

COMPREHENSIVE STUDY OF SURGICAL INSTRUMENTS UTILIZED IN STRI ROGA AND PRASUTI TANTRA

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ABSTRACT

The health care system of ancient India has specific and broadly developed branches for different aspects of human health prospective both on curative as well as preventive or static measures of body physiology. One such specific division called as *Stree Roga* and *Prasuti Tantra* consisted under the *Astanga* of *Kaumarabhrutya* of the Ayurveda and deals with the health prospective of female specially their *intero-genital* and reproductive aspects. Under its management and curative protocols there are several surgical instruments should also be mentioned and stated in different literatures or text of Ayurveda, which need to be described in detailed in an analytical view. In our ancient literatures, various surgical instruments, *Yantra*, *Shastra* and procedures are described in detail, also their detailed description against in different branches of Ayurveda for their clinical significance is broadly available in the classics of medical and operational procedures. Among them our hands *Hasta* is considered to be the *Pradhanatama yantra* because of the degree of utilities of those surgical instruments are simplified due to the human hands. At present the available surgical instruments such as forceps, dilators, speculums, needles, lancets, etc. are similar to that of the described in ancient text of Ayurveda and not exceeded to 101 *Yantras* and 20 *Shastras*, there may be a modification. *Sandamsha Yantra*, *Naadi Yantra*, *Shalaka Yantra*, *Mandalagra Shastra*, *Vetasapatra Shastra*, *Suchi*, *Shararimukha Shastra* etc are some examples. Among them blunt and sharp instruments are described in detail to perform various procedures in *Stree Roga* and *Prasuti Tantra*.

KEYWORDS: *Yantra*, *Shastra*, *Stree Roga*, *Prasuti Tantra*.

INTRODUCTION

In the ancient Indian medical literatures or so called Ayurveda, various surgical instruments and procedures are described in detail. There can be little doubt that the old Greek and Roman surgical instruments preserved in the museum of Naples are replicas of Hindu instruments found more than two thousand years old accurately described in Hindu surgical books.^[1] Acharya *Kaviraj Gananath Sen* has been shown that most modern surgical instruments are only minor modifications of the instruments used daily by ancient Hindu physicians; such as modern 'Lion forceps' (*Sinhamukha Yantra*) and vaginal speculum, as described by the Acharya *Vagbhatta*.

Ayurveda has highly developed branch of *Stree Roga* and *Prasuti Tantra* under the *Astanga* of *Kaumarabhrutya*. We are discussing the *Yantras* (Blunt instruments) and *Shastras* (Sharp instruments) mentioned in *Stree Roga* and *Prasuti Tantra* and their counterparts in modern Obstetrics and *Gynecology* in this review article. Among all the *Yantras*, *Hasta* is considered the *Pradhantamayatra*^[2] because, in many ways, surgical tools are simply human hand extension. *Ayurvedic* classics have described the use of *Hasta* to correct specifically that of *Sthanapavrit* (displaced) *yoni* in different *gynecological* conditions. *Nisrit* *yoni* should be inserted by gently pressing with the hand. *Jihma* (tortuous or bent) *Yoni* should be straightened by hand bending it down or up. With the help of the fingers, *Samvrita* *yoni* should be dilated.^[3] In addition, the

procedure for extracting *Mudhagarbha* (Difficult/ Obstructed Labor & Malpresentation of Fetus during Labor) with Hasta (hand) was described in detail in *Samhitas* in relation to *Prasuti Tantra* (Obstetrics).^[4] In order to extract *Mudhagarbha*, different acts such as *Utkarshan*, *Apakarshan*, *Sthanapavartan*, *Udvartan*, *Utakartan*, *Bhedan* etc. are to be performed with only one hand taking care not to injure the mother and fetus.^[5] *Bhavaprakasha* elaborating the qualifications of the woman handling *Mudhagarbha*, says she should have experience in conducting several challenging labours, commanding knowledge of instruments and books. She should also be wise, bold, and able to work with a light/ smooth hand.^[6] In describing the manual removal procedure for retained placenta, *Acharyas* also stated that lubricated hands with trimmed nails should be inserted after the umbilical cord and placenta should be delivered.^[7]

