

**“Diagnostic And Therapeutic Relevance of Sushrutokta Endoscopic Procedures”****Subhash D. Waghe*¹, Pradnya Thakre²**

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* **Corresponding Author:** E mail- carenidan@rediffmail.com**ABSTRACT**

Vikar Darshan Pariksha (examination of pathology by inspection) is one of the important clinical method mentioned by Acharya Sushruta while examining the patient. Inspection is an active process. It is done with the eyes and the intellect. As per Acharya Sushruta, Built, features, Power, Colour, Pathology etc. should be examined by external inspection [S.Su.10/5]. Another less explored but equally important aspect of inspection examination is internal inspection of pathologies through endoscopic procedures. Review of literature shows that Acharya Sushruta, had described various diagnostic and therapeutic endoscopic procedures like *Kantha Weekshan* (Oropharyngoscopy) for viewing and removing throat pathologies and foreign bodies [S.Su. 27/17-18], *Nasa Weekshan* (Rhinoscopy) for viewing and removing nasal polyp and tumour[S.Su.

8/14], *Arsha Weekshan* (Proctoscopy) for viewing and removing pile mass [S.Chi. 6/4 & 11], *Bhagandar Weekshan* (Fistula in Ano Scopy) for viewing the tract and for application of the medication. Today is the era of minimally invasive procedures. With the help of endoscopic procedures not only diagnosis of the disease is done but also the various therapeutic procedures such as band ligation of oesophageal varices in patients of cirrhosis of liver etc are done. In conclusion, it is observed that the endoscopic procedures have been well documented in ayurvedic science before they come into practice in modern medicine. Endoscopic procedures are important in diagnosis as well as in treatment of the internal pathologies.

Key Words- Nadi Yantra, endoscopes, diagnosis, inspection**INTRODUCTION**

Inspection is an active process. It is done with the eyes and the intellect. As per

Acharya Sushruta, Built, features, Power, Colour, Pathology etc. should be examined by external inspection [S.Su.10/5]. Another important aspect of inspection examination is internal (endo) inspection (scopy) of pathologies through endoscopic procedures. Endoscopes have been referred as 'Nadi Yantras' and according to acharya Sushruta endoscopes are of different types with different functions. Some are closed one sided, some are patent on both the sides. They could be used for removing the foreign bodies, for viewing (diagnostic) the pathology, for sucking or for therapeutic purposes. Their diameter and length varies as per the size of the concerned system. [S.Su. 7/13]. As the nature and location of surgical pathology (*shalya*) varies a lot, the intelligent physician should apply his mind in deciding the type of instrument to be used depending upon the nature of the procedure to be carried out. [S.Su. 8/17]. As per need these all endoscopic instruments could be used in all parts of the body, in joints (Arthroscopy), in various systemic tracts (e.g. *Gastrosocopy*, *Bronchosocopy*, *Cystosocopy etc.*), in the blood vessels (*Angiosocopy*)[S.Su. 7/16].

MODERN HISTORY OF ENDOSCOPY

The first endoscope was developed in 1806 by Philip Bozzini in Mainz (Germany) who used a special tube called

“Lichtleiter” (light guiding instrument) in an effort to examine the urinary tract. The name “endoscope” was coined by Antoine Jean Desormeaux a French surgeon who regularly made use of Bozzini’s invention. In 1881, a noted Polish-Austrian surgeon named **Johann von Mikulicz** created the first-ever gastroscope which was used for the small intestine, stomach and esophagus. **Rudolph Schindler** a German gastroenterologist, improved on **Johann von Mikulicz's** invention by creating a flexible gastroscope in 1932. The use of electric light was a major step in the improvement of endoscopy. The first such lights were external although sufficiently capable of illumination to allow cystoscopy, hysteroscopy and sigmoidoscopy as well as examination of the nasal (and later thoracic) cavities as was being performed routinely in human patients by Sir Francis Cruise using his own commercially available endoscope by 1865 in the Mater Misericordiae Hospital in Dublin, Ireland. Hans Christian Jacobaeus has been given credit for the first large published series of endoscopic explorations of the abdomen and the thorax with laparoscopy(1912) and thoracoscopy (1910)

Georg Wolf__(1873–1938) a Berlin manufacturer of rigid endoscopes, established in 1906, produced the Sussmann flexible gastroscope in 1911.

Karl Storz (1945) began to develop instruments which would enable the practitioner to look inside the human body. attempts were made to reflect light from an external source into the body through the endoscopic tube. He set out to introduce very bright, but cold light into the body cavities through the instrument, thus providing excellent visibility while at the same time allowing objective documentation by means of image transmission. It was , the combination of his engineering skills and vision, coupled with the work of optical designer Harold Hopkins in 1950 that ultimately revolutionized the field of medical optics by making fibre endoscopes. Basil Hirschowitz and Larry Curtiss invented the first fiber optic endoscope in 1957.

