

**THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY,
CHENNAI**

POST – DOCTORAL FELLOWSHIP PROGRAMMES

IN

BARIATRIC SURGERY

SYLLABUS

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INTRODUCTION :

With Obesity and its associated comorbidities has risen tremendously in India in the recent years with India being the capital for type 2 diabetes in the world. Bariatric surgery also called the Obesity surgery has gained popularity in the treatment of Morbid Obesity and also treatment of its associated comorbidities. But its limited by lack of enough number of surgeons trained in performing this kind of procedures. Also, there's at present no recognized training program in our country for this kind of surgeries. This necessitates interested surgeons to travel out of the country for such fellowships. Also, for such training to happen, a multidisciplinary team approach including surgeons, life style therapists, nutritionists, psychologists etc for a holistic care.

TRAINING OF MINIMAL ACCESS BARIATRIC SURGERY DEFINITION :

Fellows in Bariatric Surgery will be fully qualified surgeons recognized by the Medical Council of India and/or National Board of Examinations with adequate experience in Minimal access surgery .The development of such educational programs will adequately prepare surgeons in the management of Obesity patients and provide scientific care.

AIM OF THE TRAINING :

Minimal Access Bariatric Surgery provides significant benefit to the patients in terms of weight loss, resolution of obesity related co-morbidities like type 2 diabetes, hypertension, dyslipidemia, knee pains, obstructive sleep apnea etc. Currently there is lack of well structured and adequate educational programs in bariatric surgery. This programme aims to adequately prepare a surgeon to meet the requirements and need in managing an obese patient for bariatric surgery. Gynecologist in the Art of minimal access surgery and correct the imbalance between the requirements and availability in the society.

OBJECTIVES OF THE TRAINING :

To train a specialist to be capable of

- A. Understanding and performing Bariatric surgery
- B. Making Bariatric an essential part of Minimal Access & General Surgery
- C. Teaching, research and auditing in Bariatric Surgery
- D. Co-ordinating and promoting collaboration in organizing the services
- E. Providing leadership in developing research within the specialty

ORGANIZATION OF TRAINING:

A. Training programs in bariatric surgery should be in a multidisciplinary centre of minimally invasive surgery and should be organized by a qualified, accredited team of trained specialists

B. The Centre should use the guidelines and protocols of national and international professional bodies which are reviewed at regular intervals.

THE MEANS OF TRAINING :

Entry requirements :-

- MS (General Surgery) / DNB(general Surgery) from an institute or medical college

recognized by medical council of India/National board of examinations

1. The trainees should participate in all relevant activities of the training unit such as the care of Out -Patients and In -Patients, on call duties during both day and night, also participating in educational activities, including the teaching of other health professionals. Participation in audit and clinical or basic research is essential.

2. The duration of Bariatric surgery surgery training should be a Minimum of One Year approved programme and should cover the clinical and research aspects.

3.Educational tools

- Good text books on Bariatric surgery written by leading and experienced Authors
- Video tapes /CD ROMS
- Simulators for Endo - Training
- Box trainers to master the skills
- Endo trainer rooms with adequate space and good air-conditioning facility to work long hours in the simulators so the trainee can avoid fatigue.
- Endo-cameras mounted on a special stand with the monitors
- Special hand instruments to learn the hand and eye co-ordination
- To learn depth perception
- To learn tactile sensations

4. The training should be structured throughout with clearly defined targets to be met after specified intervals. An education plan should be drawn up in consultation with the trainees at the beginning of each attachment and progress should be monitored regularly, by means of log book.

5 Animal laboratory as and when necessary

INFRASTRUCTURE REQUIREMENTS:

Dedicated Bariatric department of more than 1000 sq feet , as handling bariatric patients has sensitivity issues encompassing the Bariatric co-ordinator, Nutritionist and the Bariatric surgeon

The Out patient furniture should be equipped to withhold the weight of the heavy patients with the weight capacities marked clearly

The Shifting equipments(wheel chair, stretchers) etc should be capable of handling the heavy patients

The OT tables are should be equipped to bear weights upto 300 kg

TEACHING FACULTY EXPERIENCE:

Minimum 3 yrs experience in the field of Bariatric surgery More than 250 cases performed Full member of the Obesity Surgery Society of India(OSSI) Should have atleast 2 publications in the field of Bariatric surgery in pubmed indexed journals.

