# Indian Journal of Gynaecological Endoscopy

August 2017
Volume 13

*DGES Secretariat:*
**Jeewan Mala Hospital**
67/1, New Rohtak Road, New Delhi 110005
Tel.: 011-40043355, 47774141, 23511474, 65094990
M: +91 9212150571, 9212526855, 9811557511
Email: dgesjmh2017@gmail.com, www.dges.in



# Indian Journal of Gynaecological Endoscopy

**August 2017**


# Contents

# From the Desk of President

It is indeed a pleasure and an honor to become the President of one of Delhi's oldest endoscopy organizations "Delhi Gynaecological Endoscopists Society". Having established itself in 1993 DGES has been actively involved to promote Gynae Minimal Access surgery in the Capital region of Delhi-NCR. It has in these years seen tremendous progress to reach today where it is.

I must take this opportunity to thank the past presidents, my seniors and the executive members of the past who worked hard and put in their best to make DGES a success. It is with this approach of working selflessly to promote not only this great forum but also to reach out to the many Gynecologists of Delhi-NCR that I accept the honor to present this Presidential message. I would like to thank all our members for encouraging and supporting DGES programs. With team DGES 2017-18 comprising of proficient office bearers, I am certain we shall be able to accomplish much more for DGES in the coming years.

Theme for next two years is "Safe Endoscopy for all". Gynecological endoscopy has revolutionized the management of Gynecological problems. With the availability of wide range of endoscopic instrumentation, equipments, and electro surgical generators operative gynae-endoscopy has shown a rapid progress in recent past. In this two year tenure, the DGES team will specially focus to cover basic to advance gynae endoscopy by conducting regular workshops, CME's, hands on activities and conferences. Our goal is to further hone the skills of post graduates, budding gynae-endo-surgeons and the learned gynae-surgeons. We will work towards educating gynecologists about best practices in practicing safe gynae-endoscopy. This would not only include latest, research based clinical protocols but also educating them about how to choose various technologies available today. Cost - benefit analysis will be an integral part of our two-year tenure.

In today's world where people use smart phones and tablets I believe it is imperative to be up to date with technology. One of our key objectives is also to make the DGES website more vibrant, informative and interactive for all of you. I also take this opportunity to cordially invite more and more gynecologists to become members of this prestigious society. We look forward for your active participation to make DGES a vibrant society.

With warm regards

**Malvika Sabharwal**
Padmashri Awardee
President, Delhi Gynaecologists Endoscopists Society (DGES)
Past Managing Comittee Member IAGE
Exec. Member of Association of Obstetrician and Gynaecologists of Delhi (AOGD)
Director, Department of Obstetrics & Gynaecology
Jeewan Mala and Apollo Spectra Hospital, Karol Bagh, New Delhi, India
M.: +91-9810116293 • Email: drmalvika@jmh.in, jmh.cme@gmail.com
website: www.jmh.in

# From the Honorary Secretary

It is indeed a great honor and privilege for me to be appointed as the Secretary of the Delhi Gynaecological Endoscopists Society (DGES).

I firmly believe the DGES has the potential to grow to soaring heights under the current Executive team. With the support of all the members we shall focus on fruitful academic sessions, theme oriented conferences and academic journals and also aim to increase the current membership number. Practicing Safe Endoscopy being the theme of the next two years we will work hard as an organization to expand its role in the daily Gynecological practice of doctors.

We plan to have hands on sessions, updates with CME's and Conferences and liaisons with other National and International forums with a focus on improving the present skill set. Much has been achieved by earlier past office bearers, but I believe that DGES still has much more potential and scope.

I, very humbly look to everyone's participation and keen involvement to fulfill our 2017-18 goals.

**Shivani Sabharwal**

## Forthcoming Events

- Annual Conference of Association of Obstetricians & Gynaecologists of Delhi (AOGD). Pre-conference Live Workshop on Endoscopy on 17th November, 2017
- DGES Module 2: Endosuturing Training
- DGES Module 3: Operative Laparoscopy: Unedited Videos

## Events Held

- DGES Module 1: Basic Endoscopy Training Module at VMMC & Safdarjung Hospital, LHMC & SSK Hospital and UCMS & GTB Hospital on 16th March, 2017, 8th July, 2017 & 21st July, 2017
- Endoscopic Video Session under aegis of AOGD at Hotel Lalit on 19th March, 2017
- Live Minimally Invasive Gynae Workshop at Max Hospital, Saket on 21st March, 2017
- Video Endo Gynae Conference and Hands on training at Maulana Azad Medical College, New Delhi on 29th April, 2017.
- Legend Go Live Workshop cum Conference at Hotel Lalit by Sunrise Hospital under aegis of DGES on 1st & 2nd July, 2017

# From the Editor's Desk

Welcome aboard the Indian Journal of Gynaecological Endoscopy. It's with great pleasure I along with my young versatile co editors present this edition of journal, the first after the new team has taken over under President Dr Malvika Sabharwal.

The theme selected for the year 2017-2018 is Safe Endoscopy. Team DGES 2017-2018 plans embarking on its journey to safe endoscopy addressing issues ranging from bascis to advances. Keeping in sync with the theme this edition includes an article on advances in gynae endoscopy which gives a glimpse of how endoscopy is evolving with time for enhanced safety and better ergonomics.

Uterine manipulation is an important component that influences the successful culmination of total laparoscopic hysterectomy. Different surgeons have their own preference as regards selection of method of uterine manipulation. We have sought the perspective of two young endoscopists who use different methods of uterine manipulation and reasons why they prefer a specific method.

India has got talent across all fields; we share with you the contribution of stalwarts in the field of Gynae endoscopy. The first in the series is Dr Shailesh Puntambekar who has brought India to limelight on the world map by carrying out the first uterine transplant laparoscopically. We share with you his innovations and contributions in the field of Gynae endoscopy

To keep you updated on the latest we share with you the synopsis of two interesting articles in the segment Journal scan. This issue also includes the abstracts of free papers to be presented in the annual conference of DGES.

Hope you enjoy reading this Journal. We welcome your comments and suggestions which will help us tailor this Journal as per your needs.

**Manju Puri**
Editor

**Shilpi Nain, Sheetal Sabherwal**
Co Editors

# Remembering Dr Rakesh Sinha - The Legend

A young boy asked his Father, “why is it that God takes away the best people from us, so soon?” The Father said” if you go to a garden, which flower will you pick?” to which the boy replied, “only the loveliest and the most fragrant!’, and that’s what God does too! It’s a similar kind of thought that comes to mind, when we think of Dr. Rakesh Sinha. To the family, friends, and to the medical community at large, it’s an irrevocable loss.

Dr Rakesh Sinha was a renowned laparoscopic surgeon, past president of the Indian Association of Gynecological Endoscopy (IAGE), and a board member of the international society too. He ventured from hysteroscopic resection of endometrium to laparoscopic removal of large fibroids and uteri, Dr Sinha was an early adapter of technology and skill based advances in endoscopy. He was enthralled by 3D laparoscopy, his centre, Women’s hospital, became the first 3D Laparoscopy centre. He was a two time Guinness World Record holder, one for having removed the largest fibroid weighing 3.4kg laparoscopically and second for having taken out the largest uterus weighing 4.1kg laparoscopically.

His signature skill was laparoscopic suturing, a teacher par excellence; he believed in sharing his knowledge and has many training programs to his credit. He conducted training in 12 countries and over 60 cities in India! As organizing Chairperson he hosted 11 national conferences on focused topics like Just Fibroids, Just Hysterectomy, Just Innovations, and Just Complications etc.

Multitalented and multifaceted, he was also a motivational speaker and mind management expert; he delivered management lectures and motivational speeches for several corporates. As young doctors at medical conferences, we used to eagerly wait for his inspiring talk. He was a fitness enthusiast too, running was his passion and he ran regularly. He had completed four international marathons having run 42.195 kms each time.

A prolific reader and writer, he had recently launched his book, “The Anatomy of Success”. It became a best seller and is available in bookstores and on www.anatomyofsuccess.in and www.amazon.com.

His wife Dr Manju Sinha reminisces that he believed in unconditional love for his family, giving both time and affection in abundance. A visionary, he loved his work, and had excellent time management skills. Dr Rakesh Sinha believed, “It takes one dream, one idea and one thought to change your life” and he did show by example, how ideas and thoughts were implemented successfully.

While writing his books, he had handwritten all the notes and always joked that there was enough matter for 10 more books!!” And with that thought being echoed here, as I write a few words about Dr Rakesh Sinha, there is enough matter for 10 more articles, the list of achievements being so long, we weren’t able to accommodate all. But, it’s the spirit of innovation, of ever discovering new frontiers and trying to keep perfecting yourself, along with spreading your light to engulf the darkness around, it’s that spirit of greatness, that he should be remembered.

**Dr Sheetal Sabherwal**

REVIEW ARTICLE

# Advances in Gynae Endoscopic Surgery

**Sharda Patra*  Manju Puri****
*Professor, **Director Professor
Department of Obstetrics and Gynecology, Lady Hardinge Medical College, New Delhi, India

The foundation of modern laparoscopy was laid down by Kurt Semm approximately 30 years back. Since then the technology has advanced by leaps and bounds from basic laparoscopy to complex laparoscopic surgeries. Despite the development of multiple novel technologies since the 1980s, very little has changed with regard to basic concepts and practice of laparoscopy. Laparoscopic surgery has advanced both in technology and techniques and has revolutionized the way we perform traditional surgery.

The present review highlights the major advances in the field of endoscopy.

