MINIMALLY INVASIVE AND DIGESTIVE DISEASES SURGERY SECTION

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I. Rotation Goals and Objectives

The Minimally Invasive and Digestive Diseases Surgery Section address a wide variety of diseases including benign and malignant diseases of the gastrointestinal tract, solid organs, and abdominal wall. The surgical focus of the service is advance minimally invasive techniques, including laparoendoscopic surgery, advance therapeutic endoscopy and single incision laparoscopic surgery. The attending surgeons of the Minimally Invasive and Digestive Diseases Surgery service have advanced laparoscopic and endoscopic training and perform ERCP and stenting, upper and lower endoscopy, and advanced minimally invasive surgical procedures, including multidisciplinary bariatric and adrenal surgical care. The Minimally Invasive and Digestive Diseases Surgery service seeks to provide excellent evidence-based patient care with patient outcomes and satisfaction that exceeds national benchmarks, in an environment that is conducive to resident and student learning, academic and personal development.

On the Minimally Invasive and Digestive Diseases Surgery service (MIDDS) the residents should encounter and develop skills in the following cognitive, technical, and
behavioral areas, both in general and in a PGY level dependent fashion. To achieve these goals residents are expected to participate in daily work and teaching rounds, preoperative conference, operating room procedures, outpatient clinics, endoscopic procedures and required conferences. Residents are also expected to participate independently in skills acquisition tasks through the skills laboratory and to read specifically on subjects addressing all GI diseases, morbid obesity and weight loss procedures, solid organ diseases (spleen, adrenal, pancreas), abdominal wall hernias and critical care. Competencies as referenced below for each goal and objective are as follows: medical knowledge (MK), patient care (PC), interpersonal and communication skill (IP/C), professionalism (P), practice based learning (PBL), systems based practice (SBP) and technical skills (TS)

General goals and objectives

1. Develop a knowledge base of the physiology and pathophysiology of the alimentary tract (esophagus, stomach, small intestine, colon, anorectum), solid organs of the abdomen (liver, adrenal, pancreas, spleen), obesity and abdominal wall hernia. [MK, PC, PBL]

2. Acquire skills in the management of simple and complex gastrointestinal disorders, solid organ disorders (adrenal, spleen, pancreas, liver), morbid obesity and abdominal wall hernias. Recognize the indications and contraindications for operative intervention of the above. [MK, PC, TS]

3. Recognize complications of operative procedures for simple and complex gastrointestinal disorders, solid organ disorders (adrenal, spleen, pancreas, liver), morbid obesity and abdominal wall hernias, and demonstrate the knowledge and skills to appropriately manage the same. [MK, PC, PBL, TS]

4. Manage the perioperative and outpatient care of patients with simple and complex gastrointestinal disorders, solid organ disorders (adrenal, spleen, pancreas, liver), morbid obesity and abdominal wall hernias, including appropriate management of pain, drains, stomas, wounds, antibiotics, and nutrition. [PC, SBP, IP/C, P]

5. Develop the ability to manage the medical, social, emotional, psychological and economic components of chronic gastrointestinal disorders, solid organ disorders (adrenal, spleen, pancreas, liver), morbid obesity and abdominal wall hernias. [PBL, SBP, IP/C, P]

6. Arrange for supportive and palliative care for ongoing or terminal problems associated with gastrointestinal disorders, solid organ disorders (adrenal, spleen, pancreas, liver), morbid obesity and abdominal wall hernias. [PC, P, IP/C, SBP]

7. Develop skills in performing flexible gastrointestinal endoscopy, basic and advance laparoscopy. [PC, MK, TS]

8. Understand basic physiology of laparoscopy, including physiological changes and complications associated with pneumoperitoneum. [MK, PBL, TS]

PGY – 1

1. Understand the basic anatomy and physiology of the GI tract, solid organs, abdominal wall hernia and morbid obesity. [MK, PBL]

2. Develop a working knowledge of disorders of the gastrointestinal tract, solid organ (adrenal, spleen, pancreas, liver), abdominal wall and morbid obesity, the
indications for operative treatment and contraindications for operative treatment. [MK]

3. Evaluate and manage inpatients and outpatients with gastrointestinal disorders, solid organ disorders (adrenal, spleen, pancreas, liver), morbid obesity and abdominal wall hernias, and their co-morbidities under the guidance of faculty and senior residents, including appropriate use of consultants and other care providers in team management strategies. [MK, PC, IP/C, PBL, SBP]

4. Recognize a patient with an acute change in condition, including but not limited to: acute abdomen, acute mental status change, respiratory distress, acute coronary syndrome, hemorrhage and sepsis/septic shock. [MK, PC]

