



Review Article

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DIAGNOSTIC APPROACH AND RECENT ADVANCES OF NADI YANTRA IN SURGICAL PRACTICES: A REVIEW

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ABSTRACT

Yantras are an essential component of all major and minor surgical procedures. Yantras are blunt surgical instruments that are used to remove foreign objects that have become trapped in various bodily parts. These days, it is also utilized for illness and diagnosis. This page sheds information on the traditional yantras used in the past. Recent developments in nadi yantra have made it possible to resolve issues for both therapeutic and diagnostic purposes. The majority of the instruments described in our ancient texts are no longer in use, so it was necessary to solve the issue and discover conveniently accessible new and improved approaches for diagnostic purposes. Through this article, the nadi yantra and more modern instruments can be compared to gain better understanding.

Keywords: Nadi yantra, Surgical instruments, Therapeutic and Diagnostic procedure.

INTRODUCTION

Ayurveda employs a variety of techniques, including Nadi, Mutra, Mala, Jihwa, Shabda, Sparsha, Drika, and Akriti, to diagnose patients' illnesses. By virtue of Darshana, Sparshana, and Prashana diagnosis can be made. But one needs to employ Yantra, which come in a variety of materials and shapes depending on what is needed, to examine pathology internally and provide medication externally.

Yantra: Instruments that help remove various foreign bodies that are painful in various regions of the body, for examining haemorrhoids and rectal fistulas, etc. For application of Kshara and Agnikarma. Because Yantras (instruments) come in a variety of forms and have a variety of uses, they must be made with intelligence.

Nadi Yantra

Nadi Yantra are hollow tubular instruments with one or more openings helpful for examining bodily parts, identifying foreign objects and diseases that are localised in the channels of the tissues, and for sucking out material to facilitate therapies. The Nadi Yantra has several apertures of various sizes, lengths, thicknesses, etc. ¹

It is used to remove foreign materials from various parts of the body. It is used as a diagnostic tool to check for disease in the canals and to remove foreign particles from various parts of the body.

Indications of Nadi Yantra

- Removal of foreign objects obstructed by deep bodily pathways.
- For examination or to identify ailments such as internal haemorrhoids.
- For aspiration i.e. dushta rakta
- Working with sharp instruments, caustics, sclerotherapy, or Kshar lepa in internal piles, among other treatments, is made simpler by Nadi yantra. ¹

Size of Nadi Yantra: Circumference is the measurement of the length and orifice as size of the channels, which makes it easy to utilize. ¹

Types of Nadi Yantra

Bhagandar Yantra – 2	Dakodar Yantra
Dhoom Yantra - 3	Nirudhprakash Yantra
Sannirudhguda Yantra	Alabu Yantra
Shringa Yantra	Arsho Yantra - 2
Vrana Yantra	Basti Yantra - 4
Uttar Basti Yantra- 2	Mutravidhi Yantra ¹

Acharya Vagbhata has mentioned 6 more types of Nadi Yantras:²

- Kanth Shalya Avlokini Nadi
- Shalya Nirghatini Nadi
- Anguli Tradak Yantra
- Sami Yantra
- Ghranarbuda Arsho Yantra
- Yoni Vranekshana Yantra.

Modern Correlation

Bhagandara Yantra

- The first Nadi Yantra described by Acharya Sushruta
- Employed for the diagnosis and treatment of the Bhagandara.
 - As per Acharya Dalhana it is of two types:
- Ekchidra - with one slit
- Dwichidra - with two slit
- Similar to Arsho yantra, the difference being lateral longitudinal slit, and above this slit there is a circular ridge present in the Arsho yantra. Bhagandara yantra is made without this circular ridge.
- To determine the location of a fistula's interior opening.³

Arsho Yantra (Proctoscope)

- Made from either metal (iron), tusk (ivory), horn of animals or tree (wood)
- Shape of Gostana
- Four angula in length, five angula in circumference for use of in men
- Six aṅgula in circumference and of the length of the palm for use in women
 - It is of two kinds-
- One having two slits for inspection
- One having only one slit for therapeutic purpose (applying cauteries and sharp instruments)
- The size of the slit should be three angula in length and middle of the thumb in circumference
- In the remaining portion, about half angula below (the front orifice) a round elevated karnika (ridge) of about half angula in height should be made (to prevent it getting deep into the rectum while inserting).
- Dwichidra used to visualise the rectum and the anal canal and Eka chidra is used for procedure like kshar patan in arsha.³

Nadi Vrana Yantra (Syringe Irrigator)

- 6 Angula in length
- Having the shape of a Basti-yantra
- Orifice at its root allowing the entry of the thumb and at its tip allowing round pea without any edge
- Fixed with soft leather bag at its root.
- It is used for Vrana prakshalana³

Mutravidhi Yantra (Trocar And Cannula)

- It is a tube with opening at both its ends used for drainage of urine.
- It is used for Visraavana.⁴

Dakodar Yantra

- Tube made from Trapu (tin) or feather of birds having orifices at both ends.
- It is used for Visravana.⁴

Niruddhaprakash Yantra (Urethral Dilator)

- Tube with opening at both ends made from iron, wood or lac.
- Smear with ghee, should be introduced into the penis.
- It is used for Urethral dilatation.⁴

Alabu Yantra (Cupping Glasses)

- Twelve Angula in length
- Eighteen Angula in diameter
- Round orifice of four Angula
- Burning wick is placed in its interior for its functioning
- Used in Raktamokshana.⁵