## Advances in Instrumentation

Despite the advantages laparoscopic surgery is associated with serious complications. A significant number of injuries are entry related. To increase the safety and improve the ergonomics there has been an ongoing effort for modification of the instruments. Some of these are as described below:

### Flexible Trocar

These trocars are ergonomically friendly due to its flexible make, ensure safe and comfortable handling during placement and facilitate use of curved instruments. These are provided by one piece sealing system which minimizes friction between the valve seal and the operating instruments.[1]

### Insufflation devices

Air seal system is one such device with a valveless trocar and tri-lumen filter tube set attached to the insufflator system. The valveless trocar enables smooth access to abdominal cavity, intact specimen removal, and unimpeded introduction of clips, needles, sutures and mesh. The Tri-lumen filtered tube set has three lumens, one for inflow which delivers filtered CO2 to abdominal cavity, one for outflow which evacuates and filters smoke collected during the procedures and facilitates the recirculation of CO2 by the insufflator unit back to abdominal cavity and third for constant pressure monitoring. The pressure monitoring is a real-time pressure sensing which immediately responds to dynamic changes in intra-abdominal pressure and potentially decrease CO2 consumption. Thus the complete system maintains a more stable high-flow pressure that rapidly replaces the sudden decrements in pressure in case of leak, automatic smoke evacuation maintaining a lower intra-abdominal pressure with a possible resultant decrease in CO2 absorption and a regular circulation of gas enabling an adequate visualization of the operative field for safe completion of surgery[2]

### Stapling devices

There has been a constant modification in the designing of staplers from poorly adapted endoscopic versions to much more sophisticated forms specific to different procedures and tissues, with respect to more ergonomically improved handle sizes and powered functions[3]

### Newer morcellation devices and systems[4]

In response to the negative impact on surgical outcomes and health care costs due to power morcellator, surgeons embarked on a quest to overcome the challenges and eliminate tissue dissemination during morcellation with innovative approaches. Various methods have been described for in bag morcellation of specimen within an insufflated isolation bag.

In, Sydney in bag morcellation technique, the surgical specimen is placed inside the retrieval bag and a 12-mm trocar is inserted into the bag through the umbilicus followed by insufflation. Subsequently, a 5-mm balloon-tip trocar is pierced into the insufflated bag with the specimen inside. Power morcellator is introduced through the umbilical incision and telescope through the 5 mm trocar and morcellation is performed under

optic visualization. After morcellation, the isolation bag is removed through the umbilical port after deflation of trocar balloon. Another isolation bag is available consisting of two openings; the larger opening is used for placement of the uterine tissue inside the bag and introduction of the power morcellator as well, while the smaller opening is used to insert the laparoscope.

For morcellation of uterine specimen within an insufflated isolation bag during single-site laparoscopic surgery, a cordless electric morcellator is introduced through a 5-mm trocar, the uterine specimens are morcellated in a contained fashion without any complications. As this technique neither requires bag penetration nor piercing with trocar it appears a reliable approach. With the availability of many techniques and several specimen retrieval bags, power morcellation in an enclosed fashion should be the preferred method, however there is a need for further studies to confirm its safety and feasibility

## Advances in Optics

One of the main advantages of laparoscopy is the enhanced appreciation of intraoperative anatomy through the use of magnifying optics with high-definition. Recently advancements in visualization have been on the rise, with incorporation of high tech optical equipment with enhanced optics and illumination.

Advances in Three-Dimensional Endoscopic Systems have been reported with greater comfort to the surgeon with the new light-polarizing glasses compared to the earlier active shutter glasses. Several 3D endoscopic systems that provide much higher resolution than previous 3D prototypes are commercially available. These systems do not induce the adverse visual symptoms such as nausea, visual fatigue and visual disturbance that were experienced with the previous 3D prototypes[5]

Another system 3D dome-shaped display system with high resolution has an increased depth perception. It does not require a shutter mechanism in the glasses, which often causes significant side effects as well as dark images when using the previous 3D prototype[6]

3D endoscopic system with 4K CCD chips is also a new system that provides full high definition (HD) 3D images as the da Vinci® surgical system. The 3D images contribute to the accuracy and safety of the procedures during complicated advanced surgery, such as oncological surgery with fine lymph node dissection[5].

Articulating HD 3D Laparoscopic Surgical Video System is a new technology that restores natural 3D vision and depth perception improving speed, accuracy, and precision of surgical tasks. It has a 5-mm HD videoscope with an articulating tip that can bend in all directions up to 100 degrees. The all-in-one design integrates the light cable and camera system into the laparoscope for improved ergonomics and easier set up. As the “camera” is near the tip of the instrument, it enables bright, clear images and eliminates the need for manual focusing. In addition, narrow band imaging enhances visualization of vessels and other mucosal surface tissues and is always available in both 2D and 3D viewing modes.[5, 7]

A system with fluorescence imaging with the Near-Infrared / Indo Cyanine Green technology is available which provides visualization beyond the tissue surface. Near-infrared (NIR) technology makes it possible to visualize the distribution of the fluorescent contrast agent indocyanine green (ICG), which enables enhanced visualization of anatomical structures such as the biliary ducts, the lymphatic system and blood vessels. Following intravenous administration, ICG naturally collects in the area of target tissue allowing a rapid and reliable identification, reliable differentiation between tissues, detects intra operative leaks as displayed with ICG. The system is characterized by a fluorescence mode with background illumination, rapid switchover via footswitch between white light and ICG modes. It is provided with telescopes for endoscopic and open surgical interventions. It also enables non-radioactive visualization of the entire lymph system surrounding a tumor in real time. Thus NIR / ICG fluorescence imaging allows better differentiation between well-perfused tissue and ischemic areas, rapid visualization of the lymphatic system and shortens the surgical duration[8]

The use of intra operative real-time ultrasonic (US) visualization in robotic surgery with simultaneous display at the console is also available. This can be used with a variety of ultrasound probes either by the surgeon himself (through a robotic instrument) or an assistant sitting by the side of the patient. This

technology enables an accurate localization of deep seated tumors or endometriotic deposits not visible through the laparoscope and subsequently a possible decrease in operative time.[9]

## Advances in Electro Surgery

The use of advanced energy sources has also matured substantially over time and is not limited to simple monopolar and bipolar energy but encompasses countless other technologies in development. With the advent of newer generators and innovative instrumentation, a better delivery of the appropriate quantity of energy has led to a better sealing of vessels. Owing to the inherent problems associated with the existing conventional bipolar electrosurgery, technological developments were achieved so as to provide more consistent and reliable hemostasis with significantly less lateral thermal damage.

### Advanced Bipolar

In this the delivery of electrical energy is highly pulsatile, allowing for tissue cooling during activation in an attempt to minimize lateral thermal spread. It uses pressure along with coagulation. There is also a computer controlled tissue feedback response system that monitors tissue impedance and/or temperature in order to adjust continuously the current and voltage generated by the unit. All advanced bipolar devices are capable of tissue transection with an incorporated cutting mechanism. The cutting device is most commonly a retractable blade built into the jaws of the instrument. Currently available advanced bipolar technologies include LigaSure, Starion Tissue Welding system, EnSeal and Plasma Kinetic System[10]

### Ultrasound devices

In this technological advancement, tissue effects are produced by mechanical energy in the form of vibrations at over 20 kHz (i.e., above the audible range) instead of electro surgical current. This mechanical energy along with the generated heat causes protein denaturation and formation of a coagulum that seals small blood vessels. Ultrasonic surgical dissection allows coagulation and cutting with less instrument traffic with resultant reduction in operating time, less smoke, no electrical current, less tissue necrosis and charring, reduced lateral thermal spread, and less smoke generation. Currently available laparoscopic ultrasonic devices include the Harmonic ACE, Auto Sonix, Sonocision and SonoSurg. They can seal vessels up to 5mm[11]

### Hybrid technology

This combines advanced bipolar and ultrasonic energies into a single multifunctional hand instrument that allows surgeons to simultaneously seal and cut vessels 7 mm or smaller with minimal thermal spread. The device reportedly delivers reliable vessel sealing and provides the highest grasping forces at the tip compared with similar energy instruments currently available[12]

### Ferromagnetic (FM) based vessel sealing device

It is a commercially available hemostatic dissecting scalpel which uses ferromagnetic heating as its source of energy. The heating element of the FM sealer is plated with a microscopic ferromagnetic alloy on the areas that come in contact with tissue. A high radiofrequency electric current is delivered through the heating element creating a rapidly altered magnetic field. The electric current returns to ground through the FM sealer and never passes through the patient. The ferromagnetic alloy reacts to the rapidly alternating magnetic field instantly generating thermal energy. This thermal energy is then directly applied to the target tissue through the compressing jaws of the instrument. Heat conducts perpendicularly through the compressed tissue for sealing and dividing purposes. FM sealer seals arteries and veins ranging between 1 and 7 mm diameter, as compared with ultrasound and bipolar vessel sealing devices. This technology allows for precise temperature control with rapid heating and cooling, the heat generated is restricted to the coating itself and the tissue in contact with the coating, no electrical energy or magnetic effects are delivered to the surrounding tissues and thus, the device remains electrically silent[13]

## Technical Advances

### Advancement in Laparoscopic access

The surgical intervention has evolved from classic open surgery to minimally invasive laparoscopic surgery to development of still lesser invasive techniques like LESS, NOTES and mini laparoscopy. Amongst these, two new emerging techniques;

Laparo- Endoscopic Single- Site surgery (LESS) and Natural Orifice Transluminal Endoscopic Surgery (NOTES) are surgical approaches with minimum cutting and virtually no scars and significantly lesser surgical site pain, hospital stay and highest level of satisfaction. In LESS, surgery is performed through a single port of entry in to the abdominal cavity in an attempt to achieve minimum pain, enhanced recovery, and improved cosmesis. In contrast; natural orifice surgery (NOTES) is surgery performed in a scar-less fashion through natural orifices; transoral, transvaginal, transrectal or transurethral routes. Owing to the difficulties associated with pure NOTES, use of a hybrid NOTES technique is on the rise. It involves use of some instruments through one or two accessory ports usually one or two 5 mm ports in addition to those through the natural orifice.

