Laparoscopy Objectives

Loma Linda University General Surgery Residency

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Objectives of laparoscopic Skills for General Surgery Residents Years 1-5.
Introduction:

The following objectives outline specific goals in laparoscopy for each year of residency. If met, residents will gain competence and skills appropriate to each year of training. Objectives are structured as follows (FLS refers to Fundamentals of Surgery):

1. Didactic component.
   a. Modules/seminars given by Attendings and mentors.
   b. Each resident must prepare for the FLS exam in 4th year. The exam has a computerized didactic component. Online didactic modules are located at www.flsprogram.org and must be completed as part of the objectives.
   c. Further reading of abstracts and papers appropriate to the components.

2. Fundamentals of Surgery Goals
   a. The FLS tasks are explained for each year of residency with the aim that each resident will pass the FLS technical exam in their 4th year.
   b. The proficiency target that must be met in order to pass the FLS technical exam is noted in seconds. Residents will be tested at the end of each year to be sure this goal is met. Practice logs will be given to you. Read the FLS Manual Skills written instructions and performance guidelines on the website.
   c. The FLS Laparoscopic Trainer Box is located in the residency study area, 2nd floor of Coleman Pavilion.

3. The Lap Mentor by Symbionix - a Virtual Surgical Simulator
   a. The Lap Mentor is a virtual computerized surgical simulator located in the Centennial Building. You will first be introduced to the simulator and then arrangements will be made for independent practice.
   b. Practice will be recorded in the simulator computer which will function as a practice log. No other records are needed.
   c. Appropriate Lap Mentor tasks and modules to be completed are outlined for each year.
1. Didactic Component

a. Surgical Tools Seminar:

Before moving to laparoscopy, residents must first have a solid understanding of surgical tools.

i. Knot Tying, Suturing

- Focus on basic wound closure techniques, and demonstrate various knot-tying techniques.

- Learn various suture materials and needles

- Instrument tie, hand tie, two-hand tie square knot, two-hand surgeon's square knot, two-hand slip knot, one-hand tie square knot.

ii. Skin stapling techniques.

- Proper use of skin staplers and staple removal using a staple extractor.

iii. Scientific Basis of Wound Closure Techniques

- Understand the biology of wound repair and infection. Select the most appropriate surgical techniques for wound repair.

- The scientific basis to select a wound closure technique

- Wound closure that will affect the most aesthetically pleasing scar and low incidence of infection.

- Apply appropriate devices for wound closure

- Learn to suture with interrupted or continuous closure techniques.

b. FLS Didactic Goals: FLS Module 1- Independent Study/ Prepare to discuss in seminar:

a. Basic Laparoscopy and Principles of Electrosurgery:

i. Room set up

ii. Basic instruments

iii. Principles of electrosurgery, energy sources, harmonic scalpel

iv. Basic troubleshooting of laparoscopic equipment.

v. Introduction to Patient selection and preoperative assessment
2. Fundamentals of Laparoscopic Surgery Goals

a. Task 1: Peg Transfer- Proficiency target: 48 seconds
   - Practice Peg transfer in the simple simulator.
   - Review the video demonstration of this task in the Module V of the FLS didactic curriculum.

3. Lap mentor

a. Task 1: Nine Basic Skills Tasks
   i. Complete the Nine Laparoscopic Basic Skills tasks. These include more detailed skills for hand-eye coordination, two-handed maneuvers, translocation of objects.

b. Task 2: Camera Manipulation
   i. Complete the Two basic tasks designed for practicing camera manipulation.
   ii. Perform the modules related to camera angles, snapshots and replacing tools.


Year 2

1. Didactic Component

a. Surgical Staplers Seminar.
   i. Applications and precautions of surgical staplers.
   ii. Practice with staplers to include those for open surgery, and laparoscopic surgery including wedge resection, end-end anastomosis, low anterior resection.

b. FLS Didactic Goals: FLS Module 2- Independent Study/ Prepare to discuss in seminar:
   Intraoperative Considerations
   i. Anesthesia and Patient Positioning
   ii. Pneumoperitoneum Establishment & Trocar Placement
   iii. Physiology of Pneumoperitoneum
   iv. Exiting the Abdomen

Pay specific attention to risk factors associated with minimally invasive surgery and patient selection.

2. Fundamentals of Laparoscopic Surgery Goals

   a. Task 1: Review Peg transfer- Proficiency target: 48 seconds
   b. Task 2: Precision Cutting- Proficiency target: 98 seconds.
   c. Task 3: Placement and Securing of Ligating Loop- Proficiency target: 53 seconds/ 1mm accuracy

3. Lap Mentor

   a. Review the Nine Basic Skills tasks and camera tasks.
   b. Complete the Lap Mentor modules for
      i. Laparoscopic cholecystectomy, CBDE- Procedural Tasks
      ii. Laparoscopic appendectomy
      iii. Gastrostomy
Year 3

1. Didactic Component

a. Review and complete FLS didactic modules for years 1 and 2.

b. FLS Didactic Goals: FLS Module 3- Independent Study and Prepare to Discuss in Seminar:

   Basic Laparoscopic Procedures
   
   i. Diagnostic Laparoscopy
   
   ii. Biopsy
   
   iii. Laparoscopic Suturing- Indications and techniques of suturing, use of the Endostitch applier.
   
   iv. Hemorrhage and Hemostasis

2. Fundamentals of Laparoscopic Surgery Goals

   a. Review Tasks 1-3. Confirm that proficiency targets are met.
   
   b. Introduction to Intra/Extracorporeal Suturing- Schedule with Dr. Baerg.
   
   c. Task 4: Introduction to Extracorporeal Suturing and Knot pusher.

   The task begins when the instruments enter the trainer, complete 3 throws and cut the knot.

   Proficiency Target: 136 seconds/1mm accuracy

3. Lap mentor:

   a. Complete the Lap Mentor modules:

   i. Basic suturing module
   
   ii. Laparoscopic appendectomy
   
   iii. Cholecystectomy, CBDE- Complete procedure
   
   iv. Gastrostomy
   
   v. Ventral hernia repair- module 1
Year 4

1. Didactic Component:
   a. FLS Didactic Goals: Review FLS Module 3

   FLS Module 4- Independent Study and Prepare to Discuss in Seminar:

   Postoperative Considerations
   i. Postoperative Care
   ii. Access Injuries
   iii. Pneumoperitoneum
   iv. Surgical Injury
   v. Procedural Complications

2. Fundamentals of Laparoscopic Surgery Goals
   a. Review Tasks 1-4. Confirm proficiency targets are met.
   b. Task 5: Simple Suture with intracorporeal knot- Proiciency Target: 112 seconds/1mm accuracy
   c. Complete the FLS exam.

3. Lap Mentor
   a. Complete the Lap Mentor Modules:
      i. Advanced suturing module
      ii. Gastric Bypass module
      iii. Advanced ventral hernia repair- modules 2-6.
      iv. Gynecology modules
      v. Sigmoidectomy modules
Year 5

Ideas for Objectives;

a. Continue to practice advanced modules in lap mentor. Spend a specific amount of time in simulation exploring new modules as they become available.

b. An animate lab to teach:

- Lap Nissen
- Lap Nephrectomy, Adrenalectomy
- Lap Bowel Resection

c. Complete video simulation education course and compose a teaching session.

d. Complete a robotics seminar with urology.

e. Design a laparoscopic related research project or poster for ACS meeting/SAGES/IPEG.