WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 13, Issue 3, 1623-1630. Case Study ISSN 2277– 7105

A CASE STUDY ON LAPAROSCOPIC CHOLECYSTECTOMY ALONG WITH CRITICAL REVIEW ON SUSHRUTA'S NADIYANTRA

***[1]Dr. Jyoti Shinde, [2]Dr. Akanksha Ravindra Rangari, [3]Dr. Pramey Dhage and [4]Dr. Kamlakar Shahare**

[1]Professor and HOD, Department of Shalyatantra, Shri Ayurved Mahavidyalaya, Nagpur, Maharashtra, India.

[2,4]PG Scholar, Department of Shalyatantra, Shri Ayurved Mahavidyalaya, Nagpur, Maharashtra, India.

[3]Assistant Professor, Department of Shalyatantra, Shri Ayurved Mahavidyalaya, Nagpur, Maharashtra, India.

Article Received on
21 December 2023,
Revised on 11 Jan. 2024,
Accepted on 01 Feb. 2024
DOI: 10. 20959/wjpr20243-31123

***Corresponding Author**
Dr. Jyoti Shinde
Professor and HOD, Department of Shalyatantra, Shri Ayurved Mahavidyalaya, Nagpur, Maharashtra, India.

ABSTRACT

The term laparo means the flank or the abdominal wall. Laparoscope is a modern surgical instrument, a type of endoscope that allows minimally invasive surgery through small incisions on abdominal wall. Actually so called Endoscope in modern surgery is nothing but an ancient device in Ayurveda that was first described by Acharya Sushruta, the father of Indian surgery, in his literature *Sushruta Samhita*. Sushruta narrated his endoscopic instruments as "*Nadiyantra"*, which means "tubular instrument". *Nadiyantra* is a form of *yantra* (a blunt instrument) which has hollow interior and tubular structure having opening on one or both sides. He used *Nadiyantras* for various purposes, such as removing foreign bodies, draining fluids, visualizing lesions and facilitating surgical procedures. He described 20 types of *Nadiyantras* for different body parts and diseases. The laparoscope is an advanced version of *Nadiyantra* that uses a camera and light source to examine the abdominal and pelvic organs. The laparoscope is a modern innovation that is built on the ancient wisdom of Sushruta. This Laparoscope has similar functions as of *Nadiyantra*. An attempt has been made to define laparoscope as an advancement of Sushrutas *Nadiyantra*.

KEYWORDS: Laparoscope, Endoscopy, *Nadiyantra*, Tubular instruments.

CASE STUDY

A 14 years female was reported to Shalyatantra OPD of the institute with chief complains of intermittent abdominal pain since last 2 years, loss of appetite since last 2 years, nausea since 10 days, and generalized weakness since 10 days. The abdominal pain was initially mild in nature which gradually increased with which she was reported to the OPD. There was no history of fever and vomiting. Patient had given history of hospitalization for five days at Government Medical College, Nagpur at the age of 2 years for hypoglycemia. There was no history of Diabetes Mellitus. She did not have any other relevant medical, family and past history. On palpation per abdomen was found to be tender at right hypochondric region, liver was palpable and spleen was normal. Based on the above findings USG abdomen was done which revealed hepatomegaly with Cholelithiasis and small sized uterus .Also CE-CT abdomen and pelvis was done and the finding were S/O moderate hepatomegaly with calculi seen at neck of gall bladder of average attenuation 600-700hu of size 5-6 cm with Cholecystits. Patient was young unmarried female. Hence considering the fact, we have planned minimal invasive surgery i.e. laparoscopic cholecystectomy. After performing all necessary investigations and pre-op profile, patient was operated for Cholelithiasis with the aid of Laparoscope. Surgery was successful and the patient was discharged from hospital on fifth day with all vitals stable and general condition satisfactory. No any complications were observed during and after surgery.

In this case study, we want to bring in limelight the basic technique of laparoscope i.e. to view abdominal organs through small incisions for diagnostic and therapeutic purpose. The same technique was used by Acharya Sushruta in his ancient surgery with the instrument called *Nadiyantra*. Here, we want to bring in notice that modern technologies do not belong to any stream especially allopathy, and anyone even Ayurveda surgeon can use this technology to improve his surgeries without disturbing the basic principles of the Surgery laid down by Acharya Sushruta.