LESS and NOTES have been successfully utilized in urologic, gynecologic, and digestive-tract procedures and continue to evolve in multiple clinical areas. Special devices, trocars, access ports and instruments have been devised for these techniques to ensure safety.[14,15]

Flexible laparoscopy or Single Port Instrument Delivery Extended Reach (SPIDER) involves use of flexible articulating instruments with a triangulation outside via single incision, a single operator with optimum control of operative field. There is no fulcrum effect at incision site. The SPIDER is a sterile and disposable device that contains 4 working channels 2 flexible instrument delivery tubes positioned laterally and 2 rigid channels, superiorly and inferiorly to accommodate an endoscope or any of the shelf rigid surgical instruments. The SPIDER platform facilitates safe and straightforward single-site laparoscopic surgery.[16]

Mini-laparoscopy is one of the recent advancements in the field of minimally invasive surgery which involves surgery with instruments that range between 2 - 4 mm in diameter; in contrast to traditional laparoscopy incisions which range from 5 mm to 12 mm. These instruments are manufactured with technology that is stated to increase its overall strength and performance. It is inserted with the use of a trocar that is small and provides the expected cosmetic benefit. They are designed for use as primary instrumentation and are lightweight. The trocars are 15 cm long, have silicone leaflet valves, and can be used in nearly all interventions. Mini-laparoscopy is a valid alternative to traditional laparoscopy for difficult minimally invasive procedures and has been proven to be a technique that can be learned easily by surgeons[17].

### Gasless laparoscopy with the Abdo-Lift

This abdominal wall retraction system allows the modern imaging technology of laparoscopy to be combined with standard techniques and operation methods using conventional instruments. It is reusable and cost effective. It offers enormous benefits for the patient, surgeon, hospital and health care system. On one hand, the gasless technique enables a simple, effective and economical introduction into surgical laparoscopy, and on the other hand it allows an extension of the spectrum of indications for minimally invasive operations[18]

### Robotic surgery

Robotic surgery is a major advancement as far as technical advances are concerned. However inspite of its advantages as far as ergonomics and surgeon comfort and dexterity is concerned it is costly and cumbersome. However it has a short learning curve. Full da Vinci® Surgical system is characterized by a magnified 3D HD vision system and special wristed instruments that bend and rotate far greater than the human wrist. Therefore, this robotic surgical system allows for performing complex surgery with enhanced vision, better depth perception, precision, dexterity, and control contributing to increased safety and accuracy[5]

In laparoscopic surgery the surgeon partially feels the interaction of the instrument and the tissue via the shaft of the instrument (force feedback), but doesn't sense the tactile feedback as he is not touching the tissue directly with his fingers as in open surgery. However in robot-assisted surgery the surgeon lacks both the force and tactile feedback. Robotic surgical platform provides complete force feedback as in direct laparoscopy but no tactile feedback and has been used in gynecological procedures such as ovarian cystectomy and hysterectomy [19,20]

## Advances in Hysteroscopy

### Plasma hystero-resectoscope

The 8.5 mm hystero-resectoscope, with 4 mm high

definition telescope, is designed with extra-low dispersion glass and offers several dedicated plasma electrodes, offering a variety of treatment options in gynecology. The system uses plasma energy which is generated as a precise stream which dissipates rapidly as it comes in contact with the tissue, but with controlled penetration and minimal thermal effect. It incorporates vaporization electrodes with loops of various sizes for resection and coagulation of polyps, myomas and the endometrium, enabling fewer cuts, quicker resection and lesser operating time. Plasma resection and vaporization creates an electrically conductive gas cloud of vapor and charged particles. During gynecologic procedures, plasma is created by the combination of radio frequency, energy and saline. Due to its conductivity, the plasma allows the energy to cross into the targeted tissue at lower energy levels than with more traditional approaches. This effect leads to lower operating temperatures and therefore less thermal spread.

## Conclusion

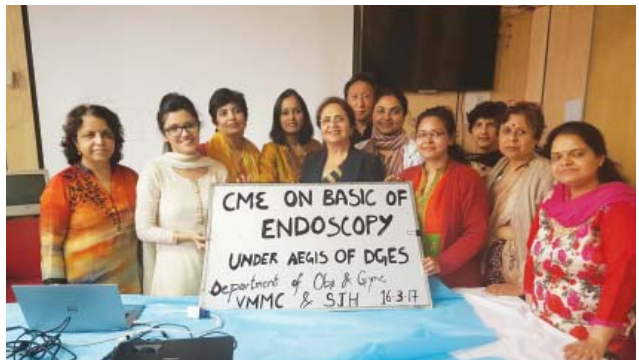
Laparoscopic and robot-assisted approaches in gynecology have fostered significant advances in minimally invasive surgery. Efforts continue to explore newer less invasive technologies and procedures. The widespread use of minimally invasive approach will be defined by the advances which increase the safety of these procedures and make them simpler and ergonomically friendly. In order to prove the clinical utility of these newly described technologies and their equivalent therapeutic benefits compared with conventional laparoscopy, there is a strong need to have an objective and stringent evaluation of its clinical outcome.

## References


1. Karl Storz LAP 2017 brochure 1.1 05/2017/YHL-E. Highlights 2017
2. Horstmann M, Horton K, Kurz M, et al. Prospective comparison between the Air Seal System valve-less Trocar and a standard Versaport™ Plus V2 Trocar in robotic-assisted radical prostatectomy. J Endourol. 2013; 27 (5):579–582
3. Homero R, Daniela DC. Present and future advanced laparoscopic surgery. Asian J Endosc Surg . 2013; 6:59–67
4. Taylan E, Sahin C, Zeybek B , Akdemir A . Contained Morcellation: Review of Current Methods and Future Directions. Front. Surg 2017; 4 (15):1-5.
5. Ohuchida K, Eishi N, Ieiri S, Tomohiko A, Tetsuo I Advances in Three-Dimensional Endoscopic Surgery. J Gastroint Dig Syst . 2013; 3: 152
6. Ohuchida K, Kenmotsu H, Yamamoto A et al. The effect of CyberDome, a novel 3-dimensional dome-shaped display system, on laparoscopic procedures. Int J Comput Assist Radiol Surg 2009; 4: 125-132
7. Jia Tang, Li-qian Wang, Bo Yuan et al . New technique: Design and calibration of a new high-definition three-dimensional laparoscopic system. Frontiers of Information Technology & Electronic Engineering.2015; 16(1):79–84
8. Guillotreau J et al. Real-time robotic transrectal ultrasound navigation during robotic radica l prostatectomy: initial clinical experience. Urology . 2012; 80 (3): 608–613
9. Bjurlin MA, McClintock TR, Stifelman MD: Near-infrared fluorescence imaging with intraoperative administration of indocyanine green for robotic partial nephrectomy. Curr Urol Rep. 2015; 16(4):20
10. Newcomb WL, Hope WW, Schmelzer TM et al. Comparison of blood vessel sealing among new electrosurgical and ultrasonic devices. Surg Endosc. 2009; 23: 90-96.
11. Alkatout I, Schollmeyer T, Hawaldar NA, Sharma N, Mettler L. Principles and safety safety measures of electrosurgery in laparoscopy. JSLS. 2012; 16: 130-139.
12. Seehofer D, Mogl M, Boas-Knoop S et al. Safety and efficacy of new integrated bipolar and ultrasonic scissors compared to conventional laparoscopic 5-mm sealing and cutting instruments. Surg Endosc. 2012; 26 :2541-49.
13. Chen J, Manwaring PK, Scott RR et al. Ferromagnetic heating for vessel sealing and division: utility and comparative study to ultrasonic and bipolar technologies. Surg Innov. 2015; 22: 329–337
14. Bulian DR, Knuth J, Cerasani N et al . Transvaginal/ transumbilical hybrid-NOTES-versus 3-trocar needlescopic cholecystectomy: short-term results of a randomized clinical trial. Ann Surg. . 2015; 261(3): 451–458
15. Khorgami ZH, Shoar S, Shoar N et al. Single Incision Laparoscopic Surgery: Review of Pros and Cons. Acad J Surg, 2014; 1(1): 25-32.
16. Giannotti D , Casella G , Patrizi G et al . Spider surgical system versus multiport laparoscopic surgery: performance comparison on a surgical simulator . BMC Surgery.2015; 15:54
17. Ghezzi F, Cromi A, Siesto G et al. Minilaparoscopic versus conventional laparoscopic hysterectomy: results of a randomized trial. J Minim Invasive Gynecol. 2011; 18: 455-461
18. Hao Ren,,Yao Tong, Xi-Bing Ding, Xin Wang, Shu-Qing Jin, Xiao-Yin Niu et al. Abdominal wall-lifting versus CO2 pneumoperitoneum in laparoscopy: a review and meta-analysis. Int J Clin Exp Med. 2014; 7(6): 1558–1568.
19. Fanfani F, Restaino S, Gueli Alletti S, et al. : TELELAP ALF-X Robotic-assisted Laparoscopic Hysterectomy: Feasibility and Perioperative Outcomes. J Minim Invasive/ Gynecol. 2015; 22(6):1011–1017.
20. Gueli Alletti S, Rossitto C, Fanfani F, et al. : Telelap Alf-X-Assisted Laparoscopy for Ovarian Cyst Enucleation: Report of the First 10 Cases. J Minim Invasive Gynecol. 2015; 22 (6):1079–1083).

