

ENDOSCOPY

OBJECTIVES OF PROGRAMME:

The aim of this course is to provide professional experience in Endoscopic diagnosis and surgical treatment. Its objectives are:

- Understanding of the basic principles and practice of endoscopy and the equipment used
- Acquisition of the basic skill to perform safe endoscopies
- Understanding the provision of an endoscopy service and the resources needed
- The special focus of this speciality is on the study of female infertility, Andrology and Embryology as pertaining to Assisted Reproductive Technology (ART)

CRITERIA FOR SELECTION:

- The candidate should be a Post Graduate in Obstetrics & Gynaecology – either MD / DNB.
- Flair for in-depth study of Reproductive Biology and must have a research oriented approach in their activities. The candidate must be sincerely interested in surgery especially minimal access surgery
- Must possess the ability to absorb knowledge from focused journals and Internet to keep abreast with the latest developments in the field which is rapidly growing every day.
- Dedication, Devotion, commitment, patience are the human qualities one must possess to be successful in the field with an ability to translate knowledge to action..

DURATION OF THE COURSE & SITE OF TRAINING: 18 months, BACC Kumara Krupa Branch & Kamini Rao Hospital Jayanagar

General Objectives:

- To encourage the aspiring endoscopists to learn the techniques of operative
- endoscopy

- To encourage the aspiring endoscopists to learn the techniques of operative endoscopy
- To facilitate endoscopy techniques with the help of simulators and animal models.
- To master the techniques of endosuturing

Knowledge, Skills and Attitude to be attained :

Knowledge

- Basic anatomy of female upper and lower genital tract, urinary system & pelvis.
- Biophysics – Electro surgery, optics.
- Instruments – Laparoscopic & Hysteroscopic.
- Maintenance of Instruments, sterilization and disinfection.
- Operative room layout and trouble shooting (optimum position of equipment and team)
- Anaesthetic considerations.
- Indications, contraindications, risks of laparoscopy
- Complications and its prevention and management.

Skills and Attitudes

- Hand eye co-ordination and in depth perception
- Using – pelvi trainers
- Hystero trainer
- Animal models
- Learning Principles of endosuturing (Intracorporeal & extracorporeal)
- Viewing CD's & VCD's of all laparoscopic and Hysteroscopic procedures

Communication Abilities

- Developed through – Case presentations
- Case discussions
- Seminars
- Live videoconference through Internet
- Journal clubs
- Participation in workshop & conferences
- Presentation of papers

- Working in camps.

COURSE CONTENTS

Essential Knowledge	
<u>Part 1</u>	Basic Science
Anatomy:	<ul style="list-style-type: none"> • Anatomy of female genital tract • Anatomy of Pelvis • Anatomy of kidney, ureter, bladder • Anatomy of sigmoid, rectum, perineum
Physiology:	<ul style="list-style-type: none"> • Physiology of Menstruation • Physiology of ovulation, fertilization and implantation Menstrual Cycle
Biophysics:	<ul style="list-style-type: none"> • Principles of electrosurgery • Cutting current • Coagulating current • Unipolar system • Bipolar system • Principles of laser surgery • Electrosurgical unit with grounding pad equipped with current monitoring system.
Laparoscopic Instruments	<ul style="list-style-type: none"> • Insufflator • Video camera • Video monitors • Light generators • Light cables • Laparoscope • Trocars • Grasping forceps • Scissors • Needle holders • Suction – irrigation dissector

