

A CONCEPTUAL STUDY OF NADI YANTRA W.S.R TO ENDOSCOPIC INSTRUMENT

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ABSTRACT

Yantras are described for diagnostic and therapeutic purposes. Equipment's are used to extract the different type of foreign bodies causing pain in different parts of the body. A nadi yantra is a tubular structure, it works as strotagatasalyaudarnartham, rogdarshnartham, aachushanartham and kriyasoukyartham. An endoscopy is a procedure where organs inside your body are looked at using an instrument called an endoscope. It is a long thin flexible tube that has a light and camera at one end.

In this article an effort has been made to draw a special attention on endoscopic instruments concept of Sushruta Samhita practicing today with few refinements.

Key words: Yantra, Nadi yantra, Endoscope, Endoscopic instrument

INTRODUCTION

Shalya tantra is a vital branch of Ashtanga Ayurveda which deals with removal of irritating factor, Shalya causing pain in body and mind. Out of fivefold of Shalya tantra, yantra is one of them. Fivefold of shalya tantra include yantra, shastra, kshara, agni or rakthmokshana. Yantras are 101 in number but the hand has been considered as pradhantam yantra because without this shalya chikitsak cannot hold instrument and enable to do surgery. Kankmukha yantra is mentioned in textbook as a Pradhan yantra. It is applicable generally for all purposes. Susrutha elaborate yantra very briefly in susrutha Samhita along with its karmas. Yantra described in text as blunt instrument and 6 types based on akriti as swastika yantra, sandansha yantra, tala yantra, nadi yantra, shalaka yantra, upayantra. Out of 101, 20 types of nadi yantra are used for diagnostic or therapeutic purposes.

Yantras^[1]

The different kinds of instruments are used for removal of various kind of foreign body. Yantras are used for specific functions, Vaidya can use them according to their purposes. According to yukti one can also invent and create new instruments. Many functions of yantra told by sushruta are nirghatana [pulling out after crushing], unmathana [pulling out after twisting], poorana [filling], marga sudhi [clearing the passage], vyuhana [bringing together], aharana [extracting] bandhana and many more.

NADI YANTRA^[2]

Nadi yantra have four functions like Kriyasoukyartham facilitate the operate procedure, Aachushanartham [aspiration of content] Rogdarshnartham [visualizes the disease], strotogatasalyaudarnartham [shalya remove from the tubular structure]. It is a hollow structure with one or more opening and useful for

recognizing foreign body and disease which are localized in tissue. Their width and parameter vary as per size, shape of the channel. Some varieties of nadi yantra are used in conditions like bhagandra, arsha, basti, uttarbasti etc. Other instruments like alabu and shringa come under this category. Nadi yantra which is 10 angula in length and half angula in diameter has many openings of different size and thicknesses. Tubular instrument with 5 splits to hold the arrow with 4 ears. Other with 3 split mouths to hold the arrow with the ear of the arrow.

Types of nadi yantra^[3]

Arsho yantra is an instrument to see the haemorrhoid inside the rectum. It is cylindrical in shape and is four angula in males and six angula in females with two opening one at each end useful for seeing the pile mass. Sami yantra is very similar to arsho yantra but without opening. It has functions like squeezing the pile mass and also used to check the malignancy of tumor and polyp of nose etc. Anguli Tranaka yantra is also called as finger protector made from wood which is four angulas in length with two opening and shape like gasthanakar [nipple of cow] and is used to look the vagina and wound. Some instruments are hollow in the middle which are 16 angula in length with four flaps which resembles like bud of lotus. Nadi yantras used injalodra [ascites] have two opening one at each end or it can also be with the shape of the tube of a peacock feather. Another instrument named shringa [animal horn] is used for sucking the pus. Alabu type of instrument known as hollowed gourd works as a suction pump. When it expands a vacuum is created inside thus sucking the pus and expelling the vitiated pus. Ghati yantra is useful for making the abdomen tumour soft. Shalaka yantra is useful for probing and removing foreign body from the stratas. Shanku yantra [hooks] is used for pulling the impacted foetus in women for which another name is garbhashanku yantra. Some instruments are used for extracting the stone from the urinary bladder. Some are used for extracting the mouth the rod like instrument meant for clearing the sinus. Jambauvostha is a cylindrical smooth stone like instrument used for application of caustic alkali. Some instruments are used in hernia, clearing ear, cauterization of polyp and nose tumour. Anu yantra is an accessory instrument.

NADI YANTRA AND ENDOSCOPY

Nadi yantras which are twenty in number are hollow instruments and are used for rogdarshnartham, kriyasaukyartham, aachushanartham out of which rogdarshnartham are used as diagnostic purposes whereas rest as therapeutic purposes. Acharya vagbhata has specially mentioned kantha shalyavalokinadiyantra and gharan arbudo arshoyanta which can be compared to present days laryngoscopy and rhinoscope respectively.

