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Robotic Surgery *by G Watanabe*

Reviewed by: Sushil Dawka

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Robotic Surgery is the next big innovation after Minimally Invasive Surgery. Emerging within a generation of each other, the two have synergized to show the way to the future, where soft advantages like patient comfort and convenience and surgeon ergonomics meld seamlessly with hard considerations like safety, cost-benefit and efficacy. Robotically assisted endoscopic procedures have the upheaval potential of disruptive innovation, bearing a surgical ethos unthinkable just a few decades back.

Robotic surgery systems have technical advantages for operators, such as articulating instruments with up to eight degrees of freedom, a stereoscopic magnified operative view, tremor filtering, and motion scaling, all of which further enhance conventional endoscopic technology and procedures. This hitherto unimaginably sophisticated technological advancement has outstripped the wildest science-fiction and would logically seem to be the next inexorable advance, limited only by feasibility and cost.

However because of lack of RCTs demonstrating long-term outcomes, advantages of many robotically assisted approaches are yet to be quantified, if not clarified. Moreover, most scientific evidence comes from isolated team studies or single surgeon series (as is to be expected from any nascent technology-driven protocol). Even their most ardent proponents cannot ignore the steep learning curve and the huge expense of material and effort in establishing such systems.

“Robotic Surgery”, edited by Go Watanabe, brings the reader up to date on where robot-assisted surgery stands today. The book opens with an overview of Robotic Surgery followed by chapters on development of robotic systems and the ‘da Vinci surgical

Correspondence to
Sushil Dawka;
sushil.dawka@gmail.com

system' in particular. Given that the da Vinci System is today the only commercially available master-slave telemanipulator system (with over 2,300 units installed worldwide) it is understandable that other robot systems under development only get a passing mention.

As this book could well be the first book focused on robotic surgery for many of its readers, the introductory chapters do a good job of spelling out the fundamentals. The description and illustrations of the equipment and the principles behind their implementation is authoritative and comprehensive and forms most of the 'general interest' part of the book. Indeed, most of this would be accessible (and engrossing) to the informed non-medical reader as well.

The introductory section is followed by chapters on Urology, Cardiac Surgery and General Thoracic Surgery as well as on specific robot- assisted procedures like Gastrectomy, Esophagectomy, Thyroidectomy, Totally Endoscopic Coronary Artery Bypass Grafting (TECAB), Mitral Valve Surgery and Lateral Pelvic Node Dissection for advanced rectal cancer. Non-surgeons are likely to feel a bit lost in the procedural detail of the various operative techniques, but for readers familiar with endoscopic surgery, these are the juicy bits. As a surgeon, this reviewer found it fascinating, riveting even, to be virtually handheld through complex cutting-edge operative procedures, which is why the lack of chapters on orthopedics, neurosurgery and gynecology detracts a little from the completeness of the coverage.

Authors who are pre-eminent in these fields have written each of these chapters. Indeed, the tone of authority for the scientific content of this book is set by the standing of the editor himself. Dr. Go Watanabe heads 'Team Watanabe' at Kanazawa University Hospital, Ishikawa, Japan. He performed the world's first totally endoscopic OPCAB (Off Pump Coronary Artery Bypass) and is Japan's leading robotically assisted cardiac surgeon with groundbreaking research and valuable academic contributions to his credit. This compilation is yet another.

In conclusion, here is an evocative quote from the book: "*Robotics will profoundly enhance the practice of surgery and we are just beginning to see the revolutionary changes that it will bring*". This concise book is an authoritative and lucid exposition of that statement.

Author affiliations

[1]Professor of Surgery, SSR Medical College, Mauritius