DISCUSSION

Foreign bodies that cause *Manah* and *Sharir* pain are called *Shalya* and they are called *Yantras*, the methods to remove them. *Yantras* can also be countless based on countless *Shalyas*. But *Acharyas* classified *Yantras* into 101 types to have bird's eye view. Although *Yantras* are indicated for specific function, *Vaidya* can use them according to his purpose, applying his *Yukti*, and can also invent and create new instruments. *Yantras* can be described in texts as blunt instruments. *Yantras* are of 6 main types based on the *Aakriti* or shape: *Swastika*, *Samdansha*, *Taala*, *Naadi*, *Shalaka*, *Upayantra*. In this article, 5 main types of *Yantras* are discussed.^[8,9,10]

Description of Yantras used in *StreeRoga* and *PrasutiTantra*

Swastika Yantra

These are 24 in number. They are named so because of their resemblance to *Swastikamark* (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), *Vrikshmukha* (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).^[11] Their use as such hasn't been described in *Striroga* and *Prasutitantra*.

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*.^[12] *AcharyaVagbhata* has described them as:

- *Sanibandhana* (with catch)

- *Nirnibandhana* (without catch)

One type of *Samdansha yantra* is six *Angula* long and half *Angula* wide. It is used to catch *Akshipaksham*, *Vrana* and *Adhimamsa*.^[13]

Ovum forceps (used to extract retained products of conception) can be considered *Sandamshayantra* as it has no catch. They are also used to hold cotton swab or gauze to clean the wounds.

Taalyantra

They are named so because of their resemblance to palate of fish (scoop like). These are 12 *Angula* long. They are of two types:

- *Ektaal* (having scoop at one end)
- *Dwitaal* (having scoop at both the ends)

They are used to remove *Shalya* from ear canal, *nasalcavity*, *Naadi*.^[14]

Though their use hasn't been described as such in *StriRoga* & *Prasuti Tantra* at that time but in the present era, Uterine Curette and Endometrial Biopsy Curette can be taken under this category which are used for scraping of endometrium and endometrial sampling respectively.

Naadiyantra

Naadiyantra are of 20 types. These are hollow from inside. Briefly they are used for following purposes^[15]:

- To remove the *Shalya*/foreign bodies from *Srotas*
- To visualize disease

Yonivranaekshana Yantra: It is a type of *Naadiyantra*. It is 16 *Angula* long, hollow in centre, has four walls, surrounded with a ring from outside and resembles an *unblossomed* lotus flower. The base of all four walls is attached with small rods, the pressure on which opens or widens the mouth of instrument. It is used to visualize *Yoni vrana* (ulcers of vagina, cervix).^[16] Various speculums used nowadays, to visualize cervix and vagina like *Cuscos* speculum, *Sims* speculum and *Hysteroscope* can be taken under this category.

- In treatment procedure of *Stanavidradhi* (breast abscess)

Acharyas have said that repeated milking (suction) should be done in all the stages i.e. in *Aamavastha* (inflammation), *Vidahavastha* (beginning of suppuration) and *Pakvaavastha* (suppurative stage) to prevent suppuration and formation of sinus. Breast pumps used nowadays are a type of *Naadiyantra* used for suction of milk (*Aachushanarth*). Other examples are - for Medical Termination of pregnancy - *Karman's Cannula*, *Menstruation Regulation Syringe* is used. *Ventouse* suction device, *Mucous suckerare* used during delivery.^[17]

- *Dahana* karma (cauterization) and *Kshar* karma *Hetu* in *Garbhashayagrivamukha-gatavrana* (cervical erosion).

Naadi Vrana Prakshalana / Abhyanga Yantra

For *Abhyanga* (uncting) of *Yonisthitanaadivrana* and *Prakshalana* (washing) of *Naadivrana*, two instruments should be made. These are 6 *Angula* long just like *Bastiyantara* and are made up of two parts i.e., bag and nozzle. It can be compared with wound syringe. Now a days Douche bag and nozzle is used.

Shalaka Yantra

These are not hollow from inside. These are 28 in number. Among these, *Yantras* that are used in *Stree Roga* and *Prasuti Tantra* are:

1. **Gandupadmukhi Shalaka:** The upper end of this *Shalaka* is slightly curved e.g. Uterine Sound / Sim's Uterine Probe with centimetre graduations (for examining uterus), Bladder Sound, *Hegar's* Dilators (used for dilatation of the cervix in various procedures e.g. D&C, D&E, *Fothergill's* operation, Hysteroscopy, Cervical stenosis), Sim's Anterior Vaginal Wall Retractor, *Bougies*.
2. **Sarpaphanamukhi Shalaka:** It's shape is like *serpant's* hood. It is used to retract the incised part e.g. Landon's Bladder Retractor; during *Cesarean* section, Doyen's Retractor is used.
3. **Badishmukhi Shalaka:** Acharya *Sushruta* has included *Badisha* under *Shalakayantra* and *Shastra* both. These are 2 in number and are a type *Shalakayantra*. Their length, circumference should be according to the need and are used for extraction of *Mudhagarbha*.
4. **Karpasakritoshniya Shalaka:** It is of 6 types, cotton is applied on its upper end e.g. Sterile Cotton Swab, Peanut swab used for taking vaginal smear for culture. It is also used for cleaning of wounds and applying *Kshar*.
5. **Jambavavadana Shalaka:** Upper part is oblong like seed of *Jambu*. It is of three types – *Sthula*, *Anu* and *Dirgha*. In *Streeroga*, its use has been described in *Dahana* karma (cauterization) in *Sannipataj-upadansha*. Decayed portion of vulva in *Upadansha* should be excised and remaining portion cauterized with *Jambuushthashalaka*. Above description clearly depicts thermal cautery procedure done nowadays for various gynaecological diseases.
6. **Mutramarga Vishodhini Shalaka:** It is long and broad like *Pushpavrinta*. It is used for *Vishodhana* of *Mutramarga* or dilatation of urethral passage or in urethral stricture e.g. urethral sound or *Bougie*.
7. **Garbha Shanku Shalaka:** Both *Vagbhata*s have included *Garbhashanku* under *Shalakayantra*. It is eight *Angula* long, curved like a hook and is used for extraction of *Mudhagarbha* (obstructed dead *fetus*).

However, in a commentary on *Ashtanga Samgraha* by *Indu*, its length is described as 18 *Angula*. *Acharyas* have

described that after perforating the head with *Anguli* or *Mandalagra shastra* and subsequently extracting the flat bones of skull, the surgeon should grasp the chest, axilla, chin, palate with *Shanku* and extract the dead *fetus*. Above description is indicative of decapitating procedure done to extract obstructed *deadfetus* in modern science e.g. *Jardine's* Decapitation Hook & knife, *Ramsbotham's* Decapitation Hook & Saw.

Angulitranakyantra

As described in *Samhitas*, it was used to guard fingers while doing *Shalya* karma e.g. Finger guard or Surgical rubber/ latex gloves used nowadays. Acharya *Vagbhata* has described its shape as '*Gostanakriti*'.

Badishamukhi Yantra: It is also described under *Shastra* for extraction and its upper end is curved. It is indicated for *Aaharana* of *Mudhagarbha*. Various types of hooked instruments can be taken in this category. For example: Blunt Hook – a destructive instrument used to pull the *fetal* neck or *fetal* extremities. Extraction of foreign body (IUCD) from uterine cavity by using hooked forceps i.e. IUCD removing hook.

Acharya *Sushruta* lists 101 varieties of blunt instruments and 20 different types of sharp instruments that should have such a fine edge that they divide the skin's hair. Scalpels, lancets, saws, scissors, needles, hooks, probes, directors, sounds, forceps, trocars, catheters, syringes, candles, rectal & vaginal specula are the main instruments made of iron. Most modern surgical tools are only minor modifications of those used by the ancient Hindu surgeons'. Iron instruments; some as shears, razors, and lancets are to be cut; and some, like tongs and pincers, to draw out various things; and some as spatulas and searchers to know the depth of sores; and some as needles and pipes to sew.

CONCLUSION

The health care system of ancient India has specific and broadly developed branches for different aspects of human health prospective both on curative as well as preventive or static measures of body physiology. One such specific division called as *Stree Roga* and *Prasuti Tantra* consisted under the *Astanga* of *Kaumarabhrutya* of the *Ayurveda* and deals with the health prospective of female specially their *intero-genital* and reproductive aspects. Under its management and curative protocols there are several surgical instruments should also be mentioned and stated in different literatures or text of *Ayurveda*, which need to be described in detailed in an analytical view. In our ancient literatures, various surgical instruments, *Yantra*, *Shastra* and procedures are described in detail, also their detailed description against in different branches of *Ayurveda* for their clinical significance is broadly available in the classics of medical and operational procedures. Based on the description given in ancient *Ayurvedic* classics in the context of the surgical instruments, it can be concluded that in *Shalya Chikitsa* as well as in *Stri Roga* and

Prasuti Tantra, nearly every instrument used in the present era either for medical examination or medical/operative procedure was used over ages.

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