

THE SPECIFIC ROLE AND RECENT ADVANCEMENT IN YANTRA/SHAstra: AN  
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## ABSTRACT

Ayurveda science works on the basis of theories described by ancient Acharyas and these theories helps to understand various aspects of health and disease management. The Ayurveda categorizes eight branches for different purposes and among them some branches deals with various equipments/instruments (Yantra and Shastra) for therapeutic purposes. These Yantra and Shastra mainly used for surgical and parasurgical procedures. The Ayurveda procedures like; Chhedana, Bhedana, Lekhana, Eshana, Aharana, Visravana and Seevana, etc. requires utilization of different types of equipments or instruments. Rajju, Venneka, Patta, Charma, Antarvalka, Latha, Vastra, Asthilashm, Pani-Pada, Dhanth, Harsha and Shthiwan, etc. are major equipments used in Ayurveda surgery. The advancement also observed in this field and many new aspects have been incorporated including utilization of modified instruments, modernization of sterilization techniques, maintenance of aseptic condition, post-operative management and cosmetic surgery, etc.

**KEYWORDS:** Ayurveda, Yantra, Shastra, Equipments, Instruments.

## INTRODUCTION

*Shalyatantra* is Ayurveda branch of surgical practice which utilizes different surgical and para-surgical interventions for treating disorders of deep tissues, wounds, cuts, hemorrhoid, *Arsha* and other surgical conditions including injury and trauma, etc. *Shalyatantra* utilizes medicines along with specific *Yantra* and *Shastra* for curing various diseases.

*Shalyatantra* mainly used to treat conditions like; *Bhagandar*, *Mudhgarbha*, *Arsha*, *Ashmari*, *Granthi* and *Arbuda*, etc. *Shalya Karma* performed in three stages including *Purvakarma*, *Pradhana Karma* and *Paschat Karma*.<sup>[1-4]</sup>

- ✓ *Purva karma* means preoperative preparation
- ✓ *Pradhana Karma* is considered as main operative procedures
- ✓ *Paschat Karma* described as post-operative measures.

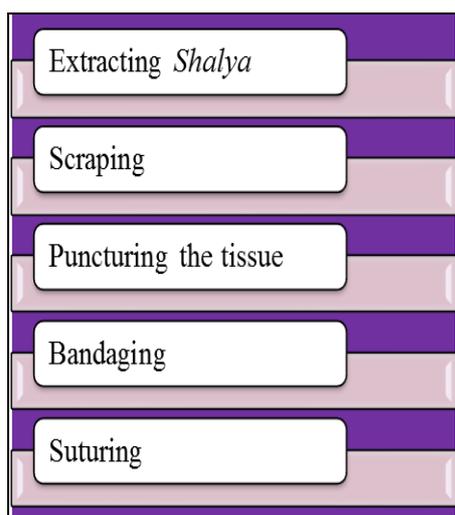
The sterilization of *Shalaka*, cotton, *Sutra* and horns, etc. is performed in *Purvakarma*, this stage involve arrangement of equipments and instruments requiring for surgical procedure. *Pradhana Karma* utilizes all main equipments of surgery including *Venneka*, *Rajju*, *Patta*, *Antarvalka*, *Latha*, *Asthilashm*, *Charma*, *Dhanth* and *Harsha*, etc. This stage includes various surgical

procedures like *Chhedana*, *Lekhana*, *Esana*, *Aharana*, *Visravana* and *Seevana*, etc. The *Paschat Karma* involves post-operative care of patients including management of pain, prevention of infection and *Seevana* for suturing purpose, etc. along with dietary advises.<sup>[4-7]</sup>

## Equipments/Instruments

This branch of Ayurveda utilizes different instruments/equipments or materials for surgical purpose. These *Shastra* mainly crafted from stone, wood, leaves, metals and branches of trees, etc. Also The *Shastra* made from skin, teeth and horn, etc. of animals and birds also used in Ayurveda surgery.

The instruments used in Ayurveda surgery given name on the basis of their shape, size, appearance, application or origin, etc. Such as *Simhamukha* instruments look like lion forceps while *Shalya* instruments look like *Sharari* bird termed as *Shararimukha*. The some equipment are very common used in Ayurveda as well as modern surgery e.g. dissection forceps, dressing forceps, scissors and spring forceps.<sup>[6-8]</sup> These instruments used for various purposes as depicted in Figure 1.