Endoscopy is a nonsurgical procedure used to examine a person's digestive tract. Fibre-optic endoscopes use bundles of thin glass fibers to transmit light to and from the organ being viewed. Fibers use the principle of total internal reflection to transmit almost 100% of the light entering one end to the other end. Endoscope consists of rigid and flexible tube, a light delivery system to illuminate the organ or object under the inspection. The light source normally outside the body and the light is typically directed via an optical fiber system. A camera transmits image to a screen for image capture. An additional channel to allow entry of medical instruments or manipulators.

Application of endoscopy as Esophagogastroduodenoscopy [EGD] is most commonly performed endoscopic procedure in this world. Exact visualization of the oesophagus, oesophageal junction, stomach, duodenal valve and second part of the duodenum can be obtained. It is used for viewing esophageal strictures, hiatus hernia, gastric ulcer, cancer stage. Enteroscopy is used to view the inner lining of the small intestine. It is a long flexible tube, end side there is a camera that is inserted through the mouth and down into the stomach. Due to this a physician is able to view the inside of digestive tract, stomach or also take a piece of biopsy for histopathological study. DBE [double balloon enteroscopy] was developed in Japan. It involves a thin enteroscope or an overtube which is both fitted with balloon. This procedure is usually carried out under anaesthesia or may be carried out with the conscious sedation. The enteroscope and overtube are inserted through mouth and anus and steered to the proximal duodenum /terminal ileum in the conventional manner. A full range of therapeutic including diagnostic biopsy, polypectomy, argon plasma coagulation and stent insertion are available for balloon enteroscopy. Some signs and symptoms indicate the physician to go for investigations like enteroscopy in conditions like bleeding in digestive system, malnutrition, and severe diarrhea, suspected or confirmed tumour.^[4] Colonoscopy is a procedure with which a physician evaluates inside the colon. It is a four-foot-long flexible tube, about the thickness of a finger with a camera on its tip, with a source of light. The tip is inserted into anus which goes inside rectum through the colon usually far as the caecum. It may be done for a variety of reasons like blood in stools, prolonged abdominal pain, colon cancer, diarrhea and any polyp present there. Colonoscopy is the best diagnostic tool to diagnose diseases like ulcerative colitis or Crohn's disease.^[5] Sigmoidoscopy is examination of the rectum and colon more fully than is possible by proctoscopy. Proctitis, polyps and carcinomas may be viewed by sigmoidoscopy. Chromoendoscopy- in this technique physician uses dye or stain on the lining of the intestine during endoscopy for better visualization of anything abnormal or

intestinal lining. EMS [endoscopic mucosal resection] is a procedure to remove precancerous, early-stage cancer or other abnormal tissue from the digestive tract. EUS [endoscopic ultrasound] is minimalinvasive procedure to assess digestive and lung disease. NBI [narrow band Imaging] is a special filter to help view vessels and mucosa. ^[6] ERCP[endoscopic retrograde cholangiopancreatography]- this procedure involves the use of side viewing duodenoscope, which is passed through the pylorus and into the second part of the duodenum to visualize the papilla.]Proctoscopy is performing to detect the carcinoma of rectum and anal fissure hemorrhoids. Capsule endoscopy is a therapeutic endoscopy which allow seeing whole GI tract.

^[7] Laryngoscopy – a continuous light of endoscope helps in studying gross structure and function of larynx, while strobe light assesses mucosal health and vibration pattern.Both rigid and flexible laryngoscope hasfiber opticlight. Rigid is introduced through mouth and flexible is passed through the nose.

^[8] Proctoscopy-the anal canal and lower rectum can be readily visualized with a rigid proctoscope. Piles are seen as reddish blue swelling with bulge into the lumen of the instrument. The internal opening of an anal fistula, and rectal polyp, chronic anal fissure is other abnormalities seen.

APPLICATION OF ENDOSCOPY IN GIT DISORDERS ^[9]

TABLE 1		DIAGNOSTIC APPLICATION
Esophagogastroduodenoscopy		Esophageal stricture Hiatus hernia, gastric ulcer and bleeding spot, cancerous and precancerous stages
Enteroscopy		Bleeding spot, iron deficiency anemia
Colonoscopy (to view entire large intestine) Sigmoidoscopy		IBS, Colonpolyp, ColonCarcinoma, Diverticulosis Colon CA and polyp
Proctoscopy		CA of rectum and Anus, Fissure and Hemorrhoids
Table 02		Therapeutic Applications
ESOPHAGUS	Foreign body removal POEM-Pre oral endoscopic myotomy POTR- Per oral endoscopic tumor resection	Grasping Forceps Self-Inflating Stents Sclerotherapy
Stomach	Arresting bleed PEG insertion Polyp excision	Haematostatis Thermal cautery Laser cautery Injection Therapy
Duodenum	Biliary disease through ERCP	Stent Incretion

