Robotic Colorectal Surgery in Hong Kong: Current Status and Future Prospect
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Abstract
Robotic surgery in Hong Kong began with the installation of the first *da Vinci* surgical system at Prince of Wales Hospital (PWH) in 2005. The first case of robotic-assisted laparoscopic abdominoperineal resection in Hong Kong and China was performed at PWH in August 2006. Today seven hospitals in Hong Kong have already installed the *da Vinci* surgical system (including three *Xi* systems), and a few other hospitals are planning to purchase the system. Besides PWH, two other colorectal units are currently performing robotic colorectal surgery on a regular basis, including Queen Mary Hospital and Pamela Youde Nethersole Eastern Hospital. Complex colorectal procedures such as total mesorectal excision (TME) in a narrow pelvis, intersphincteric resection, transanal surgery, and single port surgery are facilitated by the robotic system. Factors that favor the development of robotic colorectal surgery in Hong Kong include the high uptake rates (70%) of laparoscopic colorectal surgery among our colorectal surgeons, the ample opportunity to observe world experts performing live robotic surgeries in surgical conferences held in Hong Kong, and the fact that all cases of robotic TME will be financially reimbursed by the Hong Kong Government.

At PWH, we have designed a specific robotic colorectal surgery training program for our trainees, which is a step-up process with a lot of emphasis placed on practice and proctoring led by colorectal surgeons. The training program starts with accumulation of skills in laparoscopic colorectal surgery and knowledge on robotic colorectal surgery, followed by participation in console surgeon certificate course, and finally hands-on practice in the operating room under close supervision. Thereafter, the ‘fully trained’ surgeons (who have performed at least 20 cases of robotic colorectal surgery) are encouraged to undertake continuous training by actively participating in robotic conferences and research, and doing overseas attachment to further broaden their horizon in robotic colorectal surgery.

We have recently conducted a systematic review of published literature on robotic surgery for rectal cancer. It is found that the robotic approach is associated with lower conversion rate, less blood loss, and higher incidence of complete mesorectum when compared with the laparoscopic counterpart. However, more high quality studies are needed to justify the high cost of robotic surgery. Further clinical trials are currently underway in Hong Kong and worldwide to evaluate whether robotic surgery will become a new standard of care.
Furthermore, in collaboration with experts in biomedical engineering, we are developing a new endoscopic robotic surgical system that may facilitate endoluminal surgery and natural orifice transluminal endoscopic surgery in the future.