TRAINING MODEL:

3 months of wet lab and assisting cases

With experience of 50 cases of assisting – will get to operate individually

ASSESSMENT OF TRAINING :-

Each student is evaluated every month by programme Coordinator; should have operated atleast 20 cases individually

COURSE EVALUATION:-

The trainee gets the opportunity to evaluate the course.

LOG BOOKS :-

The log books are to be submitted for monthly evaluation of the progress and to evaluate the learning curve.

EXIT EXAMS :-

The degree is awarded after a final exit examination, at the end of one year training period.

TRAINING PROGRAMME SYLLABUS:-

A. General Principles :

1. Equipment set up and trouble shooting
2. Patient preparation
3. Anesthesia and Monitoring
4. Access to abdomen
5. Creating pneumoperitoneum
6. Abdominal wall lift devices
7. Principles of Endoscopic haemostasis
8. Principles of Electosurgery
9. Principles of Bariatric Surgery
10. Post operative follow up and management

COURSE OBJECTIVES :-

- A. To learn about specialized endoscopic equipments and instrumentation.
- B. To understand and learn the principles of Minimal Access Bariatric Surgery
- C. Gain expertise in surgical management of Bariatric Surgery
- D. Diagnosing and management of intraoperative and postoperative complications
- E. Understand the principles of preoperative evaluation and selection of patients
- F. Postoperative care pathways
- G. Sterilization and maintenance of instruments and video equipments.
- H. Documentation, storage data and presentation.
- I. Anesthesia in laparoscopic surgery.

J. Trouble shooting in MAS.

K. Electro surgery and other newer energy sources.

L. Basic and advanced skills in Endo-knotting and tracorporeal suturing techniques.

SETTING UP OF A LAPAROSCOPIC UNIT :-

A. ROOM LAYOUT AND EQUIPMENT POSITION :

- General considerations include the size of operating room space, location of doors, outlets for electrical and anesthetic equipments.
- To determine the optimum position and orientation for the monitor placement.
- Small operating rooms will require diagonal placement of the operating table and proper positioning of laparoscopic accessory instrumentation around the operating table.
- All equipment check list helps to ensure that all items are available and minimize delays in MAS.

THE BASIC INSTRUMENTS NEEDED FOR SETTING UP THE UNIT IS AS FOLLOWS :-

1. Electrical table adequate weight capacity with leg separation facility and Lithotomy facilities.
2. Quality video monitors
3. Suction and irrigation apparatus.
4. Electrosurgical unit with proper grounding.
5. Pad equipped with current monitoring system.
6. Cart to house the laparoscopic equipments or pendants.
7. Light sources (Halogen or Xenon).

8. Electronic insufflator or Pneumoflator.

9. Fibro-optic cable.

10. Camera Systems

1. Single chip camera system

(or)

2. Three chip camera system

(or)

3. High definition camera systems

11. Video recorder for Data (or) computer picture Capturing systems connected to the monitors

or camera consol.

12. Colour printer for documentation.

13. CO2 Cylinders

14. Endoscopic accessory instruments for basic and advanced procedures

15. Instrumentation (regular / long)

1. Atraumatic graspers

2. Locking toothed and jawed graspers

3. Needle holders

4. Dissectors - curved and right angle

5. Bowel grasping forceps

6. Uterine manipulator

7. Tubal perturbation cannula

8. Babcock clamp
9. Veress needle
10. Trocars - 5mm and 10 mm
11. Metzenbaum scissors and Straight scissors
12. Hook with diathermy attachment (L-Shaped)
13. Fan retractors - 10 mm and 5mm
14. Specialized retractors (optional)
15. **Vessel Sealing Systems:-**

Monopolar electrocautery dissection tools. Bipolar dissection tools

Ultrasonically activated scalpel (optional) Computer controlled diathermy (Eg: LIGASURE)
(optional) Basket containing

- Clip appliers
- Endoloops
- Endoscopic suture materials
- Extra trocars

And open surgical instruments (Conventional surgery) for emergency conversion to open from laparoscopy, should be kept ready and separate from other Lap. Instruments.

A back up UPS for lap equipments for uninterrupted surgery is very essential.

TROUBLE SHOOTING :

Endoscopic procedures are inherently complex.