Choledochoscopy	Choledecolithiasis Biliary drainage	“T” Tube Insertion
Small Intestine	Polyp Excision	Polyp Wire smare
Large Intestine	Heamorrhoidectomy Polypectomy	Stapling method Polyp Wire smare

SCOPE OF ENDOSCOPY

Arthroscopy in this scope inserted through a small incision near the joint which joint u wants to examine. Bronchoscopy used for seeing the lungs and scope inserted into the nose or mouth. This procedure is performed by the thoracic surgeon or pulmonologist. Cystoscopy is used to see the bladder physiology, scope inserted through the urethra this type of scopy performed by urologist. Hysteroscopy is used to see the inside of uterus and scope inserted through vagina. Laparoscopy to see the abdominal or pelvic area.A scope is inserted slowly through a small incision near examined area. Mediastinoscopy is used to see the media sternum- the area between the lungs. In this small incision is given above the breastbone and scopy is inserted through this. Thoracoscopy or pleuroscopy is used to detect any abnormal pathology between the lungs and the chest wall. In this a small incision in the chest and scope inserted it. Upper gastrointestinalendoscopy also known as esophagogastroduodenoscopy is used to see the esophagus or upper intestinal tract. The scope is inserted slowly, smoothly, freely handthrough the mouth. Urethroscopy is used to see the urethra where the scopeis inserted through that site area. Laryngoscopy is used to see the larynx. Here the scopeis inserted through the mouth or the nostrils. The above instrument mentioned is very much similar to nadiyantrain Susrutha Samhita because of their ekamukha or dvimukha and hollow structure. During sushruta’speriod these nadi yantra wasbeing used for both therapeutic or diagnostic purposes and in this contemporary world endoscopy also uses the same principles as existed in Susruthas era though with modifications.

The development of endoscopic instrument is totally depending on ancient nadi yantra. Inventionof endoscope allowed it to be used in other systems and provide provision for various luminal and also extra intestinal surgeries. This shows that endoscopy have wide area of practical applicability. Nadi yantra-having a tubular structure and two openings has resemblance with the endoscopic instrument and both are meant for diagnostic or therapeutic uses.

CONCLUSION

Endoscopy has both diagnostic and therapeutic applications for viewing and diagnosing various conditions of the gastrointestinal system. The recent advancement in the field of endoscopic instruments is more important as it holds future for all surgical procedures. Endoscopy being anadvanced tool in the present era in the field of diagnosing and treating various surgery, ENT, Gynecology disorders sheds morescope in the field of surgery as it is capable of converting minimal invasive surgery into least invasive surgeries. Aim of reducing surgical mobilityand mortality by helping early diagnosis and treatment. An ayurvedic surgeon there is need to improve and apply sushruta concept of nadi yantra in our practice in a way that is acceptable as per present day.

REFERENCES

1. Prof. K.R. SRIKANTA MURTHY, editor of Astanga Samgraha of Vagbhata; vol 1,Sutra Stana chapter 34, verse, Chaukambhaorientalia, varanashi, P: 553
2. Prof. Vasant C. Patil, Dr. Rajeshwari N.M, editor of Susruta samhita English translation of text and dalhana, vol 1, sutra stana chapter 7, verse 13, chaukambha publication, NewDelhi, P: 98.
3. Prof. K.R SRIKANTA MURTHY, editor of Astanga Samgraha of Vagbhata, voll1, sutra stana chapter 34, verse, chaukambha orientalia, varanashi, P: 557.
4. Norman S Williams Christopher J.K Bulstrode and P. Rohan O’Connell, editor of bailey and love short practice of surgery, 26th edition, chapter 14, CRC press Taylor and francis group, P: 208.
- 5 Michael swash editor of Hutchison’s clinical method twentieth edition, chapter 5, W.B. Saunders company Ltd oval road London NW17DX,: P 112.

6. Norman S Williams Christopher J.K Bulstrode and P. Rohan O' Connell, editor of bailey and love short practice of surgery, 26th edition, chapter 14, CRC press Taylor and Francis group, P: 207.
7. Mohan bansal editor of essentials of ear, nose and throat, chapter 42, jaypee brothers medical publishers, P: 357.
8. Michael swash editor of HYTCHISON'S Clinical method twentieth edition, chapter 5, W.B. Saunders company Ltd oval road London NW17DX,P 111.
9. K.R, Narayan. [2019] Application of Endoscopy in GIT Disorders.