ABSTRACT: -

Acharya Sushruta father of ancient surgery has described Ashtvidh Shastra Karma (8 surgical procedures) in Sushruta Samhita they are as follows Chedana (Excision), Bhedna (Incision), Lekhana (Scraping), Vedhan (Puncturing), Eshan (Probing), Visravan (Evacuating), Seevan (Suturing), Aharay (Extraction). Among Ashtvidh Shastra Karma, Seevan Karma (Suturing) is primarily important. Acharyas described Seevan Dravyas which are required for Seevan Karma i.e. Seevan Sutra and Seevan Suchi. For the purpose of proper wound healing good surgical practice should be applied and for proper suturing one should practice it with ideal techniques. It gives better result for wound healing. Basics of suturing which he described years back are still followed. Ayurvedic acharyas was very well known to the methods of suturing and its importance in practice and described well in various classical literature of Ayurveda. In modern day surgical practices, we all follow the same principle without change. Surgical suture is a medical device used to hold body tissues together after an injury or surgery. Suturing is the closing technique of surgical as well as the traumatic wound and also final step of every surgical procedure. Sutures are used by your doctor to close wounds to your skin or other tissues.

KeyWord - Seevan Karma, Ashtvidh Shastra Karma, Suture, Suchi.
INTRODUCTION

In Ayurveda, Acharyas mentioned Ashtvidh Shastra Karma (8 surgical procedures). Shastra Karma is the system or treatment done utilizing sharp instrument. Seevan Karma (Suturing) is Pradhana Karma (main procedures), its indication; contraindication and procedure are mentioned in Samhitas which is relevant present day also. Seevan Karma (Suturing) is important for early wound healing and avoiding scar formation. Our Acharyas gave references about Seevan Karma (Suturing):
1. Acharya Shushurta talks about Seevan Karma in Sutra sthan, chapter- 5th “Agropharniya Adhya” and chapter-25th “Ashtvidhshastrakarniya Adhyay”.
3. Acharya Vagbhatt in Ashtang Sangrah chapter-38 “Shastrakarmavidhi Adhyay”.
4. In Bhel Samhita Chikitsa-sthan chapter -27 “Vranachikitsa Adhyay”.

Acharya Sushruta has given detailed description about Seevan Karma (Suturing) likewise its indication, contra-indication, type, site of suturing, suturing material, and suchi etc. Acharya Sushruta also told about applying these techniques in surgical practice in chapter-9 of Sutra-sthan, Yogasyutriya Adhyay. In this chapter Acharya Sushruta has advised how to rehearse Ashtvidh Shastra Karma on various objects. Acharya has told Seevan Karma (Suturing) on the piece of cloth or leather. The main work of suturing is to keep the edges of wound connected and to heal that wound quickly.

This whole procedure is performed with the help of suchi (needle) is called Seevan Karma (Suturing).

Indication
Seevan karma or suturing is done in Medojanay Rog (diseases due to excessive fat), Bhinna Varna (incision), Sadyovarna. In Wounds which are not contaminated with bacteria, wound over movable joints etc. are also treated with suturing.

Contra-Indication
Wounds which are caused by Kshar (alkaline), Agni (cauterization), Visha (poison), Antar-Lohit Shalya and Gangrene, Panshu, Rom (hair loop), Nakh (nails) are contraindications for seevan karma. If broken and movable piece of bones present in wound then it is not closed with suturing. Acharya explain about reason behind this stated that these all-causes pus in that wound and give rise of many kind of pain in that wound.

Type of Seevan-
1. Vellitaka- It means continuous suture. This is accomplished by stitching constantly along the length of the wound rapping the twisted edges inside it.
2. Gophanika- The vrana which are molded as footprints of crow or are wide, they are suturing with gophanika kind of suturing.
3. Tunnasevani- It is done as like as the destroyed pieces of clothing are suturing. It is fitting in vrana over the eyelids.
4. **Rujugranthi**- In this needle is embedded in vrana edges and sutured, keeping some distance between two join.

**Seevan Dravyas**

1. Seevan Sutra
2. Seevan Suchi

**1-Seevan Sutra** - The material used for Seevan karma (Suturing) with needle is called seevan sutra. Acharyas gave a wide variety of dravyas (drugs) which can be used as seevan sutra. The seevan Sutra are as follows: Ashmantak Twak, Shan, Kshom (Atsee) (Linum usitatissimum), Snayu, Baal, Murva (Marsdenia tenacissima Wight & ARn) and Guduchi (Tinospora cordifolia) etc. Acharya sushruta has also told Seevan Karma in abdominal perforation with a very unique and practical approach. In abdominal wound closure, he used large black ants which bite the wound edges together and the ant’s body is then twisted off leaving the head in place. This leads to closure of the perforation wound.