# Events Held

Jeewan Mala Hospital took over DGES office from AIIMS, New Delhi. Dr Malvika Sabharwal was handed the baton of President DGES from Dr Alka Kriplani and Dr Shivani Sabharwal took over as secretary from Dr Garima Kachhawa




DGES Module 1 - Basic Endoscopy training module was held at Safdarjung Hospital on 16th March, 2017. More than 45 candidates attended this event which was organized by Dr Pratima Mittal

Dr Sudha Prasad and Dr Ashok at Maulana Azad Medical College organized an Endoscopic Video Session conducted under the aegis of AOGD in association with DGES on 19th March, 2017 at The Lalit Hotel. This conference was attended by more than 100 doctors

On 27th March, 2017 A Live Minimally Invasive Gynae Workshop was conducted at Max Hospital in Saket under the aegis of DGES. More than 150 doctors attended this workshop. Enlightening lectures and intellectual discussions were a highlight at this live surgical workshop

First Meeting of DGES in Jeewan Mala Vasant Vihar Clinic

# Events Held



A Video Endo Gynae Conference & Hands on Training was held at Maulana Azad Medical College, New Delhi on 29th April, 2017. Held under the aegis of DGES and organized by Dr Anjali Tempe this conference was attended by 150 doctors. At this event talks were delivered by stalwarts followed by hands on training on laparoscopic instruments and endo-suturing.

"Legends Go Live" was held on 1st & 2nd July, 2017 under aegis of DGES at The Lalit Hotel, New Delhi, show casing live surgeries and recent advances. This mega event was attended by more than 500 delegates.

**DGES Module 1:** Basic Endoscopy training module was conducted at Lady Hardinge Medical College on 8th July, 2017. Organized by Dr Abha Singh and Dr Manju Puri along with Dr Sharda Patra. It was attended by more than 65 doctors.

MEET THE STALWARTS

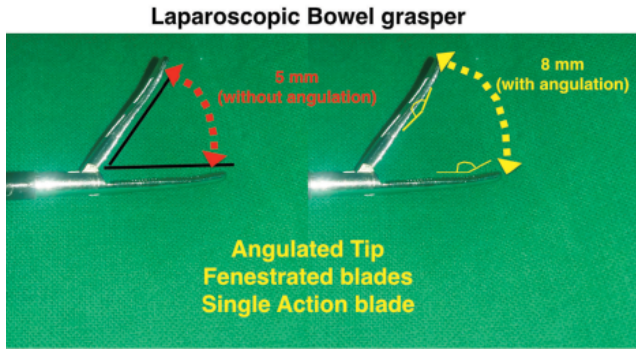
# Dr Shailesh Puntambekar - Indian Stalwart in Gynaecological Endoscopy

Innovations and Inventions are words often used interchangeably but a few key subtleties get blurred in this process. Inventions usually refer to a "thing" an "object", a "product", whereas Innovation is an "idea" or a "perspective". Innovations are inventions that cause a change in behavior and interactions, while an invention is "an innovation materialized even prior to its conception". Inventions may require "Patents" for their existence but innovations don't, because an idea is immortal. In this edition of the Indian Journal of Gynaecological Endoscopy we introduce one such Stalwart Dr. Shailesh Puntambekar who has not only invented and innovated but inspired innumerable budding gynaecological endoscopists by the way he looks at the world of Gynaecological endoscopy. His name stands out in the field of laparoscopic pelvic surgery. He is the master architect of India's first uterine transplant done laparoscopically. He's got many feathers in his cap. Some of his innovations are described below.

## Laparoscopic Bowel holding forceps

A conventional laparoscopic bowel holding grasper is a long flat, fenestrated, straight, serrated, double action forceps used to hold the bowel in an atraumatic fashion. Dr Puntambekar has modified it to a laparoscopic bowel grasper with an "angled tip" for a comfortable and better grasp of bowel. It is just like the conventional bowel grasper but is angulated towards the end. The angulation gives a wider area of grasp enabling it to be superior in holding the bowel. The angulation also gives a gentle tug for holding the bowel more firmly and gently at the same time. One blade of the grasper is fixed and other mobile. This adds stability to the grasper while holding the bowel and prevents the edges from getting rolled over by the bowel underneath. A single tweak brings about a variety of enhancement in the action of the instrument.

**Fig 1:** Bowel grasper

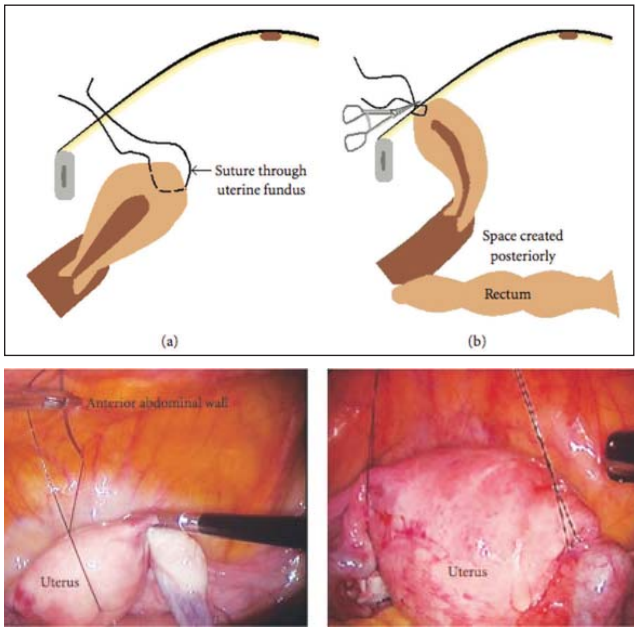



## Uterus hitching technique[1]

Uterine manipulation is the primary step in any pelvic surgery in women. Manipulation can be done either vaginally or abdominally by the manipulator or Myoma screw respectively. However each method has its own flaws specially when used for cervical and uterine cancer surgery. Use of myoma screw could lead to spillage of pus into the abdominal cavity and vaginal manipulators going through the cancerous tissue in the cervical canal or endometrial cavity could lead to tissue breakup, bleeding and spillage of contents in to the circulation and systemic spread. In both conditions, an additional assistant is required for manipulation. In case of abdominal manipulators, an assistant and an extra port is consumed in the process. Thus a cheap, reproducible method for uterine manipulation in pelvic oncosurgery which improves the stability of the uterus and obviates the need for keeping an additional assistant for vaginal manipulation was devised by Dr Puntambekar. This novel technique of uterine manipulation is done by hitching the uterus to the anterior abdominal wall by either using a single suture on the fundus of the uterus or a pair of sutures around the round ligament in case of a larger uterus. This technique gained much appreciation in case of colorectal cancers in women where by hitching the uterus to the anterior abdominal wall, not only is the uterus stabilized but the visualization of the pouch of Douglas is also facilitated for dissection

in the rectovaginal space . The stitch does not go through the tumour tissue and the operating surgeon has full control over the retraction. It reduces the operative time and stress. Lateral counter-traction is also assisted in the anterior dissection of the uterus. Similar techniques have been used previously for benign conditions like the "Leash technique" to prevent specimen loss during laparoscopy and the puppet string variation to facilitate traction and manipulation in large broad ligament fibroids.

**Fig 2 & 3:** A diagrammatic representation of the uterine hitch technique. (a) Suture passed though the muscalature of the uterine fundus. (b) The uterus is hitched to the anterior abdominal wall. a haemostatic forceps is applied to both at the ends. A pull on the sutures will antevert the uterus and displace it anteriorly.




## Novel technique of Total Laparoscopic Hysterectomy[2]

The guidelines by the American College of Obstetricians and Gynaecologists state that the route of hysterectomy depends upon the patient's anatomy and the surgeon's experience. With advent of laparoscopic hysterectomy in 2001 by Dr Harry Reich, various newer techniques and modifications kept evolving. However the fear of complications and lack of standardized "safe technique" and training for total laparoscopic hysterectomy, has been the major reasons for the failure of total laparoscopic hysterectomy to replace open hysterectomy. In 2007 Dr Puntambekar published an article on "Safe Technique" for Total laparoscopic Hysterectomy which was safe, efficient, replicable and less time consuming. This article highlighted the anaesthesia, the port ergonomics, patient and surgeon positioning, use of the myoma screw for cephalad traction, bladder dissection, use of energy sources, and silent tricks of handling the operative hands during surgery and positioning of instruments intra-operatively. His technique of giving away with vaginal manipulators made hysterectomy a safe and simple and replicable surgery. Besides being safe, this method also maintains a good length of the vagina, vault supports and integrity of the pelvic floor. A dictum "fat belongs to the bladder and fat belongs to the rectum" is commonly used by gynac laparoscopists. This phrase was coined by Dr. Shailesh Puntambekar. It is because of this dictum that injuries to the bladder and rectum reduced significantly.

## Laparoscopic Radical Hysterectomy Pune Technique[3]

The most quintessential contribution of Dr. Shailesh Puntambekar to the world of gynaecologic oncology is the introduction of Pune technique of laparoscopic radical hysterectomy. Radical Hysterectomy was first done by Dr. John Clark in 1895 but Dr. Wertheim added pelvic lymph node dissection and resection of parametrium in 1898. It was nearly a century later that the first laparoscopic radical hysterectomy was conducted by Dr. Nezhat in 1992. Radical hysterectomy required knowledge of relevant anatomy for dissection of the ureter, skeletonization of major vessels like mid section of common iliac, external and internal iliac vessels to the level of the circumflex iliac veins, identification and preservation of nerves like genitofemoral and obturator nerves and removal of all the surrounding lymph nodes around these vital structures. Wertheim's hysterectomy was considered too complicated and was simplified by the Pune technique introduced in 2002. The Pune technique is simpler, the dissection is cleaner and more importantly it is replicable. Replicability is important as it arms the surgeons with better skills and confidence to operate without fear. The Pune technique as explained in 6 simple steps makes the dissection very smooth and clean for radical hysterectomy.

1. Posterior U cut
2. Rectovaginal space dissection
3. Pararectal space dissection

4. Anterior U cut
5. Dissection of ureteric tunnel
6. Lymph node dissection/clearance

If these steps are followed meticulously the spaces open up easily facilitating dissection for radical hysterectomy. The Pune technique has been shown to be easier less time consuming and with comparable lymph node clearance. Dr Puntambekar remains synonymous to "The Pune Technique" worldwide and has a series of 915 patients with laparoscopic radical hysterectomy over a period of 15 yrs. The study reveal an average operating time of 92 mins, average blood loss of 165 ml, lymph node yield of 18, intraoperative complications of 5.6% and post operative complications at 1.6%.