INTRODUCTION

Acharya Sushruta was very advanced for his time. He came up with the concept of minimal invasive surgery with small incisions, a long time ago and also created a device called Nadiyantra.[1] which works like an endoscope in today's current era.

Shalyatantra,[2] was at its zenith at the time of Acharya Sushruta- the pioneer of Indian surgery. In his era, all types of surgeries were performed by Acharya Sushruta and his disciples. For the ease of surgery they invented various types of instruments called them as *yantras* and *shastras*[3] In *Sushruta Samhita*, Acharya *Sushruta* depicted total *101 yantra shastra* in his classical text Sushruta Samhita. He had given scope to his disciples to develop more instruments as per the need using their best knowledge and intelligence.[4] *"Swabuddhyam chaapi yojayet"*. This may be because Sushruta might be acquainted about the progression and updation of his basic instruments with newer version for performing surgical procedures more conveniently. In the medieval history, the importance of surgery gradually declined due to many reasons. Westernization in the name of modernization took place and people as well as *Vaidyas* used to prefer conservative management rather than surgery. This was the turning point of retrogression of Shalyatantra and its various surgical techniques and instruments. At the same point of time, modern medical science emerged, well established and accepted globally with newer technologies and advancement in surgical procedures and even in instruments.

AIM AND OBJECTIVE

The aim of this study is to bring in limelight the Sushruta's concept of endoscope and minimal invasive surgery using endoscopy performed with various *Nadiyantra.*

MATERIAL AND METHOD

For writing the critical review on *Nadiyantra*, a detail study was done on concept of *Sushruta's* Nadiyantra depicted in *Sushrut Samhita* and presented our view about *Nadiyantra* in relevance with today's modern instruments.

Yantras,[5] are inevitable parts of all major and minor surgical procedures. They are the blunt instruments used in surgical procedures and for the removal of foreign substances lodged in different parts of the body. All the instruments used for diagnostic and surgical procedures in the modern medical sciences are nothing but the modern version of Sushrutas *yantras*. In Sushruta Samhita, Acharya Sushruta has mentioned different types of *yantras* which were categorized under five types,[6] - viz *Swastika yantra, Sandansa yantra, Tala yantra, Nadi yantra, and.*

Sr. No	Yantra	Quantity	Types	Modern Instrument	Function
1	*Bhagandara yantra,*[9]	2	A. Ekachidram B. Dwichidhram		In order to find out the internal opening of a fistula.
2	*Arsho yantra*	2	A. Ekachidram B. Dwichidhram Accordin to Praman- A. 4 angula long-common B. 5 angula for male C. 6 angula for female	Proctoscope	1) *Dwichidra-* Used to visualize the rectum and the anal canal 2) *Eka chidra* isused for procedure like application of *kshar* in *arsha*
3	*Basti netra*	4	4 types according to age		As per age used to administer *gudabasti*
4	*Uttara basti netra*	2	A. For Male B. For Female	Vaginal douche	As per gender used to administer *uttara basti dravya* in vagina or urinary bladder.
5	*Vrana basti yantra*	1		Syringe irrigator	it is used for irrigation of wound
6	*Dakodara yantra*	1		Trocar & cannula	it is used for *Vistraavana of abdominal fluids* (paracentesis)
7	*Mutra vridhi yantra*	1		Trocar & cannula	it is used for *Vistraavana of hydrocele fluid*
8	*Dhoomayantra*	3	*A. Vairechanikam* *B. Snehikam* C. *Prayogikam*	Inhalers nebulizers	*For Dhooma pana* (Insufflation of medicated fumes)
9	*Nirudhaprakasha yantra*	1		Urethral Dilator	For dilatation of urethra in urethral stricture.
10	*Sannirudha guda yantra*	1		Anal Dilator	For dilatation of anal canal in anal stricture
11	*Alabu yantra*	1		Cupping glasses	For *Rakta mokshan (*bloodletting)
12	*Shringa Yantra*	1		Horn	For *Rakta mokshan (*bloodletting)

Shalaka yantra and Upayantra. Amongst them, the *Nadiyantra* is an important instrument which is hollow tubular structure used by Sushruta for following purposes.

