Cross talk between laparoscopic surgery and endoluminal surgery

The Adventure from Laparoscopic Surgery to Endoluminal and Transluminal Surgery

Department of Surgery, Prince of Wales Hospital, The Chinese University of Hong Kong

E.K. Ng

Ever since the first laparoscopic cholecystectomy in human reported by Mouret in 1987, minimally invasive surgery has firmly set its feet on the stage of Surgical History. In the 1990s, a good number of clinical trials were conducted, which provided strong supportive evidence to the use of laparoscopic techniques in various surgical subspecialties. Reduced postoperative pain, shortened hospital stay, earlier recovery and better cosmetic outcomes are the main advantages of laparoscopic operation over its conventional open counterpart. More important, safety of minimally invasive procedures has evolved and improved, largely contributed by a better understanding of physiological and immunological changes related to pneumoperitoneum. Another contributing factor is the emergence of novel instrument technologies, such as computer-based bipolar devices, automatic endostaplers, ultrasonic shears, and ergonomic surgical equipment, which are indispensable armamentarium for laparoscopic operation nowadays.

Parallel to laparoscopic surgery, therapeutic endoscopy has also undergone revolutionary development and expanded in the scope of treatment possibilities for different gastrointestinal diseases in the past decade. Availability of new endoscopic knives, enteric stents, band systems and detachable snares has rendered many previously impossible conditions become endoluminally treatable now. Advancement in endoscopic image system is another major contributing factor, which allows better delineation of pathology for endoscopic management.

The desire to extend the territory of endotherapy is rather natural, and such a notion can be traced back to endosonography-guided fine needle aspiration or drainage of various intra-abdominal lesions. The enthusiasm on endoscopic transluminal procedure took off shortly after the first report of NOTES peritoneoscopy in the early 2000’s. Though it was mainly confined to animal experiments at the beginning, now there have been numerous reports of NOTES procedures successfully conducted in human. The white paper published by the NOSCAR in 2006 has highlighted a number of potential obstacles in promulgating NOTES in the mankind and resolutions based on research was encouraged.

Since 2005, our group has started the endeavor in finding answers to some of the issues listed by NOSCAR. Among the works we did, the use of Eagle Claw in closure of gastrotomy, the design of an all-in-one needle sphincterotome, the attempt of NOTES-assisted gastrojejunoostomy and enteroenterostomy, and the determination of peritoneal access through different type of gastrotomies have given us in-depth insight on this novel approach of performing intra-abdominal operations. Nevertheless, the scope of procedures suitable for NOTES is probably limited and has to be accomplished via some specially designed platform.

Gastroenterological Endoscopy