	<ul style="list-style-type: none"> • Morcellators • Extraction bags • Myoma screws
Hysteroscopic instruments	<ul style="list-style-type: none"> • Diagnostic & Operative hysteroscope • External sheaths – diagnostic sheath and operative sheath • Ancillary instruments • Distension media
Anaesthesia equipment with monitors	
Sterilization and disinfection of instruments	
Record Keeping	<ul style="list-style-type: none"> • Computer • Statistics • Medical Audit
<u>Part II</u>	Clinical and Practical
Gynaecology	<ul style="list-style-type: none"> • Infertility – Aetiology • Investigations of both male & female infertility. • Management • ART – different techniques-IVF-ET • GIFT/ZIFT/ICSI • Endometriosis • Ovulatory disorders • PID (Pelvic inflammatory diseases) • Ovarian tumours • Fibroid uterus
Indications of Laparoscopy	
Diagnostic	<ul style="list-style-type: none"> • Infertility • Chronic pelvic pain • Suspected pelvic inflammatory disease • Endometriosis • Uterine abnormalities • Ectopic pregnancy

Operative	<ul style="list-style-type: none"> • Tubal Sterilization • Myomectomy • Ovariectomy • Ovarian Cystectomy • Chromopertubation in infertility • Adhesiolysis • Management of Endometriosis where operative laparoscopy is the gold standard • Tubal microsurgeries • Salpingectomy / Salpingostomy in Ectopic pregnancy • Various ART procedures for ovum pick up.
Contra indications of Laparoscopy	
<ul style="list-style-type: none"> • Irreducible external hernia • Hypovolaemic shock • Coincidental medical conditions such as cardio respiratory failure, obstructive airways disease or recent myocardial infarction • Very large fibroid/ Ovarian cyst • Gross obesity • Previous abdominal surgeries relative contraindications • Generalised peritonitis • Intestinal obstruction 	
Complication of Laparoscopy	
<ul style="list-style-type: none"> • Air embolism • Perforation of abdominal wall vessels and aorta • Urinary tract injury with veeres needle and trocar • Bowel injuries- traumatic and thermal injuries 	
Management of Complications	
<ul style="list-style-type: none"> • Diagnostic Laparoscopy – Technique • Operative Laparoscopy – Various procedures 	
Hysteroscopy – Indications	
<ul style="list-style-type: none"> • Abnormal uterine bleeding 	

- Infertility and habitual abortion
- Misplaced IUCD
- Endometrial carcinoma
- Uterine anomalies
- Removal of submucous fibroid
- Intrauterine adhesiolysis
- TCRE (Trans cervical resection of endometrium)
- Endometrial ablation

Contra-indications of Hysteroscopy

- Infection
- Cardio-respiratory diseases
- Pregnancy
- Heavy uterine bleeding
- Carcinoma Cervix
- Cervical stenosis

Complications of Hysteroscopy

- Uterine perforation
- Haemorrhage
- Infection
- Discharge
- Adhesion formation

Prevention and management of complications of Hysteroscopy

Operative Hysteroscopy – Proximal tubal cannulation, Septal resection, Removal of missing IUCD, resection of sub – mucous Myoma.

Essential Investigation and diagnostic procedures

Basic investigations

- Blood routine – HB, TC, DC, ESR
- Routine Urine examination - Alb, Sugar & Microscopy
- BT, CT, Platelet Count
- FBS & PPBS
- Blood Urea
- S. Creatinine

- Chest X – ray
- ECG

- Basic ultrasound study of the pelvis is done pre operatively.

Procedural and Operative Skills

- The trainees have to watch and observe the procedure in the initial phase of training.
- Later during the course of training he can assist a senior surgeon in various procedures.
- Diagnostic procedure is allowed to be performed under the direct supervision of a senior specialist.
- With sufficient experience in diagnostic Laparoscopy, one can go one step ahead by doing minor procedures like PCO drilling, tubal sterilization, fulguration of endometriotic spots, minimal adhesiolysis etc..
- At the end of training the candidate should perform the procedures independently. The same principle applies to Hysteroscopy also. After hundreds of office hysteroscopies operative hysteroscopy can be started.