The Pune technique later evolved to nerve-sparing laparoscopic radical hysterectomy to minimize the bladder injury and preservation of its function and then further to exenteration surgeries.

**Uterine transplant: The Headlining event of 2017**

Moving on from the world of Gynaecologic Oncology Dr. Shailesh Puntambekar gave a gift to our country by conducting the first successful uterine transplant this year. They say for a surgeon, the surgery is always in the mind first, the hands just execute the orders given by the brain. The idea of preserving all essential structures and meandering the way through the pelvis to remove an organ in totality with all essential structures intact and unharmed would take a lot of mental preparation to see through the whole procedure. With the knowledge and experience gained from extensive pelvic dissection, an adherence to strict protocols, practice on cadaveric donors and 3 years of effort finally materialized in to conducting the country's first uterine transplant. It involved leading and coordinating a team of 12 highly efficient surgeons of varied specialities all working in unison in a symphonic manner dissecting the fascial planes, identifying the important structures, carrying out vascular dissection and anastomosis of uterine vessels to the internal iliac vessels and ovarian vessels to external iliac vessels. The immense efforts and dedication that went into it is commendable. The first uterine transplant in India, happened on 18th and 19th May 2017 in Pune. It has been over 2 months now and both the recipients are healthy, with no signs of graft rejection. The two recipients are slowly and firmly moving towards "Safe Motherhood" with every passing day.

Dr. Shailesh Puntambekar is a pioneer laparoscopic onco-surgeon in the country. He has pushed the limits of laparoscopy in various other fields like laparoscopic oesophagectomy, thyroid surgery, gastro-intestinal surgeries like laparoscopic pancreaticoduodenectomy or laparoscopic Whipple's procedure. He has shared his experiences and trained many national and International surgeons through conferences and workshops and made his mark in the field of endoscopy.

"Throughout the centuries there were men who took first steps down new roads armed with nothing but their own vision. Their goals differed, but they all had this in common: that the step was first, the road new, the vision unborrowed, and the response they received, hatred. The great creators the thinkers, the artists, the scientists, the inventors stood alone against the men of their times. Every great new thought was opposed. Every great new invention was denounced. The first motor was considered foolish. The airplane was considered impossible. The power loom was considered vicious. Anaesthesia was considered sinful. But the men of unborrowed vision went ahead. They fought, they suffered and they paid. But they won."

*-Ayn Rand, The Fountainhead*

## References


1. SP Puntambekar, Dr. AM Patil,Dr. NV Rayate et.al; A novel Technique of Uterine Manipulation in Laparoscopic Pelvic Oncosurgical procedures: The Uterine Hitch TechniqueMinimally Invasive Surgery, vol 2010 Art. ID 836027. doi: 10.1155/2010/836027
2. SP Puntambekar, MS Wagh et al.; A novel Technique of Total Laparoscopic Hysterectomy for Routine Use: An evaluation of 140 Cases. International journal of Biomedical Science.March 2008 Vol 4 No.1 Pg 38-43
3. SP Puntambekar, Dr. RJ Palep et. al; Laparoscopic radical Hysterectomy by the Pune technique: Our Experience of 248 cases: Journal of Minimally Invasive Gynecology ( 2007);14,682-689

DEBATE

# Uterine Manipulator is better than Myoma Screw for Manipulation of Uterus in Laparoscopic Hysterectomy

## For the Motion

**Shivani Sabharwal*, Malvika Sabharwal****

*Consultant, **Director Jeewan Mala Hospital, Delhi

Uterine manipulation during hysterectomy is an essential step to optimize visibility and accessibility of structures. In the conventional approach for hysterectomy, uterine manipulation is done by either applying clamps on the lateral aspect of uterus, or use a myoma spiral or stay sutures. All these would suitably mobilize the uterus to get a good exposure of anterior wall, vesico uterine fold, posterior wall and utero sacral ligaments. Lateral movements allow for the exposure of infundibulo pelvic and tubo ovarian ligaments.

The same steps are replicated in laparoscopic surgery. Uterine manipulation can be done using a myoma spiral or uterine manipulator. Ovum forceps was used when manipulators were not available, however it required cervical dilatation and was user dependent. There was a risk of perforation with small uteri and difficulty in elevation with larger uteri, posterior wall or cervical fibroids and obliterated PODs. Moreover it did not delineate vaginal fornices hence was associated with a risk of vaginal shortening and pneumo peritoneum was not maintained.

Manipulators considerably simplify the pelvic laparoscopic surgery especially complex surgical situations like deep infiltrative endometriosis or a large uterus which is often difficult to access.

Myoma spiral is used for uterine manipulation by many surgeons. This provides a good maneuverability even in a large uterus and its position can be changed frequently during the procedure. The main advantage is that it can be handled by the surgeon himself. However it occupies an extra port and there is bleeding at the site of insertion. Many surgeons infiltrate vasopressin at the site of insertion to overcome this problem. There is a risk of inadvertent spillage of tumor cells in undiagnosed cases of leimyosarcomas. Its use has to be avoided in endometrial cancer, where peritoneal spread of tumor cells is feared and also in patients with pyometra in cervical cancer, where insertion of the screw would lead to spillage of pus into the abdominal cavity. Myoma spiral neither maintains pneumo peritoneum nor delineates vaginal fornices.[1]

Adequate exposure is vital in pelvic surgery and manipulators go a long way in achieving that. They provide uterine mobility in all directions ranging from 120 to 210 degrees depending on the type of manipulator used. They also help in retaining the pneumo peritoneum and avoiding the need of an extra port abdominally.[1,2,3,4]

The importance of a uterine manipulator in the prevention of ureteric injuries is reported in several studies. Firstly, by lateralizing the ureters, manipulators facilitate a perpendicular dissection of the uterine artery. Secondly, they elevate the uterus exposing the cul-de-sac especially in case of endometriosis. Finally manipulators increase the distance between the cervix and ureter by pushing the uterus cephalad, thus allowing safer dissection around the cervix.[4,5] (Figure 1)

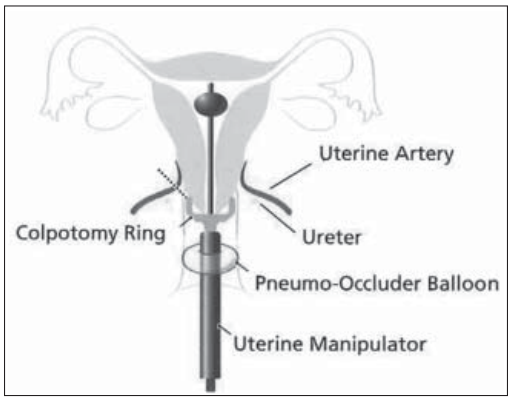
Surprisingly, little evidence exists regarding the efficacy and safety of uterine manipulators. Furthermore, although many authors feel that the cephalad motion of the uterus is extremely important for avoiding urinary tract injuries, since this increases the distance between ureter and cervix, no study exists demonstrating the actual mechanism of the increased distance between cervix and ureter.[2,5,6]

One study mentioned having visualized an increased distance between ureter and cervix when using the RUMI system of manipulation by placing lighted urethral stents.[3] However, the author did not explain how this was performed nor did he supply figures of his observations. The same author also stated that distance between ureter and cervix is actually decreased when a cervical cup that is too large is used and if this is true, it is worrisome, since it implies a reduction of patient safety when using an improper cervical cup. Moreover, no studies are available on

this specific subject, making it impossible to predict the correct shape of the cervical cup, including cups of existing manipulators.[1,2,5,6,7,8,9]

During hysterectomy significant upward traction must be applied to the cervix and uterus. Manipulators stretch the uterosacral ligaments and delineate the cervico vaginal reflection at its upper most point. This is crucial because traction enables the surgeon to incise the vagina near the cervix, thereby retaining the maximum length of the vaginal canal while allowing the uterosacral ligaments to be transacted above the insertion point in the vagina. The latter step is very important, because it reduces the risks of ureteric injury and provides better vault support, eliminating the need to place additional sutures through the ligaments during closure. But many surgeons prefer to plicate uterosacral ligaments together for further support of vault.[3,7,10]

**Fig 1:** Vagina delineated and ureter pushed laterally.




The possible effects of manipulators on uterine malignancies, should be addressed since laparoscopy is increasingly used in gynecologic oncology. In both cervical and endometrial malignancies, clinico-pathological parameters such as infiltration depth and lymph vascular space invasion (LVSI) may be influenced when a manipulator is used. More importantly, no negative effects on the oncological outcome were found in these studies. In addition, larger studies including a prospective randomized trial did not find this influence on clinico-pathological parameters. Based on these studies it can be concluded that the use of a uterine manipulator during gynecologic oncology procedures is unlikely to negatively affect patient's oncological outcome. However, in the absence of definitive evidence, several authors suggest closing the fallopian tubes via cautery or clipping prior to the insertion of a manipulator to prevent spread of malignant cells into the abdomen.

Various types of manipulators have been devised. The commonly used manipulators are described below.

**Clermont Ferrand manipulator:** It is a reusable instrument with range of movement of +140° in the anterior plane, +90° in the posterior plane and a 5-way snap-in lock system. It allows independent movements as the internal shaft moves independently of the rest of the device.[4] Enables easy grasping of the uterine pedicles and maintaining pneumo peritoneum. On down side it is an expensive device which requires dilatation of the cervix up to Hegar dilator no. 9 and training for proper assembles.

