

Objectives of Training: Advanced Minimally Invasive Surgery Rotation

Minimally Invasive Surgery Curriculum

- A. Inanimate training
 - CAMIS lab: three four-hour sessions per year during academic half days
 - Supervised by clinical preceptors – 1-2/session
 - Lectures by residents supervised by clinical preceptors
 - Self-directed learning with access to lab

- B. Animate labs
 - One four-hour session per resident per year at University of Alberta animate pig labs
 - Supervised by clinical preceptors – minimum 1 preceptor per 2 trainees
 - Defined goals/skills set

- C. Clinical preceptorship
 - 4 weeks of minimally invasive surgery
 - longitudinal graduated exposure through 5 years of residency

- D. Academic knowledge

CAMIS Lab outline

Objectives

- To introduce and reinforce basic and advanced endoscopic techniques and approaches to surgical procedures
- To provide a consistent setting for resident self-directed learning with specific goals and feedback from clinical preceptors

Introduction

- Orientation to lab, equipment
- Basic skills: introduction of ports, manipulation of instruments
- Review lectures
 - laparoscopic entry, injury, avoiding complications
 - hysteroscopy approach, pitfalls
 - energy sources
- Review of approach to basic and advanced gynecologic surgery including:
 - salpingostomy
 - salpingo-oophorectomy
 - peritoneal excision (excision of endometriosis)
 - dissection techniques (retroperitoneal ureterolysis)
 - hysterectomy
 - use of endoloop
 - morcellation of tissue
 - supracervical/total hysterectomy
 - closure of cystotomy/enterotomy
 - suturing of visceral organ defect
 - managing intraoperative complications (enterotomy, cystotomy, ureteric and vascular injuries)
 - urethropexy
 - paravaginal defect repair
 - vaginal vault suspension
 - nodal sampling

Skills sets

- manipulating objects in visual field
- transferring objects between instruments
- suture needle manipulation within the visual field
- running closure of defect
- interrupted suturing of defect
- intracorporeal knots
- extracorporeal knot tying
- sliding knots (Clinch, Weston)

Evaluation

- pre and post-test of lectures and knowledge applicable to surgical procedures
- in-session feedback of skills sets

➤ timed testing of skills sets?

Animate Lab outline

Objectives

- To utilize animate lab resources to introduce and reinforce basic and advanced laparoscopic techniques to residents in a closely supervised setting
- To incorporate and enhance techniques and knowledge reviewed in clinical and inanimate lab settings

Basic knowledge

- Optimal positioning for laparoscopic surgery
- Port introduction at both infraumbilical and lower quadrant sites
- Insufflation with appropriate monitoring
- Orientation to basic porcine anatomy

Skills sets

Level 1 (PGY 2 and 3)

- Manipulating instruments and tissue within the visual field
- Transfer of tissue between instruments
- Salpingostomy
- Salpingo-oophorectomy
- Peritoneal excision (simulation of excision of endometriosis)
- Dissection techniques (retroperitoneal ureterolysis)
- Hysterectomy (attempt)
- Endloop amputation of adnexa/uterus (attempt)
- Morcellation of tissue (attempt)

Level 2 (PGY 4 and 5)

- Completion of level 1 tasks with minimal hesitation/inadvertent complication
- Supracervical/total hysterectomy
- Suture needle manipulation within the visual field
- Running closure of cystotomy/enterotomy
- Interrupted suturing of visceral organ defect
- Intracorporeal knots
- Sliding knots (Clinch, Weston)
- Managing intraoperative complications (enterotomy, cystotomy, ureteric and vascular injuries)

Evaluation

- In-session evaluation of the above tasks; both real-time performance and OSCE-style description of steps and equipment required for each aspect of the procedure
- Resident self-evaluation
- Independent review of evaluations every year prior to return to animate lab

Clinical Preceptorship

Four week clinical preceptorship in minimally invasive surgery
Longitudinal preceptorship during gynecologic rotations and chief resident year
Extension of clinical time to accommodate further skills training (advanced laparoscopic techniques)
Skills, techniques and goals specific to MIS

LAPAROSCOPIC TECHNIQUES

Basic skills

- Patient positioning and safety
- Laparoscopic primary and ancillary port selection and positioning
- Alternative entry sites (LUQ, epigastric)
- Closed (Veres needle) and open (Hasson) techniques
- Creation, maintenance and safety of pneumoperitoneum
- Fascial port site closure
- Electrocautery modalities

Level 1 (PGY 1-3)

- Diagnostic laparoscopy
- Ablation/excision of stage 1 endometriosis
- Intra-abdominal pelvic adhesiolysis
- Salpingectomy/ostomy for ectopic pregnancy
- Tubal sterilization
- Management of tubo-ovarian abscess

Level 2 (PGY 4-5)

- Ablation/excision of stage 2-3 endometriosis including endometriomata
- Resection of ovarian/paratubal cysts
- Oophorectomy +/- salpingectomy
- Laparoscopic assisted vaginal hysterectomy (LAVH)
- Supracervical hysterectomy
- Superficial myomectomy
- Laparoscopy during pregnancy