TEACHING / LEARNING ACTIVITIES

- Initial learning process is through viewing endoscopic surgeries either through video cassettes/ CD's or directly in the OT.
- Discussions are held on to ensure that candidates have adequate knowledge in basic anatomy and physiology. Now they are taught the principles of biophysics and optics.
- Detailed classes on various Laparoscopic and Hysteroscopic instruments are given along with the instruction regarding maintenance and disinfection of instruments.
- Once the basic training is over they are exposed to live surgeries where the use of video camera has allowed all to follow the steps of surgery closely. The skills of diagnostic laparoscopy are best learnt in the operating room with a skilled trainer.
- The trainee should learn the protocol for insertion of all the instruments and the detailed examination of the abdomen and pelvis.
- Practice and supervision is essential using the video screen to learn the skill of working in that medium to get experience in diagnostic procedure.
- The preliminary knowledge acquired at conferences or from reading is aided by formal

lectures, periodic workshops and pelvitrainers, Inert models also provide the opportunity to practice endosuturing. When the surgeon has had adequate experience in working in a laboratory setting and has adequate knowledge, he can attend operative laparoscopy sessions and learning on a one to one basis.

- Having demonstrated general ability, the trainee can be allowed to perform more operations under supervision.
- The final step in training is practice and with adequate practice one can proceed from simple to complex laparoscopic surgeries independently.

TRAINING IN TEACHING SKILLS AND RESEARCH METHODOLOGY

- The trainee should become familiar with the basic steps of laparoscopy such as establishment of pneumoperitoneum, the introduction of trocars and the manipulation of instruments by performing diagnostic procedures .

- Once this is achieved one can go for operative laparoscopic procedures
- To begin with the surgeon should have an insight to the special problems associated with Laparoscopy such as hand -eye coordination and indepth perception .Pelvitrainers are ideal in assisting the surgeons to gain skill in manupalating long Laparoscopic instruments with monocular or television image. A number of tasks are available for the surgeon training on this device.
- Place different colours of buttons spread over dish and ask to pick some specific coloured ones and place at a prescribed site.
- Suspend a bunch of grapes within the cavity & identify a given grape and cut it with scissors and remove it without damaging the grape.
- In the above set up itself another exercise is to peel the outer coverage of given grape without damaging the grape, closely simulating the procedure of Laparoscopic ovarian cystectomy.
- Place some thin rubber tubes cut in to small sizes and can be picked up by one hand and given to the other alternating. This gives two-hand manipulation.
- A piece of chicken can be kept inside pelvitrainer and an electro cautery earthing plate placed underneath will help in learning the techniques of electro surgery.

Animal training:

- Once a surgeon has had adequate experience in pelvitrainer, animals can be used for training as it provides the opportunity of executing the steps of the operation under conditions, which closely resemble clinical practice,

Suturing:

- Difficulty in endosuturing can be overcome by learning to perform suturing in an endotrainer. Co-ordination of hand and eye movements can be achieved through spending enough time with the pelvitrainer & learning different types of endosuturing.
- Once a surgeon has gained adequate experience in diagnostic laparoscopy, worked on a pelvitrainer, he is ready to start work on human beings. Here again he is required to assist few cases with experienced laparoscopic surgeons to get adequate clinical exposure.
- After that he may be permitted to do few procedures, which is closely supervised by a senior surgeon. At this stage the videocassettes and CD's of advanced Laparoscopic procedures performed by skilled laparoscopic surgeons aid him. At the end of proper and systematic training under the guidance of senior surgeon, he gains confidence in doing these procedures independently.

Monitoring of teaching / learning activities

- Methods
 - Frequency
 - Schedules or check logbooks, diary
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- Knowledge on basic subjects like anatomy and biophysics is tested by periodic examination in the beginning of training.
 - Initial few months of training the candidates are given time to get themselves familiar with the instrument maintenance, sterilization and disinfection and also with the OT room layout. They are closely supervised while they work in alliance with the OT technician who is in charge of instruments and equipments in OT.
 - After this 3 months training is given on pelvi trainer, which is under the direct supervision of a senior specialist where the candidates will develop hand- eye coordination and also learn the art of Endosuturing.
 - Various exercises on the pelvic trainer are given to gain proper co-ordination and also to get indepth perception.