1. *Srotogata Shalya uddharanartham* -(to remove foreign bodies blocked in *strotas* or channels.)
2. *Roga darshanartham* –(to view the diseased part in the canal for diagnostic purpose)
3. *Aachushanartham* –(for suction/ aspiration)
4. *Kriyasaukaryartham*[7] (to facilitate surgical and parasurgical procedures)

These nadiyantras are structured according to the dimensions of Strotodwara in various lengths and diameters as per their use. They have single opening at the end or opening at both the ends. Acharya Sushruta described 20 types of Nadiyantras[8] viz. *Bhagandara yantra* -2, *Arshoyantra* - 2, *Basti netra – 4 Uttara basti netra- 2, Vrana basti netra - 1, Dakodara yantra -1 Mutra vridhi stravan yantra -1, Dhoomayantra- 3, Nirudhaprakasha yantra (1) Sannirudha guda yantra(1) Alabu yantra (1)Shringa Yantra(1)*

These nadiyantras are structured with various lengths and diameters as per their use. They have single opening at the end or opening at both the ends. These nadiyantras were routinely used for various purposes.

From the above table, it is clear that Sushtra and his disciples were well familiar with various nadiyantras and they were routinely using these yantras to perform different surgical procedures mentioned in above table.

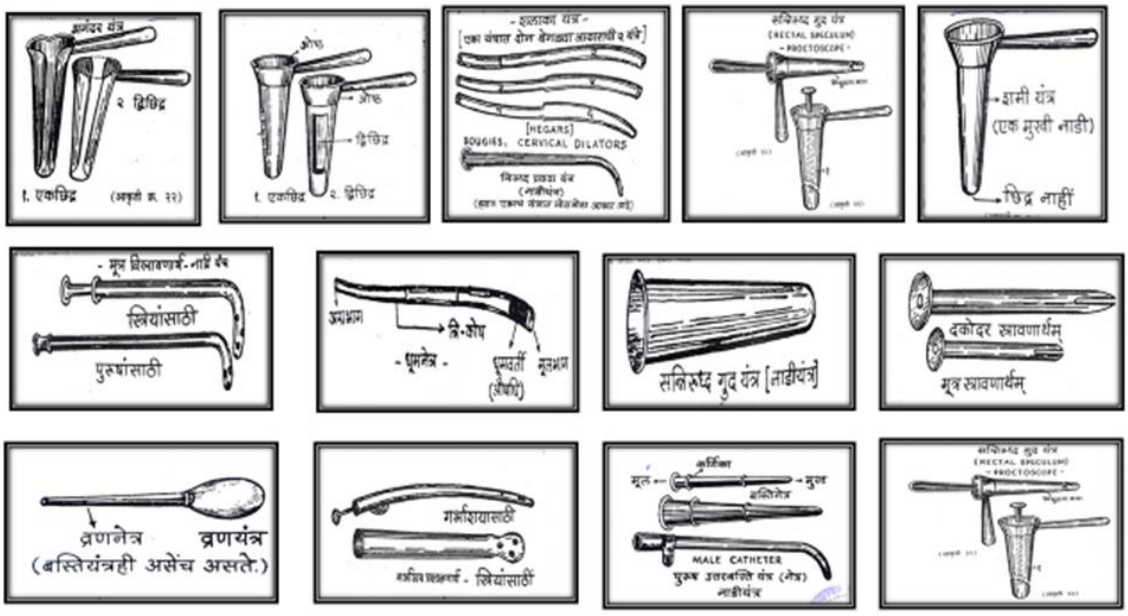
Sincere efforts are made to give the relevant description of Sushruta's Nadiyantras with modern instruments and their uses.

1) **Inspection *(Vyadhidarshan)*** -*Nadiyantras* used for the inspection of *Arsha, Bhagandar* and diseases of *karna, Nasa* and *yoni* are. anoscope proctoscope, sigmoidocolonoscope, rhinoscope and Otoscope, bronchoscope. Colposcope.
2) **Instillation (Puranam)-** Karnapooran, Nasapooran, Gudpooran(basti) *Nadiyantra* used for the *poornam* in modern sciences are today's Ryles tube, feeding tube, syringes, enema tubes, Scalp veins, intracaths, and IV set, stomach tube.
3) **Drainage (*Stravanam*)-** *Jalnirharan* and *Mutranirharan, Raktapuya nirharan. Nadiyantras* used for drainage are all types of catheter, all types of surgical drains (Closed and open drains, corrugated rubber drains.) flatus tube. Trocar and cannula.

