be *vritta* (round), *Ayata* (rectangular), *Dhanurvakra*, (3) Eye is a small where *seevana sutra* are inserted and it should be like *malati pushpa vrintagra parimandala* (Jasmine flower stalk tip). Types of *seevana karma* are four 1) *Vellitaka*: It resembles creeper can be quickly inserted and have only two knots at the beginning and end. 2) *Gophanika*: It resembles head of cow it is blanket type of suture used on skins. Blanket or button hole stitch. It is continuous interlocking suturing. 3) *Tunnasevani*: It is done as like as the torn up garments are sutured. 4) *Rujugranthi*

CONCLUSION

Seevana karma is the suturing technique which is the final step in every surgery. Wound heals by primary intention which is closed by suturing. Occurrence of less tissue scar, if wound healed by primary intention suturing technique. The procedure, indication, contra-indication for suturing mentioned in our classics holds good at present day also. Classically mentioned *seevana dravya* not only act as a mechanical support, but also have some medicinal value in it leading to lesser tissue scar. The *seevana dravya* mentioned in our classics can be developed using modern and engineering technique and made use in regular surgical practise will be contributory to our science.

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