**Figure 1: The major applications of instruments or equipments used in Ayurveda surgery.**

### Description of Yantra

#### Yantra are broadly classified into 6 types

1. *Swastika yantra*- [Cruciform instruments] - 24
2. *Sandamsha yantra* - [Dissecting forceps]- 2
3. *Tala yantra* - [Scoops]- 2
4. *Nadi yantra* - [Tubular instruments]- 20
5. *Shalaka yantras* - [Probe like instrument] - 28
6. *Upayantra*- [Accessory instruments] - 25

**Swastika Yantra:** These are 24 in number. They are named so because of their resemblance to *swastika* mark (cruciform); being joined by *Masura* (cereal) shaped nail at edges. These are 18 *Angula* long and bear resemblance like the face of various animals like *Sinhmukha* (lion), *Vrrikmukha* (wolf), *Vyaghramukha* (tiger), *Rikshamukha* (bear) etc. and birds like *Kankamukha* (heron), *Kaakmukha* (crow), *Bhasmukha* (eagle) etc. At their base (*Moola* part) they are bent like circular ring to facilitate grasping. These are used to remove *Asthigatashalya* (foreign bodies from bone).[9]

As per modern era artery forcep, allis forcep, Sponge Holding forcep, cheate's forcep, kocher's forcep, babcock's forcep, needle holder etc used in surgical procedure. they all are the advancement of swastika yantra which was describe by sushruta.

**Samdansha Yantra:** *Samdansha* means to catch or hold. These are of two types:

- *Sanigraha* (With Catch)
- *Anigraha* (Without Catch)

These are 16 *Angula* long. These are used to extract *Shalya* from *Twak*, *Mamsa*, *Sira*, *Snayu*.<sup>[10]</sup> Acharya *Vagbhata* has described them as: *Sanibandhana* (with catch) *Niribandhana* (without catch) One type of *Samdanshyantra* is six *Angula* long and half *Angula* wide. It is used to catch *Akshipaksham*, *Vrana* and *Adhimamsa*.<sup>[11]</sup>

The *sandamsha yantras* can be correlated to the Dissecting forceps used in modern surgery.

1. Plain non-toothed dissecting forceps- it is used to hold delicate structures like peritoneum, bowels, vessel, nerves, tendons.
2. Toothed dissecting forceps- it is used to hold skin and tough structures. this is the forceps which is always used while suturing the skin.

**'Tala yantra** – They are 12 *angula* in length. Shaped like the *talua* of a fish

#### Two types

1 *Ekatala* 2 *Dwitala*

Instruments with one *tala* resemble one lip of the fish, and those with two *talas* represent its entire face. It is Used of extracting foreign bodies from the ear, nose and sinuses in the body.

The *tala yantras* can be correlated to the Scoops used in modern surgical procedures.

1. Ear scoop - To clean the ear canal of ear wax
2. Volkmann's scoop - To scoop cavities, ulcer bed, granulation tissues. Different sized scoops are present on either side.

**Nadee yantras** - they are hollow tubular instruments. The *Nadi Yantras* are described to be of various kinds and to serve many purposes. They are open either at one or both ends. Used for the extraction of foreign substances from different *srotases* of the body. Used as a diagnostic apparatus for inspection of diseases in the canals.

#### Modern Corelation

**Bhagandara yantra** - In order to find out the internal opening of a fistula.

**Arsho yantras** (Proctoscope)- *Dwichidra* used for Used to visualise the rectum and the anal canal and *Eka chidra* is used for procedure like *kshar patan* in *arsha*

**Uttara basti yantra** (vaginal douche) - To administer *uttara basti dravya*.

**Vrana yantra** (syringer irrigator) – it is used for *Vrana prakshalana*

**Dakodara yantra** (Trocar & cannula) - it is used for *Visraavana*

**Mutra vridhi yantra** (Trocar & cannula) - it is used for *Visraavana*

**Dhoomayantra** (Inhalers) - *Dhooma pana*

**Nirudhaprakasha yantra** (Urethral Dilator) - Dialatation

**Sannirudha guda yantra** (Anal dilator) - Dialatation

**Alabu yantra** (Cupping glasses) - *Rakta mokshan*

**Shringa Yantra** (horn) - *Rakta mokshana*

#### Shalaka Yantras

**Gandupadmukhi shalaka** (Blunt probe) - It is used for *eshana karma*

**Sharapunkha Mukha** (Tooth elevator) - It is used for *chalana karma*

**Sarpaphana Mukha** (Retractors) - It is used for *vyyuhana karma* (hold aside tissues to explore deeper structures)

**Badisha Mukha** (Hook like instrument) - Used for *Arma nirharana*. Also used to remove the *shalya* by hooking them and to take them out by force.