**1. Seevan Suchi**-
Suchi means needle. Acharyas used different type of needle for different sites of wound. Sushruta has given three types of suchi

<table>
<thead>
<tr>
<th>Table 1 Showing three types of such by Sushruta</th>
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</thead>
<tbody>
<tr>
<td>Shape</td>
</tr>
<tr>
<td>Vrit Suchi</td>
</tr>
<tr>
<td>Ayat/Tridhara Suchi</td>
</tr>
<tr>
<td>Dhanuvakra Suchi</td>
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</tbody>
</table>

**AcharyaVagbhatt has also given three types of Suchi**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Measurement</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vrit Suchi</td>
<td>2 Angual Praman</td>
<td>Alp Mans And Sandhi Sithit</td>
</tr>
<tr>
<td>Tridhara Suchi</td>
<td>3 Angual Praman</td>
<td>Mansal Pradesh</td>
</tr>
<tr>
<td>Dhanuvakra Suchi(Brihimukh)</td>
<td>2.5 Angual Pramaan</td>
<td>Pkwashay, Amashay Marm</td>
</tr>
</tbody>
</table>

**Quality of Suchi**

While explaining about detail of suchi (needle), acharyas also mentioned about quality of suchi. Acharyas mentioned that the tip of suchi should be Tikshna (sharp) and body must be round like Malati Pushp Vranta. Sharp needle is easy to insert in the area and also causes less pain.

**Principal of Seevan Karma**

Acharya mentioned to not to do not do Seevan Karma (Suturing) too far or too close. Performing far reaching Seevna Karma (Suturing) can cause pain in the margin of the wound and by doing more close suturing the margin of wound get cut.
2. **Pradhan Karma (Main operative procedures)** - After samyak shodhan of wound the main procedure of *Seevan Karma* is done with *Suchi* and *Seevan Dravyas*. In this step the *vrana* is evenly stitched according to its need.

3. **Paschat Karma (Post operative procedures)** - Apply medicated *Khosom Pichu* after *Seevan Karma*. Then dusting of fine powder of *Priyangu* (*Calicarpa macrophylla Vahl*), *Anjan*, *Yashtimadhu* (*Glycyrrhiza glabra Linn*), *Lodhra* (*Symplocos racemosa Roxb.*), *Shallaki Phal* (*Boswellia serrata*) on the wound and then bandaging of the wound. After proper suturing, the wound is then applied with drugs which prevent the wound from contamination and also accelerates healing of wound.

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**Modern view of seevan karma-Sutures**

The act or method of joining together the two edges of a wound or incision by stitching or similar means any material as gut, thread, wire, etc., so used is called suturing. A single loop or knot of such material made in suturing. Surgical suture is a medical device used to hold body tissues together after an injury or surgery. Suturing is the closing technique of surgical as well as the traumatic wound and also final step of every surgical procedure. Suture materials is an artificial fibers used to keep wound together until they hold themselves by natural which is synthesized & oven into a stronger scar.

**Classification of Suture Materials**

There are two type of suture material according to source and structure. According to source they are further divide into three type

1. Natural
2. Synthetic
3. Metallic

According to the structure

1. Multifilament
2. Monofilament

<table>
<thead>
<tr>
<th>Absorbable</th>
<th>Non-Absorbable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catgut</td>
<td>Silk</td>
</tr>
<tr>
<td>Chromic catgut</td>
<td>Linen</td>
</tr>
<tr>
<td>Collagen</td>
<td>Cotton</td>
</tr>
<tr>
<td>Beef tendon</td>
<td>Ramie</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Absorbable</th>
<th>Non-absorbable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poly glycolic acid</td>
<td>Nylone(polyamide)</td>
</tr>
<tr>
<td>Poly glactic acid</td>
<td>Polypropylene</td>
</tr>
<tr>
<td>Vicryl</td>
<td>Polyester</td>
</tr>
<tr>
<td>Polydioxnone</td>
<td>Polyethylene</td>
</tr>
</tbody>
</table>
3. Metallic

| SS (stainless steel) | Tantalum | Silver | Gold | Aluminum |

According to the structure

1. Multifilament

<table>
<thead>
<tr>
<th>Absorbable</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Vicryl</td>
<td>Silk</td>
</tr>
<tr>
<td>Poly-glycolic acid</td>
<td>Cotton</td>
</tr>
<tr>
<td></td>
<td>Linen</td>
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</tbody>
</table>