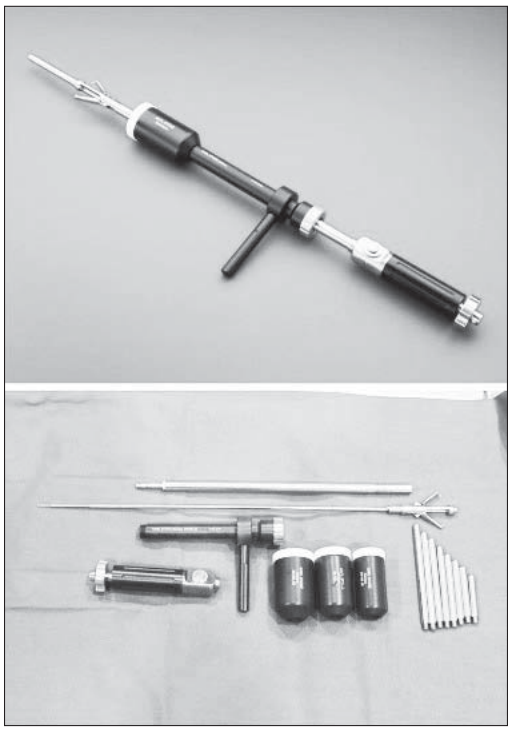
**Rumi System manipulator:** It consists of the RUMI manipulator, the KOH cervical cup and the KOH colpo-pneumo-occluder. It has a $140^0$ range in the anterior-posterior plane. It is good in delineation of vaginal fornices but has restricted elevation of uterus. It is difficult to assemble especially in narrow vagina. The RUMI uterine tip is available in three different lengths and colors: 6 cm white, 8 cm blue, and 10 cm green. The KOH cervical cup is available in either Ultem plastic or stainless steel, in sizes 3.0 cm, 3.5 cm and 4.0cm. The KOH cup distances the ureter from the uterine vessels and facilitates easy coagulation of vessels. This device helps to complete laparoscopic dissection of the cervix and vagina much more easily, resulting in greater efficacy and less blood loss while eliminating the difficulties pertaining to vaginal access. This enhanced uterine mobility also speeds utero-vesical peritoneal dissection and inferior displacement of the bladder.[2,3,4,5,6,11,12,13]

Although it is one of the best manipulators, the literature has mentioned two cases of iatrogenic uterine rupture cause by over-inflation of the RUMI balloon manipulator.[4,13,14] It is a complex device to assemble and it restricts the upward mobility of the uterus, and hence does not afford any benefit in cases of recto-vaginal endometriosis.

**Mangeshikar manipulator:** It is the most commonly used, reusable, completely detachable, low-cost uterine manipulator specifically designed for total laparoscopic hysterectomy (TLH). It can be used in many other laparoscopic surgeries. By appropriately mobilizing the handle, the uterus along with the

adenexa can be manipulated from side to side and can be rotated along its long axis, thus enabling anteversion and retroversion as well as dextro and levo rotation. Sliding in the vaginal delineator helps in identifying the vaginal fornices and choosing the right sized delineator drum helps maintain the pneumoperitoneum.[4] (Figure 2)

**Fig 2:** Mangeshikar Manipulator



Ultimately the ideal choice of manipulators has to be individualized according to the needs of the surgery. During TLH in addition to adequate mobility of the uterus, good delineation of the vaginal fornices is also required. The pneumoperitoneum needs to be maintained after the colpotomy incision. The best vaginal forniceal delineation can be obtained with all the three different manupulators described. In cases of severe endometriosis, a good deal of uterine mobilization and elevation is required, especially when the disease is affecting the recto-vaginal and cul-de-sac area where again the choice of uterine manipulator has to be individualized. When used with a rectal probe, Dr Mangeshikar and the Clermont Ferrand manipulators seem to be best suited to such scenarios as they help to elevate the uterus effectively and delineate the utero-sacral ligaments and expose the cul-de-sac.[10,15]

In conclusion uterine manipulators are very useful instruments. They not only help to expose the anatomy during surgical procedures, but provide the benefit of lateral displacement of ureters. However, evidence regarding their efficacy and safety is scarce. Although uterine manipulators are probably the easiest way to handle the uterus during laparoscopy, alternatives without manipulators have been published and need to be individualized.

## References


1. Mebes I, Diedrich K, Banz-Jansen C (2012) Total laparoscopic hysterectomy without uterine manipulator at big uterus weight ([280 g). Arch Gynecol Obstet 286:131–134
2. Janssen PF, Brolmann HA, Huirne JA (2011) Recommendations to prevent urinary tract injuries during laparoscopic hysterectomy: a systematic Delphi procedure among experts. J Minim Invasive Gynecol 18:314–321
3. Keriakos R, Zaklama M (2000) The RUMI manipulator and Koh colpotomiser system for total laparoscopic hysterectomy. BJOG 107:274–277
4. Ng CC, Chern BS (2007) Total laparoscopic hysterectomy: a 5-year experience. Arch Gynecol Obstet 276:613–618
5. Hourcabie JA, Bruhat MA (1993) One hundred and three cases of laparoscopic hysterectomy using Endo-GIA staples and a device for presenting the vaginal fornices. Gynecol Endosc 2:65–72
6. Bernstein P (1995) A new uterine manipulator for operative laparoscopic hysterectomy. J Am Assoc Gynecol Laparosc 2:331–333
7. Rossetti A, Sizzi O. Instrument test: uterine manipulators for laparoscopic hysterectomy. 12-1-2003, Online Source Keriakos R, Zaklama M (2000) The RUMI manipulator and Koh colpotomiser system for total laparoscopic hysterectomy. BJOG 107:274–277
8. Sharp HT, Williams P, Hatasaka HH, Poulson AM (1995) Comparison of the ClearView uterine manipulator with the Cohen cannula in laparoscopy. J Am Assoc Gynecol Laparosc 2:207–211
9. Rossetti A (2003) the TrocarOnline Video Journal. Compressor Integrator Columbus. Unit of Endocrinological Gynecology, Rome, Italy Studio
10. Mettler L, Nikam YA (2006) A comparative survey of various uterine manipulators used in operative laparoscopy. Gynecol Surg 3:239–243
11. Puntambekar SP, Wagh GN, Puntambekar SS et al (2008) A novel technique of total laparoscopic hysterectomy for routine use: evaluation of 140 cases. Int J Biomed Sci 4:38–43
12. Koh CH (1998) A new technique and system for simplifying total laparoscopic hysterectomy J Am Assoc Gynecol laparosc 5(2):187-92
13. Mueller A, Oppelt P, Ackermann S et al (2005) The Hohl instrument for optimizing total laparoscopic hysterectomy procedures. J Minim Invasive Gynecol 12:432–435
14. Ng CC, Chern BS, Siow AY (2007) Retrospective study of the success rates and complications associated with total laparoscopic hysterectomy. J Obstet Gynaecol Res 33:512–518.
15. Karl Storz GmbH & Co. KG. www.karlstorz.com

# Against the Motion

**Nikita Trehan**
Director, Sunrise Hospital, Delhi

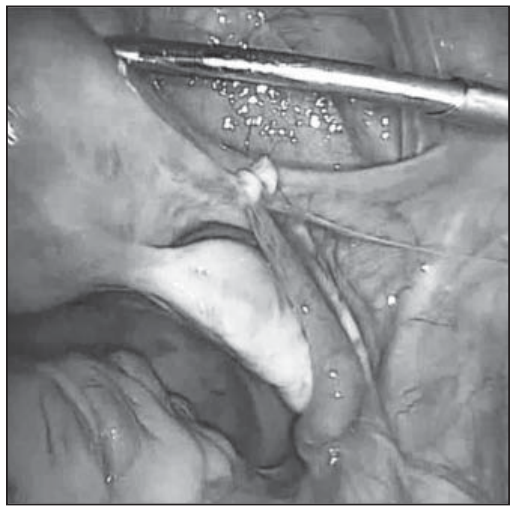
Laparoscopic hysterectomy is a safe and reliable method of performing a hysterectomy with its advantages of minimal blood loss, minimal pain and short hospital stay. Along with these benefits to the patient it offers certain advantages to the surgeon in the form of providing highly magnified and well lit surgical area especially with the Xenon light source and the new 3D vision. Moreover laparoscopic hysterectomy is easily standardised as both the surgeon and the assistant surgeon can easily observe and monitor every step of the surgery facilitating mentoring

As there are several methods of performing total laparoscopic hysterectomy we have standardised the 'Sunrise method' of performing a hysterectomy wherein a direct 10 mm trocar entry is made for the visual port and then three 5 mm ports are inserted under vision one on each side lateral to the inferior epigastric vessels and the third suprapubically in the midline. The myoma spiral is always inserted into the uterus from the right lateral port and the movement of direction of the myoma spiral is then clearly specified at each the step in Sunrise method.

**Advantages of using the Myoma Spiral are described as below:** Compared to a vaginal manipulator the stretch and counter traction of the myoma spiral is much greater, because when the manipulator is pushed from below, the first push of traction is exerted on the intravaginal part of the cervix to compress the cervix and then only does the push of the traction get transmitted on to the cervix. The colpotomiser exerts more traction on the lower pedicles only, hence in large uteri the stretch exerted by the vaginal manipulator may not be sufficient to perform a hysterectomy safely. In a large uterus the cornual pedicles and the vascular pedicles can be stretched well by applying the myoma spiral closer to the cornua to be operated and hence offering better vision to the surgeon with lesser chances of complications. (Pic 1)

The myoma spiral can be reinserted into the uterus to increase the stretch at the area to be operated. The physical properties of the myoma screw used are extremely important; a long pitch corkscrew myoma spiral should not be used because of its low traction force and bending, instead a short pitch corkscrew myoma spiral is preferred. If bleeding from the myoma screw site is a concern in very large uterus, dilute vasopressin can be injected into the uterus and also while reinserting the myoma spiral at a different site the previous site can be plugged with a bipolar cautery.

**Pic 1:** Use of myoma screw for hysterectomy showing the complete stretch of the upper pedicles



Today standardisation of any method is the key to reducing complications. Beginners at laparoscopy who start doing lap hysterctomy can start performing a total laparoscopic hysterectomy with a myoma screw by the sunrise method for a smaller uterus and as they gain expertise, they can easily progress on to performing the procedure for larger uteri. The movements of the myoma screw will be easier for them to practice. This will be far simpler than shifting from vaginal manipulator to myoma screw usage for large uteri.