REVIEW OF LITERATURE

Purpose of Endoscopes :

The endoscopes are of different types with different functions. Some are closed one sided, some are patent on both the sides. They could be used for viewing (**diagnostic**) the pathology, for removing the foreign bodies, for suction or for **therapeutic** purposes. [S.Su. 7/13]

TYPES & DESIGN OF ENDOSCOPES

The endoscopes are of different types with different functions. Some are closed one sided, some are patent on both the sides. They could be used for viewing (**diagnostic**) the pathology, for removing

the foreign bodies, for suction or for therapeutic purposes. Their diameter and length varies as per the size of the concerned system. [S.Su. 7/13]

Intelligent physician should apply his mind in deciding the type of instrument to be used depending upon the nature of the procedure to be carried out. [S.Su. 7/18]

Elements Of Inspection

- Varna (Colour)
- Sansthan (Size and Shape)
- Praman (Measurement)
- Bala (Function of the organ under inspection)
- Apachay/Upchay (Nutrition)

MATERIAL & METHOD :

Literary research method is adopted for the present study. Critical study of Ayurvedic as well as modern literature pertaining to the subject is carried out to come to the logical result and conclusion.

OBSERVATIONS

Yantren Arsha Darshanam
(Proctoscopy)

Design of Proctoscope :

The instrument may be made of iron, ivory, horn or wood. It resembles the teat (breast) of a cow. For male patients, it should be 4 fingers in length and 5 fingers in circumference. For Female patients, the length should be equal



to the length of the palm and six fingers in circumference. The instrument should have two apertures, one for inspection of the interior of the rectum and the other for treatment such as cautery of the lesion. The dimensions of the side opening are as follows: 3 fingers long and circumference equal to the middle of thumb. 1/2 a finger below the outer end (in the remaining one finger length of the instrument), there should be a round ear like circumferential projection of half finger elevation to prevent the excessive inward movement. [S.Chi. 6/11]

Proctoscopy

- **Preparation** - After oiling and foementing the patient, give him little hot and unctuous food to relieve the pain. Keep the patient in hygienic room maintained at normal temperature. Ask the patient to sit on a examining table.
- **Procedure** - Give the patient a lithotomy position. Keep is anus in front of the sunlight. By keeping pillow below the lumbar; slightly raise his lumbar region. Lubricate the anus and proctoscope with butter. Introduce the lubricated proctoscope inside the anus.

Advance it slowly while patient acting as if defecating. Observe the piles. [S.Chi. 6/4]

Nasa Weekshan (Rhinoscopy)

Design of ancient Rhinoscope :

- The rhinoscope should be 2 angul (aprox. 10 cm) long and its diameter should be of the size of index finger. The distal end should be tapering so that the end aperture remains of the size of plum seed (aprox. Half centimeter) and proximal end should be wide. [S.Su. 8/14]

Indication :

1. To visualize the nasal pathology (*Nasa Roga Darshanartham* [S.Su. 7/13])
2. To remove the nasal polyp (*Nasa Arsha Harnartham* [A.S.S. 34/10])
3. To remove the nasal tumour (*Nasa Arbud Harnartham* [S.Su. 8/14])

Ayurvedokta Procedure OF Rhinoscopy :

- The patient should be given either a sitting position or supine position.
- The attendant should hold the head of the patient firmly.
- After ensuring the adequate sunlight, the rhinoscope should be advanced slowly with a great care.



- After visualizing the polyp or tumour, the appropriate *Kshar* should be applied over it if *kshar karma* to be carried out.
- The endoscopic resection of nasal polyp or tumour can also be carried out followed by cauterization to arrest the bleeding.

Kantha Weekshan
(Oropharyngoscopy)

- **Design of Oropharyngoscope :**
- To view the oesophageal pathology, the tube should be 10 angul (aprox.12cm) in length and diameter should be 5 angul (aprox. 6 cm). [A.S.S. 34/9]
- **Purpose of Oropharyngoscopy :**
- To view the oesophageal pathology (*Kantha Shalya Darshnartham*)
- To remove the foreign body entrapped in throat (*Jateshu Kantha Asakte Kanthe Nadim Praweshya*)

Therapeutic Oropharyngoscopy :

- Whenever a foreign body such as lac gets trapped in throat, a heated iron probe or sound should be introduced through a tube (scope) of copper and made to touch the foreign body. This will melt the lac and stick to the probe. This is then cooled by sprinkling cold water through the speculum and then the foreign body is extracted.