Level 3 (Fellow)

- Laparoscopic total hysterectomy
- Excision of stage 4 endometriosis
- Myomectomy
- Tubal reanastomosis
- Ovarian transposition
- Urethropexy
- Paravaginal defect repair
- Vaginal vault suspension
- Nodal sampling

- Various subspecialty skills obtained through rotations in General Surgery, Urology

HYSTEROSCOPIC TECHNIQUES

Basic skills

- Cervical preparation/dilatation
- Patient positioning
- Equipment assembly
- Distension media usage and monitoring
- Energy options and settings

Level 1

- Diagnostic hysteroscopy
- Polypectomy
- Resection of superficial fibroids
- IUCD removal
- Global ablation techniques

Level 2

- Endometrial resection and ablation
- Resection of submucosal fibroids
- Lysis of synechiae
- Metroplasty

Academic Knowledge

- A. Laparoscopic gynecologic anatomy
- B. Laparoscopic access
 - Evidence regarding techniques to ensure safe abdominal entry and closure
- C. Energy sources
- D. Surgical approach
 - Laparoscopic management of endometriosis
 - endometriomata, organ preserving/excisional procedures
 - Laparoscopic management of ectopic pregnancy
 - Laparoscopic management of benign adnexal disease
 - Laparoscopy during pregnancy
 - Laparoscopic hysterectomy +/- salpingo-oophorectomy
 - Endoscopic myomectomy
 - Tissue removal (morcellation, retrieval devices, incision modification)
 - Pelvic reconstructive procedures
 - repair of pelvic organ prolapse (vaginal vs open/laparoscopic techniques)
 - repair of defects resulting in urinary incontinence
- E. Complications
 - Entry/primary port
 - Ancillary ports
 - Intraoperative (hemorrhage, visceral organ injury, energy source malfunction)
 - Postoperative (port hematoma, unrecognized visceral organ injury, port metastases)
- F. Operative hysteroscopy
 - Cervical preparation
 - Fluid management and complications
 - Uterine ablativ techniques

1. Medical Expert / Clinical Decision-Maker

COGNITIVE SKILLS

An *extensive level* of knowledge is required for the following:

The pathophysiology, investigation, diagnosis, and management of:

- benign pelvic masses, including rupture and torsion
- acute and chronic pelvic pain
- endometriosis
- abnormal uterine bleeding
- fibroids

A *working level* of knowledge is required for the following:

Preoperative and Postoperative Care

- perioperative risk factors and their assessment
- the principles and appropriate use of nutritional support
- the principles of wound healing
- the principles and appropriate use of narcotics and NSAIDs for postoperative pain control
- the management of postoperative medical and surgical complications, including indications for consultation with other specialties and/or the use of invasive hemodynamic monitoring and ventilatory support

TECHNICAL SKILLS

Therapeutic Technologies

The fully trained obstetrician and gynaecologist will have a *working* knowledge of the physics and technological application of the following therapeutic modalities, including the risks, benefits, and complications of these approaches.

- electrocautery
- lasers
- endometrial ablation (thermal and microwave)

Surgical Skills

The list of surgical skills is divided into categories reflecting the frequency with which these procedures are encountered during residency training in obstetrics and gynaecology as well as in the general practice of the specialty. The categorized list also reflects the

level of technical skill competency for each surgical procedure expected after completion of a residency training program in obstetrics and gynaecology.

Surgical Procedures List A

The fully trained resident must be competent to *independently* perform the following procedures in List A. He/she should be able to manage a patient prior to, during and after all of the following procedures. The resident must be able to discuss with the patient the risks, benefits, and complications of these surgical treatments, as well as any available non-surgical treatment alternatives and the consequences of the absence of surgical treatment.

Endoscopic Procedures

- diagnostic laparoscopy (including assessment of tubal patency)
- laparoscopic sterilization
- salpingectomy and linear salpingotomy
- laparoscopic lysis of adhesions
- laser ablation or cautery of endometriosis (stages 1 and 2)
- laparoscopic ovarian cystectomy and salpingo-oophrectomy
- diagnostic hysteroscopy
- operative hysteroscopy (lysis of synechiae, resection of polyps or submucous leiomyomata)
- ablative procedures of the endometrium

Surgical Procedures List B

The following procedures in List B are those that the fully trained resident in Obstetrics and Gynaecology will understand and be able to perform, though he/she may not have actually acquired sufficient skill in residency to *independently* perform them. The resident will be able to explain the indications for each of these procedures, as well as the perioperative management and complications

Gynaecologic Procedures

- laparoscopically-assisted vaginal hysterectomy
- laparoscopic supracervical hysterectomy
- total laparoscopic hysterectomy

Other Procedures

- cystotomy repair
- enterotomy repair
- limited cystoscopy (after inadvertent cystotomy or to confirm ureteric patency)

a. **Surgical Procedures List C**

The following procedures in List C are those that the fully trained resident in Obstetrics and Gynaecology will understand but *not* be expected to be able to perform. He/she should be able to describe the principles of these procedures, the indications for referral and the perioperative management and complications.