Disadvantages of myoma screw use are accidental injury to the bowel, bladder and other vital structures if the screw slips out during traction.

## References

1. SP Puntambekar, MS Wagh et al.; A novel Technique of Total Laparoscopic Hysterectomy for Routine Use: An evaluation of 140 Cases. International journal of Biomedical Science.March 2008 Vol 4 No.1 Pg 38-43
2. A four trocar method for performing lap assissted vaginal hysterectomy on large uteri. choijs, kyung ys;Journal of Minimally Invasive Gynaecology 2008 Jul/Aug 276-80
3. Assessment of physical properties of laparoscopic myoma fixation devices; Tintara H et al; Surg Endoscopy 2005 Feb 240-4

# Journal Scan

**Shilpi Nain*, Sheetal Sabherwal****
*Associate Professor, Department of Obstetrics and Gynecology, Lady Hardinge Medical College, New Delhi
**Consultant, Jeewan Hospital, Jeewan Nagar, New Delhi

## Assessment of Synthetic Glue for Mesh Attachment in Laparoscopic Sacrocolpopexy: A prospective multicentric study

**Gery Lamblin, GilDubernard, Pierrede Saint Hilaire, Franck Jacquot, Philippe Chabert, Gautier Chene, Francois Golfier**

Journal of Minimally Invasive Gynaecology, Volume 24, Issue 1, January 2017, pg 41-47

### Background and Objectives

Laparoscopic sacrocolpopexy is the reference treatment for medial compartment prolapse. Suturing techniques need practice and are time consuming, stapling techniques fixation may be weaker, with risk of infection, vaginal erosion, and mesh exposure leading to dyspareunia and risk of spondylodiscitis. Purpose of this review is to assess the anatomical and functional success at 1 year in laparoscopic sacrocolpopexy using synthetic tissue glue for mesh attachment and thereby suggest an alternative, effective and reproducible method of mesh attachment which also reduces the operating time and the learning curve.

### Methods

A prospective multicenteric study was performed between November 2013 and November 2014 in 3 University Urogynecology Centers in France. Sixty six patients with POP-Q stage R3 anterior and/or medial prolapse underwent laparoscopic sacrocolpopexy with the same standardized technique in all the three centers. IFA Bond synthetic surgical glue (Peters Surgical, Bobigny Cedex, France) was used in all cases following the same fixation procedure. All received anterior and posterior meshes using the pre-cut knitted polyester (Parietex; Covidien, Mansfield, MA). Three trocars two 5 mm and one 10 mm were positioned under visual control. The vagina was exposed using a rectangular vaginal valve held by an assistant. Posterior peritoneum opened, with access to the pouch of Douglas within the uterosacral ligament via an inverted U- shaped incision separating the rectum and vagina; dissection was continued up to the levator ani muscle on either side and down to the lower rectum. Glue was applied using an applicator. A single 1.5 mL vial was enough for each procedure; a single droplet of about 0.2 mL at each anchorage. The posterior mesh was anchored as laterally as possible to the levator ani muscles to avoid tying the lower rectum and then laid without tension over the vaginal wall. The bladder and vagina were then separated within the vesicovaginal pillars until the collagen fiber was exposed at the vesical trigone. The anterior mesh was glued over the whole surface of the vagina and then fixed to the uterine isthmus with a single nonresorbable suture (Mersuture; Ethicon, Cincinnati, OH) and brought into the subperitoneal space via the parametrium. Only the anterior mesh was fixed to the anterior vertebral ligament of the promontory by a nonabsorbable suture (Mersuture, Ethicon). The 2 meshes were held entirely subperitoneally by a continuous absorbable suture (Vicryl 00; Johnson and Johnson, Cincinnati, OH) between the prerectal and retroisthmic peritoneum posteriorly and the vesical and preisthmic peritoneum anteriorly. Vaginal palpation was performed systematically at the end of surgery.

### Results

Anatomic assessment was performed at one month and one year with concomitant quality of life assessment as per criteria recommended by the International Urogynecological Association International Continence Society.

One month and one year anatomic success rates were 90.9% and 87.5%, respectively. There were no cases of glue extrusion or mesh exposure into the vagina and the vagina conserved flexibility. There were no cases of mesh shrinkage at one month, but there were five at one year (7.8%).The mean pain score was quite less. All quality of life scores improved significantly by 1 year and the results were comparable with literature reports.

### Discussion

Laparoscopic sacrocolpopexy is a standard treatment for medial compartment prolapse with standard dissection techniques. The learning curve is huge and ranges from 15 to 30 procedures. The procedure is complex, requiring mastery of dissection and laparoscopic suture. Further simplification depends on developing anchorage

and adhesion methods that are simpler than suturing. Intraperitoneal suturing requires reliable in-vitro training and constant practice. Moreover, sutures passing through the bladder require cystoscopy and suture ablation. Staple fixation on to the vaginal wall may suggest reduction in the number of intracorporeal sutures but risk of infection, vaginal erosion, mesh exposure leading to dyspareunia and increased risk of spondylodiscitis is always there. The present study showed synthetic glue to be harmless with absorption partially completed by 6 months. A physiological fibrotic reaction occurs on tissue contact, reinforcing efficacy. Moreover the mesh could be stretched laterally till the levator ani muscles without tension preventing induced dyschezia.

The weakness of this study is its descriptive design without a control group and the glue is not widely available yet or approved for use in other countries.

### Conclusions

Synthetic tissue glue fixation in laparoscopic sacrocolpopexy is a simple, safe and effective technique which reduces the operative time while ensuring good anatomic and functional results.

## Comparison of 2 Methods of Vaginal Cuff Closure at Laparoscopic Hysterectomy and Their Effect on Female Sexual Function and Vaginal Length: A randomized clinical study

**Ercan Bastu, Cenk Yasa, Ozlem Dural, Bahar Yuskel Ozgor, Gamze Yilmaz, Funda Gungor, Ugurlucan,Faruk Buyru, Saikat Banerjee Journal of Minimally Invasive Gyneacology, Sep-Oct2016,Volume 23,Issue 6,pg 986-993.**

### Background and Objectives

As hysterectomy has become the most common gynecologic operation around the world its effects on the recipients have become much researched, especially the impact on female sexual function. The FSFI (Female Sexual Function Index) which is a validated assessment tool has further specified the effect on the patient. Interestingly while there are studies on the effect of different types of hysterectomy on female sexuality in the literature, there are no studies on the effects of different types of vaginal cuff closure on sexuality and post operative vaginal length. The debate on laparoscopic vaginal cuff closure vs. vaginal route for closure is tipping in favor of laparoscopic method of closure. The purpose of this review is to make the surgeons better aware of the effect on the patient, when they make a choice about the method of vaginal cuff closure in laparoscopic hysterectomy. This study also provides a different viewpoint - the effect on the patient, does it make a difference to the one on the receiving end?

### Methods

This is a prospective study with a randomized double blind design in a university hospital at Istanbul. A total of 70 patients undergoing laparoscopic hysterectomy for benign conditions, premenopausal age between 45 to 55 years, were evaluated preoperatively and postoperatively and results compiled. FSFI questionnaires were completed one week before surgery, and compared with scores 3 months postoperatively. Vaginal length was measured preoperatively on table in centimeters using a forceps and followed up at 4 weeks postoperatively.

### Results and Discussion

Data revealed that postoperative vaginal length was reduced regardless of the approach used in the management of vaginal cuff closure which is in line with existing literature. Furthermore, postoperative vaginal length after the laparoscopic approach was significantly better compared with the vaginal route. In the laparoscopic approach, better visualization and subsequently suspension of uterosacral ligaments was achieved. Such demarcation may not be achieved in the vaginal approach. Moreover the risk of post hysterectomy vault prolapse may be reduced because of better use of uterosacral ligaments. Although, postoperative FSFI scores were found to be lower postoperatively at 3 months in both groups, it can be considered as a limitation of this study as the long term sexual function at 6 months and 1 year was not followed up.

### Conclusion

Patients undergoing laparoscopic hysterectomy for benign conditions may benefit by laparoscopic vault closure because of better postoperative vaginal length and shorter duration of total surgery time, although the preoperative Female Sexual Function Index( FSFI) were significantly higher in both groups as compared to 3 months postoperatively.

The laparoscopic approach for vaginal cuff closure after hysterectomy was found to be preferable in this study due to better postoperative vaginal length and shorter total surgery time, but it has to be taken into consideration that the preference and surgical skill of the operating surgeon should be the deciding factor.

## Abstract: Free Paper Presentations

### Laparoscopic Management of Acute Pain Abdomen in Pregnancy

**Kumar Anita, Bhat Veena, Maheshwari Deepa, Mishra Priyanka**
Artemis Health Institute, Gurgaon

**Aim:** Laparoscopic management of acute pain abdomen in pregnancy.

**Case Report:** 32 years old lady, married for 8 years treated for infertility, underwent IVF (ET done in July' 16) and presented with severe pain lower abdomen and bleeding per vaginum since morning. USG was done which showed heterotrophic pregnancy with right adnexal torsion. Patient underwent Laparoscopy with milking of right tube and detorsion of right adnexa. Per operative findings: Haemoperitoneum 50 ml, both ovaries looked hyperstimulated right ovary multilobulated enlarged. Right adnexal torsion was present (4-5 times). Right sided tubal abortion was present. She received tocolytics and antibiotics. Operative and post operative periods were uneventful. Patient was discharged after 24hrs in stable condition on tocolytics. Pregnancy continued till 35.1 weeks and patient underwent cesarean section (indication: preterm labor with decreased fetal movement and deranged GCT) and a male baby 3.09 kg was delivered. Mother and baby discharged from hospital in stable condition after 72 hours.