**Masooradalamatra mukha** - They are used for extracting *shalyas* from the *srothases*.

**Karpasa krutha ushneesha** (Swab probes) - They are used for wiping.

**Khalla Mukha** (Spoon shaped instruments) - Used for the application of *kshara oushadhis jambava vadana & Ankusha vadaana* (Diathermy or electrocautery)- used for *Agnikarma*.

Method to control bleeding or to cut the tissues during surgery

**Kolastimatra mukha** (Nasal curette) - Used for the extraction of *nasa arbuda*

**Anjana Shalaka** – used for *anjan karma* in various types of eye diseases.

**Mutramarg vishodhanarth** (urethral sound or Bougie) – used for cleaning the urethra

**SHASHTRA**- they are 20 in number

**Mandalagra shashtra** (Circular knife) - used for *chhedan* and *lekhan* (Incision and debridment)

**Kara patra** (Bone Saw) – used for *asthi Chhedan* (To Cutting the Bone)

**Vrudhhi patra** (Scalpel) – used for *Chhedan* and *Bhedan Nakha Shashtra* (Nail Parer) - used for *Chhedan* and *Bhedan*

**Mudrika** (Finger Knife) - used for *Chhedan* and *Bhedan* in *kanthgat roga*

**Utpala patra** (lancet) - used for *Chhedan* and *Bhedan*

**Suchi** (Needle) – used for blood letting & suturing

**Kush patra** (Pagets Knife) –used for puncturing for Blood letting

**Aatimukh** - used for puncturing for Blood letting

**Shararimukh** (Scissors) – used for Extension of Wound

**Trikoorchak** – Used For blood letting

**Kutharika** (Chisel) – used for puncturing

**Vrihimukha** (Trocar and canula) – Used to drain Fluid in Hydrocele and Ascites

**Ara** – used for ear puncturing

**Vetas patra** (Tenotomy Knife) – Used For Puncturing

**Badisha** (sharp Hook) – Used For extraction

**Danta shanku** (Tooth Scaler) - Use: useful in several dental disorders, used to scrape out the debris from the surfaces, corners and cervices of the teeth

**Eshani** (Probe) - used to find out the direction of fistula track and sinus.

#### Recent Advancement

1. Recently novel training modules have been developing to incorporate new techniques of surgery.
2. Minimum invasive technique has been developed.
3. Disposable sutures used currently which not requires post surgical management.

4. Sterilization techniques for maintaining hygienic conditions including UV sterilization and steam sterilization of equipments.
5. Avoidance of contamination by using aseptic condition with the help of filters and sterilization.
6. Modification in *Shalyagar* for patient and physician comfort.
7. Modification in diagnostic instruments and utilization of *Nadiyantra*.
8. Advancement in *Agnikarma* and *Jalaukavcharan*, etc. techniques.
9. Novel system of drug delivery improves drugs bioavailability thus offers faster advantages in emergency condition of surgical management.
10. Application of cosmetic surgery in Ayurveda practice.
11. Advancement in *Nasa-Sandhana* using modern technique of rhinoplasty.
12. Advancement in reconstructive surgery e.g. *Karna-Sandhana* which is reconstructive surgeries of ear.
13. Ayurveda described technique to repair ear using flap of cheek.
14. *Ostha Sandhana* are modern Ayurveda surgery to repair lip.
15. Surgical techniques like *Langalaka* and *Ardhalangalaka* used to remove fistulous tract.
16. Perineal lithotomy used to remove stones.
17. Ayurveda recently utilizes radiation for sterilization purpose.
18. Fumes of *Neem*, *Asafoetida*, *Shalmali* and *Pepper*, etc. are used to disinfect sick room.
19. The modern surgery advocated surgeon to cut short their nails and hair to avoid any contamination and injury during surgical interventions.<sup>[7-10]</sup>

#### CONCLUSION

*Shalya Chikitsa* is Ayurveda practice used mainly for *Arsha*, *Bhagandara*, *Charmakeela*, *Kshara* and *Kadara*, etc. Ayurveda suggested uses of different types of *Yantra* and *Upayantra* in *Shalya Chikitsa* for surgical interventions. These *Yantra* and *Upayantra* perform functions of *Lekhya*, *Vedhya*, *Chedya*, *Vsraya*, *Sivya* and *Ahrya* in Ayurveda surgery. *Rajju*, *Venneka*, *Patta*, *Charma*, *Antarvalka*, *Latha*, *Vastra*, *Asthilashm*, *Pani-Pada*, *Dhanth*, *Harsha* and *Shthiwan*, etc. are major equipments used in Ayurveda surgery. The advancement in Ayurveda surgery includes modernization in sterilization techniques, maintenance of aseptic condition, cosmetic surgery, advancement in rhinoplasty and reconstructive surgery, etc.

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