- Logbook is to be maintained by the candidate from day one of their course so that day-today progress can be assessed by its evaluation. It is periodically checked by the trainer and helps him to keep a track on the follow up of each candidate

FEES STRUCTURE

The candidate has to pay approximately Rs. 23,000/- (cost may vary depending on the RGUHS board decision) to the university at the time of admission.

Stipend of Rs.15000/- per month to the trainee is envisaged.

ACCOMMODATION FOR TRAINEES:

Availability of accommodation for the trainee: **No**

JUSTIFICATION HIGHLIGHTS WHY THE INSTITUTION SHOULD BE ACCREDITED FOR THIS PROGRAMME.

Bangalore Assisted Conception Centre is recognized by the National Board of Examinations for Fellowship in Reproductive Medicine and is one of the four Centres in India to be so recognized. It is also recognized by Rajiv Gandhi University of Health Sciences for Fellowship in Reproductive Medicine. A number of short training programs are conducted at this Centre on a regular basis and it is fast gaining the reputation of being an excellent Teaching Institute.

It would not be out of place to mention that our institution was also the very First Institution to produce a baby by the SIFT Technique in India, the first to produce a baby by the ICSI Technique in South India as well as the first to produce a baby by the Assisted Hatching Technique in South India. It has been pointed out to us that our institution is of the best of Institutions to have the kind of infrastructure that is necessary by way of man, machine and environment to carry out work on “Assisted Reproduction” in Human Beings.

Facilities available

- Sufficient space for patient examination / counselling / spermcollection / IUI room.

- Board Room for discussion, Auditorium for conferences, tutorials, seminars, and all types of audio equipment and computers are available for lectures, etc.
- Adequate space in the laboratory to accommodate trainees without over crowding
- Good library stacked with journals related to Fertility and Human Reproduction, General Medicine and Ultrasound.
- Full fledge laboratory having the following equipments:
 - Laminar flow work benches
 - Centrifuges
 - Compound Microscopes
 - Dissecting Microscope with warm stages
 - Micromanipulator and Microscope set with warmers
 - Freezing Machine with Liquid Nitrogen Tanks
 - Weighing balance for media preparation
 - Millie-Q-water-system
 - Work benches in plenty
 - Incubators
 - Refrigerators

Our laboratory has been engineered to FDA class 10 K Clean Room Standards and regularly maintained and validated for its conformance to these standards. The laboratory has adequate space for accommodating trainees without over crowding. We have a very good library which has all the relevant journals necessary for PG studies on the subject. A good collection of books, periodicals and scientific journals are available for keeping abreast with the rapid progress made in this area of human reproduction and genetics.

Students will be given plenty of reading materials like laboratory protocols of various techniques etc. Besides Web Site and Internet facilities are available.

Further more facilities at St. Johns Hospital and Indian Institute of Sciences are available. We have ever since been updating our facilities and never looked back. We believe that a time has now come when we can pass on to the medical profession, some knowledge of what we have acquired over the years, so that infertile patients can get the right type of treatment at the most reasonable cost, which may not be happening now due to lack of technically qualified professionals in this field. There is a very severe shortage of such

technologists and this is being partly overcome by visiting foreign specialists. If we can train more Doctors in the field of Endoscopy , a reverse flow will be possible and this is really our goal.

Moreover, gynecological endoscopic surgeries have changed and continue to evolve rapidly and several procedures considered difficult are now being successfully done laparoscopically. The advantages of shortened post operative hospital stay, reduced post operative discomfort, frequently lesser costs, and the opportunity to diagnose and treat at the same time has led to the immense popularity of endoscopic procedures. Advances in fibre optic camera technology and improvement in technique and technology has revolutionized endoscopic procedures with great benefits to both the patient and the doctor.

The future generation of gynecologists will have to learn only the laparoscopic technique for many of the common surgeries. This Fellowship program will help in training many aspiring endoscopic surgeons and gynecologists.