- If the foreign body is other than lac, then a honey wax or lac should be applied over the probe which is then introduced through the scope to extract the foreign body. The foreign body will stick to the wax or lac attached to the probe and then can be removed. [S.Su. 27/17-18]

Possible Diagnosis Through Ayurvedokta Oropharyngoscopy :

Kanthagat Rogas (Diseases of Throat) [S.Ni.16]

1. Rohini (Diphtheria)
2. Kantha-Shaluk (Adenoides)
3. Adhijivhika (Epiglottitis)
4. Walay (Pharyngeal Malignancy)
5. Balas (Laryngopharyngeal Malignancy)
6. Vrinda (Tonsillitis)
7. Gilayu (Benign Growth)
8. Gala Vidradhi (Peritonsillar Abscess)
9. Galaugha (Retropharyngeal Abscess)
10. Swaraghna (Laryngeal Malignancy)

Talugat Rogas (Palatine diseases) [S.Ni.16]

1. Galashundika (Uvulitis)
2. Tundikeri (Palatitis)



3. Talu Kachhap (Palatine Adenoma tumour)
 4. Arbuda (Palatine tumour)
 5. Mansasanghat (Fibroma of Palate)
 6. Talu Puppūt (Cystic swelling of Palate)
 7. Talupaka (Palatitis)
- Varna , Sansthan, Praman, Bala, Upchay etc to be seen.

Karna Weekshan (Otoscopy) :

- The debris (insect, wax etc.) inside the auditory canal should be removed with help of tubular horn or ear stick [SUT 22 /58].
- The insect entered inside the aural cavity should be removed by suction through the tubular instrument [A.S.S. 37/30].
- In otalgia, the fumigation should be given through the tubular instrument. [SUT 21 /6].

Karna Rogas And Karna Weekshan

- *Karna Paka* (otitis externa /furunculosis)
- *Karna Sanstrav* (diffuse otitis externa)
- *Karna Vidradhi* (Chronic otitis externa)
- *Puti Karna* (Acute otitis media)
- *Karnarbuda* (Ear Tumours)

MODERN ENDOSCOPIC PROCEDURES

i] Gastroenterology :

1. Gastroscopy
2. Colonoscopy
3. Sigmoidoscopy

ii] Respiratory System :

1. Bronchoscopy

iii] Genito Urinary System :

1. Cystoscopy
2. Colposcopy
3. Hysteroscopy
4. Vaginoscopy

iv] ENT

1. Rhinoscopy
2. Otoscopy
3. Laryngoscopy

v] Rheumatology:

1. Arthroscopy

DISCUSSION :

Acharya Sushruta had suggested to use endoscopes (Nadi Yantra) to view (scopy) the internal (endo) organ pathology and also to carry out therapeutic procedures through it as per the need. Acharya Sushruta had referred endoscopes as 'Nadi Yantras' and described them in detail in chapter sutrasthana 7th chapter 'Yantra Vidhi Adhyay'. As per him endoscopes are of different types with different functions. Some are closed one sided, some are patent on both the sides. They could be used for viewing

(diagnostic) the pathology, for removing the foreign bodies, for suction or for therapeutic purposes. Their diameter and length varies as per the size of the concerned system. [S.Su. 7/13]. Although, Acharya Sushruta had described the endoscopic procedures of Proctoscopy, Rhinoscopy and Oropharyngoscopy and advised therapeutic Otoscopy but had mentioned that as per the nature and location of surgical pathology (*shalya*), endoscopes varies a lot, the intelligent physician should apply his mind in deciding the type of instrument to be used depending upon the nature of the procedure to be carried out. [S.Su. 7/18]. Their diameter and length of endoscope varies as per the size of the concerned system. [S.Su. 7/13]. Acharya Sushruta further mentioned that as per need these all instruments (Nadi and Shalaka and Upa Yantras) should be used in all parts of the body, in joints (Arthroscopy), in various systemic tracts (e.g. *Gastroscope*, *Sigmoidoscopy*, *Colonoscopy*, *Bronchoscopy*, *Cystoscopy etc.*), in the blood vessels (*Angioscopy*). [S.Su. 7/16]. In ancient times, these endoscopes were made up of iron, copper, gold, alloys (*panchadhatu*), ivory, horn or wood. As these

substances were non flexible, they provided limited access to view the deeper organ pathology. Now in today's technologically advanced era, we can overcome this difficulty by using fibre-optic rigid or flexible material to construct the endoscopes to view the deeper organ pathology of entire system tract. Not only this but also we can attach these endoscopes to video for better viewing. By attaching a printer to it, we can also print the photograph of the pathology. Such is the technological advancement that nothing has remained inaccessible, but basic idea and principle of diagnosis and therapeutics behind these procedures remains the same as mentioned in ancient ayurveda.

CONCLUSION :

- Endoscopic procedures have been well documented in ayurvedic science before they come into practice in modern medicine.
- On the basis of the guidelines given by the ancient Acharyas, using own intelligence and as per the need many new endoscopic devices could be designed to carry out the desired endoscopic procedures like gastroscope, sigmoidoscopy, colonoscopy, cystoscopy, bronchoscopy etc.

- Endoscopic procedures are important in diagnosis as well as in treatment of the internal pathologies.

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