**Discussion:** Laproscopic management is the gold standard for management of pregnancy with acute abdomen. It has no ill effect on fetus, has minimal blood loss, less post operative infection, minimal hospital stay if done in expert hands.

### Interesting Case of Acute abdomen in a Young Female

**Jain Alka, Bagai Priyanka**
Department of Obstetrics and Gynaecology,
Sehgal Neo Hospital, New Delhi

**Aim:** Torsion of hydrosalpinx of the fallopian tube is rare. Early diagnosis of such cases is crucial. However, diagnosis is rarely made before surgery due to non-specific clinical and imaging features.

**Case Report:** 30 years P2L2 presented with chief complain of acute pain in abdomen associated with vomiting and syncopal attacks. She was on treatment for right ovarian cyst since 20 days. On examination patient had dehydration, tachycardia, and hypotension. Abdomen was soft, tenderness was present. There was no ascites. Per speculum examination revealed a normal cervix and vagina. On per vaginal examination uterus was anteverted, normal size, a large tender cystic mass about 8 x 10 cm with restricted mobility felt separately from uterus in posterior and right fornix. Ultrasonography showed a right ovarian simple cyst 6.4cm x 6.5 cm with minimal ascites, normal uterus and left ovary. All blood and biochemical investigations were normal. Urine pregnancy test was negative. In view of ovarian cyst patient was started on conservative treatment, but as her pain didn't subside, decision for emergency diagnostic laparoscopy was taken. It showed right twisted, gangrenous hydrosalpinx of approximately 8 cm x 8 cm with bowel and omental adhesions with blood stained fluid in POD. Uterus was normal, ovaries were normal. Rest abdominal organs were normal.

**Discussion:** Hydrosalpinx can mimic a cystic ovarian neoplasm, bowel obstruction, or dilated pelvic veins. Tubal torsion usually affects adolescent girls and women of reproductive age. Abnormalities of the fallopian tube should be considered in the differential diagnosis for pelvic disease in the non pregnant woman. PID is most common of these abnormalities and encompasses a spectrum ranging from salpingitis to pyosalpinx to tubo ovarian abscess. Tubal torsion is rare but is an important diagnosis to consider in the acute setting. Isolated tubal torsion can be managed with either detorsion or simple salpingectomy. Adnexal detorsion has an extremely low risk of thromboembolic events. However, it should be performed as early as possible to avoid irreversible damage to the tube and ovary.

### Laparoscopic Tubal Ligation in IVF-ICSI-ET

**Bhattacharjee Shubhadeep, Vaid Arvind**
Indira IVF Hospital, New Delhi

**Aim:** To determine the optimal time interval between performing laparoscopic tubal ligation for hydrosalpinges and an ICSI ET cycle.

**Materials and Methods:** It is a retrospective cohort study conducted at Indira IVF Hospital, New Delhi from December 2016 to May 2017, on a group of 69 infertile women, who underwent laparoscopic tubal ligation for hydrosalpinges. 41 patients in group A underwent ICSI ET within 10 weeks of surgery. 20 patients in group B underwent ICSI ET within 10-16 weeks of surgery and 20 patients in group C underwent ICSI ET more than 16 weeks of the surgery.

**Results:** Pregnancy rates were 39%, 50% and 50%. Clinical pregnancy rates were 31.7%, 45% and 50% respectively and implantation rates were 14.85%, 21.5% and 18% for groups A, B and C respectively.

**Conclusion:** Our results suggest delaying of ICSI ET cycle for at least 10 weeks after laparoscopic tubal ligation.

## Laparoscopically Managed Case of Misplaced IUCD

**Varun Neha, Nigam Aruna, Anwar Arifa, Gupta Nidhi**
Hamdard Institute of Medical Sciences and Research, New Delhi

Endoscopic technique has made the management of misplaced Cu-T cases simpler now-a-days. 25 yr old P2L2, was referred from a peripheral hospital in view of non-visualization of Cu-T thread on examination. On examination Cu-T thread was seen coming out through POD and there was a knobby feeling in the POD on per vaginum examination. Patient was managed laparoscopically and Cu- T was removed.

## Conservative Laparoscopic Approach in Gangrenous Ovarian Torsion in Adolescent Girls: Our experience

**Arifa Elahi Anwar, Nigam Aruna, Varun Neha, Gupta Nidhi**
Hamdard Institute of Medical Sciences and Research, New Delhi

Torsion of adnexa can involve the ovary, fallopian tube or both leading to impaired arterial or venous flow through the infundibulopelvic ligament and necrosis. The problem is uncommon in children and young girls, with an incidence of 4.9 per 100000. Once torsion is suspected, immediate intervention is indicated to maximise the chances of preserving ovarian function. We present 5 cases of ovarian torsion in adolescent girls where laparoscopic ovarian detorsion and ovarian fixation was done. Follow up revealed no immediate and late postoperative complications in the form of recurrent torsion or thrombosis. Moreover follow up ultrasound revealed a normal ovarian size with presence of follicles after 3 months. Thus, conservative management with detorsion and fixation rather than oophorectomy is a preferred option even if the ovary on gross appearance is black indicative of irreversible ischemia.

## Recurrence of Endometrioma on Non-resection of Non-communicating Rudimentary Horn of a Unicornuate Uterus: Lessons learnt

**Gupta Neha, Nigam Aruna, Anwar Arifa, Gupta Nidhi, Varun Neha**
Hamdard Institute of Medical Sciences and Research, New Delhi

**Case Report:** A 27 year old nulligravida presented with primary infertility for 9yrs, chronic pelvic pain and left sided endometriotic cyst. Laparoscopy, hysteroscopy and chromopertubation was performed. At laparoscopy a unicornuate uterus with patent right tube and healthy ovary seen along with a left sided non-communicating rudimentary horn with left tube and left sided endometrioma (6 cms). Laparoscopic ovarian cystectomy was done in the same sitting. Rudimentary horn excision was planned for a later date as intraoperative consent was not there. Patient was started on dienogest for 3 months. She reported with recurrence of symptoms and 3 cms endometrioma on same side at 6 months.

**Conclusion:** Excision of non-communicating rudimentary horn should always be done to prevent recurrence of endometriosis.

## Endocervicoscopy with Office Hysteroscope for Complete Visualization of Transformation Zone in cases of Invisible Squamocolumnar Junction on Colposcopy

**Meena P, Suneja A, Vaid NB, Mishra K**
Department of Obstetrics and Gynaecology and Department of Pathology, UCMS and GTB Hospital, Delhi

**Aim:** To evaluate the role of endocervicoscopy for visualisation of T3 transformation zone on colposcopy.

**Setting:** Department of Obstetrics and Gynaecology and Department of Pathology, UCMS & GTB Hospital, Delhi.

**Methodology:** Forty patients with T3 TZ with either abnormal Pap smear or positive VIA, VILI were subjected to endocervicoscopy with a 4 mm office hysteroscope. The view of the endocervical canal was recorded before and after the application of 5% acetic acid and the SCJ was identified in its entire path. An endocervical curettage was taken in all the cases and compared with the final histopathology report.

**Results:** SCJ was visible in all the 40 cases. The positive predictive value (PPV) of endocervicoscopy in our study was 33.3% and negative predictive value (NPV) was 100%. Dense acetowhitening / irregular polypoidal endocervical mucosa with dilated blood vessels were significant in predicting the premalignant and malignant lesions with PPV of 67% and NPV of 100%.

**Conclusions:** Endocervicoscopy allows a panoramic view of the endocervical canal. It is a safe, effective and feasible technique for visualization of squamocolumnar junction in cases of T3 TZ on colposcopy.

## Mullerian Duct Anomalies: Case series

**Munjal Rachita, Sundaram Meenakshi**
Department of Obstetrics & Gynaecology,
Apollo Hospital Chennai

Mullerian ducts are the primordial analogue of female reproductive tract. A wide variety of malformations can occur when this system is disrupted. They range from uterine and vaginal agenesis to duplication of uterus and vagina to minor uterine cavity abnormalities. Depending on the specific defect, woman's obstetric and gynaecological health may be adversely affected. In the present series, patients presenting in our outpatient department of different age groups with different clinical presentations were classified into several categories of mullerian duct anomalies. These patients were offered proper surgical management and were followed up as required. Most of the patients were treated optimally and could live a healthy lifestyle.

# Delhi Gynaecological Endoscopists' Society

## Membership Application Form

The President
Delhi Gynaecological Endoscopists Society
Jeewan Mala Hospital
67/1, New Rohtak Road,NewDelhi-110005
Tel: 011-47774141, 23511474, 75, 76, 77, 011-65094990, 91, 92, 93
Fax: 011-47774242,23670347
Mb: 9212150571,9811557511,9212526855
Website: www.dges.in
Email: dgesjmh2017@gmail.com

I wish to join Delhi Gynaecological Endoscopists Society (DGES) as a Life member, subject to approval of the DGES Executive Board, if admitted, I will abide by the rules and regulations of the society.

Member's Name: _____

Gender: Male / Female: _____ Date of birth: date/month/year: _____

Address: _____

_____

City: _____ State: _____ Pin code: _____

Phone: _____ Tel.No/Hospital No. _____

Place of Working: _____

E-mail: _____

Educational qualification: _____

Year of passing Masters: _____

Primary specialty: _____ Subspecialty: _____

Professional affiliation (Hospital/Clinic): _____

Signature: _____

**Enclosed:** Attached One Photograph & Cheque/Demand Draft should be made in Favor of "Delhi Gynaecological Endoscopists' Society", payable at New Delhi.

**Yearly Membership Rs. 500/-**
**Life Membership Rs.3000/-**

*DGES Secretariat:*

**Jeewan Mala Hospital**

67/1 New Rohtak Road, New Delhi 110005

(L)011-40043355, M: 9212150571, 9212526855, 98115575511

Email: dgesjmh2017@gmail.com

**www.dges.in**