- laparoscopic presacral neurectomy
- laparoscopic colposuspension
- laparoscopic myomectomy
- laparoscopic appendectomy

Communicator

General Objectives

The fully-trained obstetrician and gynaecologist must be able to:

- establish therapeutic relationships with patients and their families characterized by understanding, trust, empathy, and confidentiality
- obtain and synthesize relevant history from patients, families, and/or community
- discuss appropriate information with the patient, her family, and other health care providers that facilitates optimal health care. This also implies the ability to maintain clear, accurate, timely and appropriate records

Specific Objectives

To achieve these objectives as a communicator, the resident must demonstrate:

- the ability to obtain informed consent for medical and surgical therapies
- the ability to record accurately and succinctly data collected from patients, laboratory tests and radiological studies and to communicate (oral or written) conclusions based on these data to patients and their families, referring physicians and other involved health care personnel

- evidence of good interpersonal skills when working with patients, families, and other members of the health care team
- an awareness of the unique personal, psychosocial, cultural and ethical issues that surround individual patients with obstetric or gynaecologic problems
- the ability to prepare and present information to colleagues and other trainees (if applicable) both informally (e.g., ward rounds) and formally (e.g., Grand Rounds, scientific meetings)

Collaborator

General Objectives

The fully-trained obstetrician and gynaecologist must be able to:

- consult effectively with other physicians
- consult effectively with other health care providers
- contribute effectively to a multidisciplinary health care team

Specific Objectives

To achieve these objectives as a collaborator, the resident must be able to:

- function competently in the initial management of patients with conditions that fall within the realm of other medical or surgical specialties
- demonstrate the ability to function effectively and, where appropriate, provide leadership, in a multidisciplinary health care team, (in this rotation the clinic and the OR) showing respect, consideration and acceptance of other team members and their opinions while contributing personal specialty-specific expertise
- identify and understand and respect the significant roles, expertise, and limitations of other members of a multidisciplinary team required to optimally achieve a goal related to patient care, medical research, medical education or administration

Health Advocate

Definition

Obstetricians and gynaecologists must recognize the importance of advocacy activities in responding to the challenges represented by those social, environmental, and biological factors that determine the health of patients and society. Health advocacy is an essential and fundamental component of health promotion that occurs at the level of the individual patient, the practice population, and the broader community. Health advocacy is appropriately expressed both by the individual and collective responses of obstetricians and gynaecologists in influencing public health and policy.

General Objectives

The fully-trained obstetrician and gynaecologist will:

- identify the important determinants of health affecting patients
- contribute effectively to improved health of patients and communities
- recognize and respond to those issues where advocacy is appropriate

Specific Objectives

In order to achieve these objectives as an advocate, the resident should be able to:

- identify the important determinants of health for an individual patient, highlight which determinants are modifiable, and adapt the treatment approach accordingly
- make clinical decisions for an individual patient, when necessary balancing her needs against the needs of the general population and against the available resources
- facilitate medical care for patients even when that care is not provided personally or locally or when that care is not readily accessible (e.g., therapeutic abortion)
- provide direction to hospital administration regarding compliance with national clinical and surgical practice guidelines

Scholar

General Objectives

The fully-trained obstetrician and gynaecologist must:

- develop, implement, and monitor a personal continuing education strategy
- be able to critically appraise sources of medical information
- facilitate patient and peer education
- try to contribute to the development of new knowledge in the field of obstetrics and gynaecology

Specific Objectives

In order to achieve these general objectives as a scholar, the resident must:

- develop a habit of life-long learning, utilizing information technology for referencing cases, literature review and participation in basic or applied clinical research
- identify gaps in personal knowledge and skill, and develop strategies to correct them by self-directed reading, discussion with colleagues, and ongoing procedural experience
- be able to critically appraise and summarize the literature on a given subject, and judge whether a research project or publication is sound, ethical, unbiased and clinically valuable

Professional

Definition

Obstetricians and gynaecologists have a unique societal role as professionals with a distinct body of knowledge, skills, and attitudes dedicated to improving the health and well-being of women. They are committed to the highest standards of excellence in clinical care and ethical conduct, and to continually perfecting mastery of their discipline.

General Objectives

The fully-trained obstetrician and gynaecologist must:

- deliver the highest quality of medical care with integrity, honesty, compassion, and respect
- exhibit appropriate personal and interpersonal professional behaviours
- practice medicine in a way that is consistent with the ethical obligations of a physician

Specific Objectives

In order to achieve these general objectives in the role of a professional, the resident must:

- foster a caring, compassionate and respectful attitude towards patients, families, and other members of the health care team
- provide medical care that is ethical, and seek advice or second opinion appropriately in ethically difficult situations
- monitor patients appropriately and provide appropriate follow up medical care, particularly after starting a new treatment or following a surgical procedure
- maintain patient confidentiality at all times
- complete reports, letters and summaries in a timely fashion and maintain medical records that are consistently accurate, informative and legible.
- show self-discipline, responsibility and punctuality in attending to ward duties, in the operating room, and at meetings and other activities, and be a moral and ethical role model for others
- have the ability to balance professional and personal life