4) ***Shastrakarmasaukaryartham*** **(facilitation of surgical procedures**)- *Nadiyantras* used for facilitation of surgical procedures are are *endoscope, gastroscope*, and laparoscope.
5) ***Aachushan*** **(sunction/ aspiration)** – *Nadiyantras* used for the sunction of *dushivish, Dushtastanya, raktamokshan* with *shrunga* and *alabu* are VAC machine, suction machine, breast Pump, nasal aspirator, needles (for FNAC), and syringes.
6) ***Pradhaman*** **(insufflation)** - is blowing of medicated powder or fumes in nasal cavity. Creating Pnemoperitoneum (CO2 Insufflation) for Laparoscopic surgeries. Oral and Nasal sprays. Nebulisers. Inhalers.
7) ***Strotogatshalyaudharna*** (removal of foreign bodies blocked in *strotas* or channels.) *Nadiyantras* used are the various scopes, catheters.
8) **Vranadhavnartha**- Syringing or irrigation of the wound with *Kshaya*. Nadiyantras used are the syringes and catheters.
9) **Dilators**–Anal dilators available today are the advancement of Sushruta's *saniruddhgudayantr*a Similarly, all types of urethral dilators are also the recent form of *Sushruta's nirudhaprakashyantra*.

These urine dilators might be hollow from inside in case if the urine comes out during the process of dilatation of urethra. Hence, *Acharya Sushruta* might have included dilators in *Nadiyantra.*

Thus, we can claim that today's modern scopes used for various surgical procedures have their origin in Ayurveda and they simulates with above nadiyantras of Sushruta's period.



CONCLUSION

Modern system of medical science has always taken the benefit of progress in science and advancement in technology and accordingly upgraded their pathy with advanced technology including endoscopes, laparoscopes etc. for the ease of surgical procedures. But Ayurveda surgeons, failed to accept these favorable changes in their pathy. Hence, there was no progress in Ayurveda surgical techniques and instruments. If we could have modified our *nadiyantr as* by using stainless steel material and flexible parts, latest light source, optic fibre, cameras and videos, zooming technology, then no doubt our nadiyantra would have been the today's endoscope.

REFERENCES

1. Sushrut Samhita. Sushrut Samhita, Sthan- Ayurved Tatva Sandipika, Dr.Ambikadatta Shastri, Sutra Sthan 7/13, 12th Ed. Chaukhamba Sansthan, Varanasi, 2001; 34.
2. Sushrut Samhita. Sushrut Samhita, Sthan- Ayurved Tatva Sandipika, Dr.Ambikadatta Shastri, Sutra Sthan 1/7, 12th Ed. Chaukhamba Sansthan, Varanasi, 2001; 5.
3. Sushrut Samhita. Sushrut Samhita, Sthan- Ayurved Tatva Sandipika, Dr.Ambikadatta Shastri, Sutra Sthan 7/18, 12th Ed. Chaukhamba Sansthan, Varanasi, 2001; 36.
4. Sushrut Samhita. Sushrut Samhita, Sthan- Ayurved Tatva Sandipika, Dr.Ambikadatta Shastri, Sutra Sthan 7/18, 12th Ed. Chaukhamba Sansthan, Varanasi, 2001; 36.
5. Sushrut Samhita. Sushrut Samhita, Sthan- Ayurved Tatva Sandipika, Dr.Ambikadatta Shastri, Sutra Sthan 7/6, 12th Ed. Chaukhamba Sansthan, Varanasi, 2001; 33.

6. Sushrut Samhita. Sushrut Samhita, Sthan- Ayurved Tatva Sandipika, Dr.Ambikadatta Shastri, Sutra Sthan 7/13,12th Ed. Chaukhamba Sansthan, Varanasi, 2001; 34.
7. Sushrut Samhita. Sushrut Samhita, Sthan- Ayurved Tatva Sandipika, Dr.Ambikadatta Shastri, Sutra Sthan 7/13,12th Ed. Chaukhamba Sansthan, Varanasi, 2001; 33.
8. Sushrut Samhita. Sushrut Samhita, Sthan- Ayurved Tatva Sandipika, Dr.Ambikadatta Shastri, Sutra Sthan 7/14,12th Ed. Chaukhamba Sansthan, Varanasi, 2001; 34.