5. Develop skills in nutritional assessment and management, including parental and enteral nutrition. [MK, PC, SBP]

6. Show proficiency in technical skills modules (skills lab), including knot-tying, simple suturing, central line placement and BSI bundles. [TS]

7. Develop basic technical operative skills such as knot tying, tissue dissection, suturing, operative exposure and assistance in the operating room. [PC, TS]

8. Perform non-complex procedures such as hernia repairs, hemorrhoidectomy, removal of skin lesions, simple wound closures, and intravenous access placement. [PC, PBL, TS]

9. Manage the discharge process including arrangements for outpatient care or transfer of care to a nursing or rehabilitation facility. [P, SBP, MK, PC, IP/C]

10. Develop efficient and effective organizational work skills. [PC, IP/C, P, SBP]

11. Develop experience and associated judgment regarding issues including when to ask for assistance or consultation, and recognition of symptoms or findings requiring acute response or intervention. [PC, SBP, PBL, P]

12. Develop excellent communication skills with patients, faculty, residents, nursing and paramedical personnel. [PC, IP/C, SBP, P]

PGY – 3

1. Similar to the PGY – 1 as above, with the progressive demonstration of more detailed and expanded knowledge base, improved organizational skills, expanding technical skills, and more advanced skills in managing and coordinating preoperative and postoperative, including outpatient patient care. [MK, PC, IP/C, SBP]

2. Knowledge of the pathophysiology of more complex gastrointestinal disorders (portal hypertension, gastrointestinal malignancies, complex metabolic disorders associated with fistulas, short gut syndrome, and complicated hepatobiliary disease), morbid obesity and metabolic syndrome, more complex solid organ disorders (hyperoraldosteronism, pheochromocytoma, cushing’s syndrome, adrenal malignancy) and more complex abdominal wall hernia (hernias with fistulas, hernias with loss of domain). [MK]

3. Demonstrate continued improvement in patient care and management skills. [PC, PBL, P, IP/C]

4. Develop leadership and teaching skills in the direction of PGY 1 and 2 residents as well as students. [PC, SBP, P, IP/C]
5. Manage complex and critically ill patients and disease processes, including those in the ICU. This should include a comprehensive understanding of the surviving sepsis guidelines. [PC, SBP, IP/C]

6. Develop and demonstrate progressing communication and teamwork skills in managing the patients on the service and reporting to the chief resident and attending. [IP/C, P, SBP]

7. Continue to improve in the evaluation and management of acute patient care problems with consultation from the chief resident, MIDDS faculty, emergency room physician and other medical and clinic personnel. [MK, PC, IP/C, P, SBP, PBL]

8. Show proficiency in technical skills modules (skills lab), including FLS. [TS]

9. Develop technical skills to perform more complex operative procedures such as laparoscopic cholecystectomy and common bile duct exploration, complicated and recurrent hernia repair, colon resection, anorectal procedures, etc. with supervision from the chief resident and attending. [MK, PC, TS]

10. Gain proficiency in flexible endoscopic (EGD, colonoscopy, PEG) and basic laparoscopic procedures (appendectomy, cholecystectomy, hemorrhaphy, enteral feeding tube placement, diverting colostomy/ileostomy) with supervision from the chief resident and attending. [MK, PC]

11. Assist and instruct the PGY 1 in less complicated operations and procedures with supervision from the chief resident and attending surgeon. [IP/C, P]

12. Demonstrate skills with discharge planning and multidisciplinary care for patients during and after hospitalization, including transfer in and out of the ICU. [PBL, PC, SBP]

13. Recognize patients with complex gastrointestinal disorders (portal hypertension, gastrointestinal malignancies, complex metabolic disorders associated with fistulas, short gut syndrome, and complicated hepatobiliary disease), and organize and assist with long range planning of social, emotional, and economic planning and support. [MK, PC, IP/C, P, SBP]

14. Recognize the long-term management needs of patients with morbid obesity and metabolic syndrome, complex solid organ disorders (hyperaldosteronism, pheochromocytoma, cushing’s syndrome, adrenal malignancy) and complex abdominal wall hernias (hernias with fistulas, hernias with loss of domain). [MK, PBL, SBP, PC]

PGY – 5

1. The chief resident has overall coordination of care responsibility for all patients on the MIDDS service and manages them with supervision of the MIDDS faculty. [PC, P, IP/C, SBP]

2. Demonstrates a matured knowledge base for both common and unusual disorders of the gastrointestinal tract, solid organs, abdominal wall and morbid obesity/metabolic syndrome. [MK, PC, PBL]

3. Demonstrates knowledge of the medical and surgical management of such complicated GI problems as fistulas and short-gut syndrome. [MK, PC, PBL, SBP]
4. Demonstrate knowledge of failures of medical management for gastrointestinal, solid organ, abdominal wall disorders and morbid obesity. [MK, PC, PBL]