Shringa Yantra (Animal Horn)

- Orifice of three Angula
- Eighteen Angula in length
- Size of mustard seed at the tip
- Tip resembles the shape of nipple.
- Used in Raktamokshana.⁶

Uttara Basti Yantra (Vaginal Douche): To administer Uttara basti dravya.⁷

Dhoom Yantra (Inhalers): Dhoompana⁷

Sannirudha Guda Yantra (Anal Dilator): Dilatation⁷

Recent advances in Nadi Yantra

Cystoscopy: It is a procedure that uses a cystoscope to look inside the urethra and bladder. A cystoscope is a long, thin optical instrument with an eyepiece at one end, a rigid or flexible tube in the middle, and a tiny lens and light at the other end of the tube.⁸

Indications

- Urinary retention, or difficult micturition, particularly as a prelude to Freyer's prostatectomy.
- Hematuria over the age of 30 in areas where Schistosoma haematobium is highly endemic.
- Recurrent urinary infection.

Contraindications: Acute cystitis and prostatitis.

Ureteroscopy: It is defined as upper urinary tract endoscopy performed commonly with an endoscope passed through the urethra, bladder, and then directly into the upper urinary tract. A ureteroscope has an eyepiece at one end, a rigid or flexible tube in the middle, and a tiny lens and light at the other end of the tube.⁹

Indications

Diagnostic

- Abnormal imaging findings- Filling defect
- Obstruction
- Unilateral essential hematuria
- Evaluation of ureteral injury

Therapeutic

- Endoscopic lithotripsy
- Retrograde endopyelotomy
- Incisional ureteral strictures
- Improvement of calyceal drainage
- Treatment of malignant urothelial tumors
- Treatment of benign tumors and bleeding

Colonoscopy: It enables visual inspection of the entire large bowel (also called the colon or large intestine) from the distal rectum to the caecum. Colonoscope is 160cm long and flexible.¹⁰

Indications

Diagnostic

- To check bleeding per rectum, resistant anemia
- To take biopsies from different part of the bowel.
- To identify synchronous growths, ulcerative colitis.
- To remove polyps.
- When barium enema shows irregularity.

Therapeutic

- Colonoscopic polypectomy
- Dilatation of stricture colon.
- Fulguration.

Contraindications: Acute Ulcerative colitis.

Proctoscopy: Also called Rigid sigmoidoscopy, to visualize terminal part of colon, the anus and rectum, and assess them for abnormalities. A proctoscope is a conical shape, with proximal diameter more than the distal, so as to illuminate the light at the

required site properly. Obturator is the inner part which allows easy insertion of the proctoscope.¹¹

Indications

Diagnostic: Piles, Fissure in ano (except-Acute Fissure in Ano), polyps, strictures etc.

Therapeutic: Injection therapy for partial prolapse of piles, cryotherapy for piles, polypectomy, biopsy for carcinoma rectum or ano rectum.

Sigmoidoscopy: It is used to visualize rectum and sigmoid colon, take biopsies from suspected lesions and do therapeutic procedures like polypectomy, control of bleeding, etc.¹¹

There are 2 types: Rigid-25 cm long, Flexible-60 cm long

Indications

- Screening for colorectal cancer
- Pre-operative evaluation before anorectal surgery
- Surveillance of a previously diagnosed malignancy in the rectum or the sigmoid colon
- Local treatment of ailments such as radiation proctitis
- Removal of rectal foreign bodies
- Performance of therapeutic procedures such as endoluminal stent placement for strictures, balloon dilation, and decompression with placement of a decompression tube.

Contraindications

- Bowel perforation
- Acute diverticulitis
- Acute peritonitis
- Fulminant colitis
- Cardiopulmonary instability

Endoscopy: It is a procedure during which a small flexible endoscope is introduced through the mouth and advanced through the pharynx, esophagus, stomach and duodenum. It can be used for both diagnostic and therapeutic procedures.¹²

Indications

Diagnostic

- Evaluation for signs and symptoms suggestive of upper gastrointestinal disease such as GERD.
- Biopsy for known or suggestive upper GI disease such as malabsorption syndromes, neoplasms, or infections.

Therapeutic

- Retrieval of foreign bodies
- Control of hemorrhage
- Dilatation or stenting of strictures
- Ablation of neoplasms
- Gastrostomy placement

Contraindications

- Possible perforation
- Medically unstable patients
- Unwilling patients

CONCLUSION

The Nadi yantra have been altered to meet the requirements of the advancement of science. The majority of surgical instruments used today are essentially just minor adaptations of those used by the ancient Hindu surgeons. We stand on the shoulders of our ancestors, as has been said many times before, and since

invention follows innovation very quickly, it may be more important than ever to appreciate this history. Almost every instrument used in the modern era for performing medical examinations or performing surgical procedures has been used for ages in Shalya Chikitsa. Recent advancements in Nadi yantra include Endoscopies, a non-surgical technique commonly performed today to inspect someone's digestive system. Similar to this, endoscopes can be inserted from the rectum into the large intestine to inspect the area of the intestine. Depending on how far up the colon is to be inspected, this technique is referred to as a sigmoidoscopy or a colonoscopy. All members of the Ayurvedic community must comprehend the correct meaning, names, and applications of yantras. Numerous improvements have been made to the substance utilized in the production of yantras, however the fundamental idea and design of the instrument remains the same.

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