The operative surgeon must learn sufficiently about all equipments which can trouble shoot and to solve it. Common problems to be learnt are:

1. Cause of Poor insufflations
2. Reason for excessive pressure for insufflation
3. Reasons for inadequate lighting
4. Reasons for too bright lighting
5. Reasons for loss of picture on monitors
6. Reasons for poor quality pictures /fogging / haze
7. Reasons for flickering electrical interference
8. Reasons for inadequate cauterization/inadequate irrigation and suction

PREOPERATIVE EVALUATION :

1. Before surgery, evaluation by qualified anesthetist is mandatory. This should include:

Systems affected by Pneumoperitoneum; -

- Air way
- Respiratory system
- Cardiovascular System

Other Relevant systems

- Central nervous system
- Endocrine system
- Gastrointestinal system

Other relevant History

- Post anesthetic experience of the patient
- Post anesthetic family History of the patient
- Allergies to local anesthetics of the patient
- Medications taken in the past.

1. Monitoring and safety considerations which should include :

1. Breath sounds (Precardial or esophageal stethoscope)
2. Electrocardiogram (continuous)
3. Blood pressure, pulse (continuous, non invasive)
4. Continuous oxygen saturation (Pulse oximeter)
5. Expired carbon dioxide (Capnograph)
6. Temperature gauge
7. Ventilator and additional monitors (optional)

1. Fire prevention is a crucial safety consideration. The operating room is an oxygen rich environment. The ends of the fibro optic cables become extremely hot and can ignite drapes. Hence fire extinguisher should be placed just outside the laparoscopic theatre.

ADMINISTRATION :-

1. Research and audit :-

Setting up the Endoscopic surgery unit, quality control and assurance, creating protocol for management and organizing and coordinating of clinical meetings. Counseling of the patients for Bariatric surgery, implications, approach and other complications and getting proper consent for conversion to open if need be .

Module In Bariatric Surgery:

1. Diagnostic Laparoscopy
2. Laparoscopic Gastric banding
3. Laparoscopic Sleeve Gastrectomy
4. Laparoscopic Roux en Y gastric bypass
5. Laparoscopic Duodenojejunal bypass

6. Laparoscopic Ileal Interposition
7. Revisional Bariatric surgery

The academic activities of the program in the hospital should include:-

1. Regular academic sessions
 2. Case discussion and seminars
 3. Paper presentation
 4. Audit/ Project/Research
 5. Thesis
 6. Conferences / CME's / Live workshops
- Fine tuning skills in the purpose built animal (wet) laboratory
 - The programme is organized to have maximum “Hands-on” practice sessions in the “Purpose Built” animal laboratory.
 - Lecture hall for CME, conference and live workshop transmission with good acoustics.

WET LAB

The live animal lab should be attached to the hospital campus which should have the following:

1. Preferably air conditioned
2. A regular tilting table
3. A cart for keeping the following equipments
 - a. Camera
 - b. Light source
 - c. Fibro optic cables
 - d. Diathermy should be placed separately in another trolley to avoid electrical disturbances.
 - e. Suction /Irrigation Apparatus
 - f. CO₂ cylinders

- g. CO₂ insufflators.
- h. Mask anesthesia Equipments (Basic Boyle's) for animal anesthesia
- i. Pre-Medication chamber for animals
- j. Drugs /Anesthetic agents
- k. Post surgery - Recovery area
- l. IV Fluid stands
- m. Monitors Helper's for washing the hand instruments
- n. Disinfectants
- o. A qualified Vet. Anesthetist / Vet. Surgeon should be included for the programme.

TO SUM UP

Advances in Minimal Access Surgery has opened new paradigms in surgery, which includes surgical treatment of Obesity and its related comorbidities like type 2 diabetes etc. This is a fascinating frontier of medical science. But management of these patients requires considerable technical expertise, good infrastructure and thorough understanding of patients. Therefore with the rapidly increasing need for learning Bariatric surgery, it has become imperative to ensure safety and safe guard against possible mishaps. The need of the hour is a properly structured, thorough, logical and effective training programme to train the specialists in this ever expanding field and to ensure high standards of quality.

RECOMMENDED READINGS :-

1. Minimally Invasive Bariatric Surgery
-Philip Schauer
2. [Bariatric Surgery: A Primer for Your Medical Practice](#)
-Francis A. Farrae MD
3. [Bariatric Surgery, An Issue of Surgical Clinics, 1e \(The Clinics: Surgery\)](#)
-Ronald F. Martin MD
4. [Bariatric Surgery & Weight Management \(A Cleveland Clinic Guide\) \(Cleveland Clinic Guides\)](#)
-P. R. Schauer