2. Monofilament

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Vicryl</td>
<td>Polypropylene</td>
</tr>
<tr>
<td>Catgut</td>
<td>Polyester</td>
</tr>
<tr>
<td>Chromic catgut</td>
<td>Nylone</td>
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</tbody>
</table>

Difference between suture materials

<table>
<thead>
<tr>
<th>Monofilament</th>
<th>Multifilament</th>
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</thead>
<tbody>
<tr>
<td>Has no capillary action</td>
<td>Has capillary reaction</td>
</tr>
<tr>
<td>Less infection risk</td>
<td>More prone to infection</td>
</tr>
<tr>
<td>Smooth tissue passage</td>
<td>Less smooth passage</td>
</tr>
<tr>
<td>Higher tensile strength</td>
<td>Less tensile strength</td>
</tr>
<tr>
<td></td>
<td>Better knot security</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Absorbable</th>
<th>Non-Absorbable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degraded by enzymes, hydrolysis or phagocytosis</td>
<td>Encapsulated or walled by fibrosis</td>
</tr>
<tr>
<td>Used to hold the wound edges in approximation temporarily until the is heal</td>
<td>Used to suture at site when tensile strength need to be maintained.</td>
</tr>
</tbody>
</table>
Quality of Suture

a) It should have uniform diameter.
b) It should provide knots which hold security without slip or cutting/ Good tensile strength.
c) Easy to handle
d) Tissue biocompatibility/minimum tissue reaction
e) Easy to sterile
f) Low capillarity
g) Non-allergic, non-electrolytic, non-carcinogenic
h) Cost effective
i) It should be readily visualized, should not shrink & should not be extruded from the wound.
j) On break down, it should not release toxic agents.
k) It should disappear without excessive reaction once its task is completed.
l) Selection of suture material

m) Healing characteristics of the tissues which are to be approximated

n) The physical and biological properties of the suture materials

p) The condition of the wound to be closed

q) The probable post-operative course of the patient

Suture Needle

Eyed or reusable needles with holes (called eyes), which are supplied separate from their suture thread, are often used for suture. The suture must be threaded on site, as is done when sewing in a recreational setting. Surgical needles are designed to steer suture material through tissue with minimal injury. There are several shapes of surgical needles. These include:

- Straight
- 1/4 circle
- 3/8 circle
- 1/2 circle. Subtypes of this needle shape include, from larger to smaller size, CT, CT-1, CT-2 and CT-313.
- 5/8 circle
- compound curve
- half curved (also known as ski)
- half curved at both ends of a straight segment (also known as canoe)

Needles can be -
- Straight (GIT) or Curved
- Swaged or Eyed
- Made up of either SS or Carbon Steel.

Needle is selected according to
- Type of tissue to be sutured
- Tissue’s accessibility
- Diameter of suture material.
- Made up of either SS or carbon steel

Classification of Surgical Needles

1. According to eye
   a) Eye less needles
b) Needles with eye

2. According to shape
   a) straight needles
   b) curved needles

3. According to cutting edge
   a) round body
   b) cutting
   c) conventional
   d) reverse cutting

4. According to its tip
   a) triangular tip
   b) round tip
   c) blunt tip

5. Others
   a) spatula needles
   b) micro point needles
   c) cuticular needles
   d) plastic needles

Ideal Properties of Needles
   a) High quality stainless steel
   b) Smallest diameter possible
   c) Capable of implanting sutures with minimal trauma to tissues
   d) Stable in the needle holder
   e) Should be sharp
   f) Sterile and corrosion resistant.

DISCUSSION

Wound healing is an important topic for both contemporary and Ayurveda science. Proper wound healing depends upon various factor and one of the most important factors is seevan or suturing. There is detailed description present in Ayurveda for seevan karma. Among major eight procedures of wound healing, seevan karma (Suturing) is primarily important. Division of seevan karma in poorva, pradhan and paschat karma declares the wide thinking of ancient acharyas. Shodhan of wound and removal of foreign material from wound is important to prevent puss formation in wound (poorva karma). Knowledge of different types of seevan sutra and different size and shape of needle is also important to do proper seevan karma according to the site of wound (pradhan karma) and application of medications after the suturing is important to early healing and pain relieving (paschat karma). All these knowledge is valid till now and nearly same description is present in modern medicine with some advancements.

CONCLUSION

Ideal suturing technique gives better result for wound healing. Very detailed description is present in both the systems with common target of proper wound healing. Ancient acharyas described the procedure and steps so accurate which are practical till now but modern advancements are also important to achieve the goal.

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Conflict of Interest: Nil

REFERENCE