5. Demonstrate knowledge of recurrent problems after operation, surgical options for management and timing of interventional and endoscopic procedures for management of complications (ex: pancreatic and biliary disease, leaks, obesity surgery complications). [MK, PC, PBL]

6. Demonstrates management skills for severe complications of gastrointestinal, solid organ and abdominal wall disorders such as: septic shock, ARDS, GI bleeding, hemorrhage from non-GI sources, tertiary peritonitis, and short bowel syndrome, fistulas, respiratory failure, kidney failure, adrenal crisis. [MK, PC]

7. Demonstrates judgment about the complexities of deciding between operative intervention and non-operative and/or palliative treatment. [MK, PC, PBL, P]

8. Ability to evaluate advantages and disadvantages of minimally invasive surgery in comparison to open surgical or other minimally invasive approaches, for example with pancreatic pseudocysts, GI bleeding, and GERD. [MK, TS, PC, PBL]

9. Achieve a high degree of technical competence and performance in the operating room including in high acuity settings, with supervision and guidance from the attending surgeon, including developing more advanced team management skills. [MK, PC, P, IP/C, TS]

10. Perform advanced operative procedures such a pancreatectomy, hepatectomy, APR, and anorectal reconstruction, adrenalectomy and bariatric surgery, with supervision from the attending surgeon. [MK, PC, PBL, TS]

11. Perform advanced laparoscopic procedures such as antireflux procedures, Heller myotomy, splenectomy, colon resection, adrenalectomy and bariatric surgery with supervision from the attending faculty. [MK, PC, PBL, TS]

12. Perform therapeutic flexible endoscopic procedures such as PEG, EGD with biopsies, colonoscopy with polypectomy, esophageal dilations, and choledochoscopy with supervision from the attending. [MK, PC, PBL]

13. Assist and instruct the junior resident in less complex operations with supervision from the attending. [MK, PC, PBL, SBP, IP/C, P]

14. Demonstrate the total spectrum of preoperative, operative, perioperative and outpatient management skills. In addition demonstrating ability to communicate well with patients and families, as well as consultants, during the perioperative period with supervision from the attending. [MK, PC, SBP, PBL, IP/C, P]

15. Practice cost effective medicine. [PBL, SBP]

16. Possess good interpersonal skills to facilitate excellent patient care. [IP/C, P, SBP]

17. Acquire the collective attributes as reflected in the above to be an independent general surgeon. [MK, PC, IP/C, SBP, PBL, P]
II. **Education and Learning Materials**

**Surgical Skills Lab**
Residents will have access to the surgical skills lab 24 hours/day. The lab is locked with card entry only. Residents are expected to use the lab responsibly. Access to the lab is monitored and the equipment in the lab is quite expensive. Residents should use only those simulators for which they have received training and have been given access. Please remember that a lot of faculty time and resources have been given to the development of the lab for resident and student education and handle the lab equipment accordingly.

Residents will sign the time sheet indicating the time spent and the skills practiced upon leaving the lab. This will be used as documentation for the resident’s benefit. Practice will be expected for participation in certain endoscopic and laparoscopic procedures while on the GI surgery service.

**GI Mentor (Simbionix)**
This simulator trains the surgeon in a variety of upper and lower GI procedures. Currently, we have upper and lower endoscopy procedures with the potential purchase of ERCP and EUS modules. There is a large number of virtual patients and pathology as well as games to practice hand-eye coordination. With the increasing focus on intraluminal and natural orifice surgery, it is important for residents to develop keen endoscopic skills.

**SAGES Fundamentals of Laparoscopic Surgery (FLS)**
This is a comprehensive, CD-ROM based module that includes a laparoscopic trainer for practice and assessment. This is designed to teach the physiology, fundamental knowledge, and technical skills required in basic laparoscopic surgery. This is CME accredited and FLS exams are administered at select regional test centers. This course has been endorsed by the American College of Surgeons and is now required to sit the ABS General Surgery Qualifying (written) Examination.

**Video Library**
A library of videos of common procedures are available for review in the surgical skills lab. Residents are encouraged to videotape interesting procedures in the OR. These recordings should not contain any identifiable patient information in compliance with HIPAA. Such recordings may be capture and edited for possible submission to society meetings under the guidance of the involved faculty.

**Suggested Reading Materials and Resources** (in addition to standard surgical texts and curricular assignments)
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*Laparoscopic Cholecystectomy Aberrant Anatomy* Book compiled by a MCG medical illustration student from cases seen on MIDDS surgery. Available in the Skills Lab.

Cameron’s Current Surgery

Mastery of Surgery

Mastery of Endoscopic and Laparoscopic Surgery

SAGES Manual

Surgical Endoscopy

Journal of Gastrointestinal Surgery

Websurgery