Chapter

Introductory Chapter: Abdominal Surgeries

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1. Historical background

Over the past centuries, knowledge about abdominal pathologies and management transformed gradually into the field we know today. The elucidation of the multiplicity of diseases underlying Hippocrates "ileus" came after the tremendous efforts, successes and often failures of the surgical forefathers. Far from being a comprehensive timeline, from the coining of "peritonitis" to the description of appendicitis to the successful treatment of an appendiceal abscess was a journey that took nearly a hundred years. However, the breakthrough of anesthesia and asepsis in the 1840s and 1870s respectively brought about surgical innovation and advancement at unprecedented pace [1].

2. Examples of abdominal surgeries

Abdominal surgeries constitute a heterogeneous group of procedures that constitute the core of the general and pediatric surgical practice as well as a multitude of surgical training programs. This includes a long list of operations that are performed on elective and emergency basis. Classic examples include, but not limited to, the resection of inflamed gastrointestinal organs such as appendectomy for acute appendicitis and cholecystectomy for acute cholecystitis, operations for complicated inflammatory bowel diseases such as Crohn's disease and ulcerative colitis, bariatric operations such as sleeve gastric resections and gastric bypass, tumor resections such as Whipple procedure for pancreatic malignancies, and bowel resections for colon cancer. Laparotomies also allow repair of diaphragmatic hernias both congenital and acquired, vascular procedures such as emergency and elective repair of abdominal aortic aneurysms. Liver procedures are also an important example of abdominal procedures such as liver resections for malignant conditions of the liver. Other indications include repair of the abdominal wall and inguinal hernias, gastroesophageal reflux, hiatal hernias, abdominal trauma, and bowel obstruction among others. Moreover, urologists and gynecologists also perform abdominal surgeries for a wide variety of indications including and not limited to uterine and ovarian resections for a variety of malignant and benign conditions, nephrectomies, urinary bladder resections and reconstructions, pyeloplasties and other procedures.

3. Minimally invasive approach

A relatively recent momentum is shifting the operative paradigm towards a minimally invasive approach. Initially with the advent of laparoscopy that re-invented the surgical technique to single port access and advanced robotic

platforms. Minimally invasive approaches in abdominal surgeries reduce the postoperative recovery time and allow for an earlier return to normal life, is associated with reduced risk of wound-related infections and bowel obstruction related to adhesion formation, this is in addition to its cosmetic superiority over the classic open approach [2]. That said, the open abdominal procedure remains an important element of the general surgeons' armamentarium with its valid indications, such as in cases of hemodynamically unstable trauma patients (such as in shattered spleens and high grade liver lacerations), bowel obstruction with massive intestinal distention, and large tumors involving major abdominal vessels particularly in children such as in patients with large neuroblastoma.

4. Dilemmas in abdominal surgeries

Indications, preoperative and postoperative patient care, approaches and techniques involved with abdominal surgeries have been a subject of clinical research for a long time; some questions have been answered with relatively high confidence based on well-designed clinical and non-clinical trials while many other questions remain unanswered and subject to debate. Examples of commonly discussed dilemmas include the following:

1. What is the ideal prepping solution for disinfecting the abdominal skin before surgeries? Betadine-based or chlorhexidine-based?

2. What is the best type of and technique for bowel-to-bowel anastomosis?

3. Which is better: hand-sewn or stapled anastomosis?

4. Which type of suture material is ideal for bowel anastomosis, fascial and abdominal wall closure?

5. How can the risk of post-operative superficial and deep wound infection complications be reduced?

6. What is the role of bowel preparation before surgeries involving the colon and rectum? Mechanical preparation versus chemical preparation.

7. When is non-operative management indicated versus surgical explorations in specific disease processes?

5. Focus and content

The primary focus of this book is to present a brief and basic overview on abdominal surgeries, both theoretical knowledge and practical tips and clues. Our target audiences are junior general and pediatric surgeons in practice, obstetricians and gynecologists, urologists, surgical and medical residents and fellows, operating room and surgical ward nurses, medical and nursing students, and all other healthcare providers involved with the care of patients undergoing abdominal procedures of any type. The book tackles common indications for surgeries of the abdomen across all age groups, as well some important technical considerations such as minimally invasive approaches, wound closure and bowel anastomosis techniques, and the indications, pros and cons of the utilization of peritoneal drains

after abdominal surgeries. In addition, this book reviews the up-to-date perioperative care guidelines and recommendations. That said, this book is not intended to be a comprehensive reference for all the abdominal surgical pathologies and details of the surgical techniques.

6. Conclusion

We hope that this book will provide the readers with a general flavor and basic information around the different types, indications, and potential complications of abdominal surgeries as well as the optimal care of patients undergoing abdominal procedures.

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