EMJ ICDS 2020 REVIEW

May 2020 emjreviews.com

The Official Publication of Cleveland Clinic Florida's Department of Colorectal Surgery ICDS 2020

Sponsored by the Israeli Surgical Association and the Israel Society of Colon and Rectal Surgery

+ CONGRESS INTERVIEWS

We sat down with five renowned colorectal disease specialists to discuss the most pressing topics in the field

+ FEATURE

Technological Innovations to Help Solve the Global Healthcare Crisis

Contents

"In the spirit of international collaboration and communication, we had the honour of sitting down to talk with distinguished colorectal specialists"

Spencer Gore, CEO

EMJ ICDS 2020 Review

Welcome

Dear Reader,

It is with great privilege that I welcome you to the first official publication of the International Colorectal Disease Symposium (ICDS) jointly with the Annual Meeting of the Israel Society of Colon and Rectal Surgery. With joint sponsorship from the Department of Colorectal Surgery at Cleveland Clinic Florida and the Israeli Surgical Association, this was a meeting like no other, bringing together the most internationally renowned experts from across the specialty for high-value debate.

This brilliant event was kick-started by a special pre-congress day dedicated to discussing one of the most exciting innovations in the colorectal disease field: fluorescence-guided surgery. Representatives from both the clinic and industry shared the platform to present the unique possibilities this technology allows. We have included in this review a feature capturing some of the most important considerations to be made.

In the spirit of international collaboration and communication, we had the honour of sitting down to talk with distinguished colorectal specialists, including Ron Landmann, Miklosh Bala, Abe Fingerhut, and Manish Chand. We discussed some pressing issues in the colorectal disease field, including trauma surgery, the importance of minimal invasiveness, and the shift towards more digital forms of medical congress and education. I'm confident that you will be able to take some valuable lessons from their teachings.

In addition to the content we have created in-house, we are proud to include contributions from experts within the field. Swartling et al. and Panousopoulos et al. provide key insights into the outcomes and specimen quality of transanal total mesorectal excision, respectively, whereas Djadou et al. discuss risk factors and outcomes of stomas in cytoreductive surgery and hyperthermic intraoperative peritoneal chemotherapy for colorectal and appendiceal tumours. Alon Pikarsky and colleagues also contribute a first-hand account of the event and reflect on the importance of the meeting with regard to the now widespread COVID-19 pandemic.

These are difficult times for the global healthcare community, but it is now more important than ever for the continued sharing of expertise and knowledge in order to help foster optimum care for patients. EMJ is proud to be the official publisher of the ICDS, and I am confident this comprehensive review reflects the undoubted progress being made in colorectal disease care. Until next year's event in Fort Lauderdale, we hope you enjoy the following pages.

Spencer Gore

Chief Executive Officer, EMG-Health

Foreword

Firstly, I would like to thank EMJ for their generous support of our 31st Annual David G. Jagelman MD International Colorectal Disease Symposium. This event, held February 25-28, 2020 in Jerusalem, Israel, was the first time that we hosted our course outside of South Florida. The 2021 course will again be in South Florida and our plan is to return to an international location in February 2022. Given the coronavirus outbreak/COVID-19 pandemic immediately following the conclusion of our meeting, it is serendipitous that we held it as possibly the first and sadly potentially the last major international colorectal meeting of 2020.

I am delighted that we were able to welcome over 400 participants from over 40 countries to this landmark event. Over 60 faculty members from over 20 countries shared information during the intensive 4-day symposium. The first day included two very unique programmes. Firstly, three sessions were held focussing exclusively on the topic of fluorescence imaging in colorectal surgery. The programme was jointly sponsored amongst the International Society for Fluorescence Guided Surgery, Covidien, Diagnostic Green, Intuitive Surgical, Karl Storz Endoscopy, and Stryker. World-renowned experts reviewed the history, current status, and future of fluorescence imaging in colorectal surgery. Also on the first day, one of our Cleveland Clinic Florida Department of Colorectal Surgery alumni Dr Badma Bashankaev along with two of his Russian colleagues hosted approximately 40 Russian-speaking surgeons for a session in which a variety of engaging presentations resulted in significant interaction and dialogue. The course included a welcome address from Israeli president, Reuvin Rivlin as well as a message from the Minister of Health.

Many Cleveland Clinic Florida Department of Colorectal Surgery alumni, as well as leading experts from around the world, delved into current, controversial, and cutting-edge state of the art topics. Each session included ample time for panel discussion, dialogue, and question and answers. In addition to topic exchange on rectal cancer, colon cancer, techniques, technologies, anorectal, pelvic floor dysfunction, and other topics, sessions focussed on unique aspects important to all of us such as mentally conditioning and conflict resolution. Our Cleveland Clinic Florida region CEO and President Wael K. Barsoum delivered an outstanding David G. Jagelman MD Memorial Oration on “Using technology to help improve the global healthcare crisis”. The programme was also unique in that each day one multidisciplinary team panel discussion was held in which case presentations to a panel of experts resulted in real time exchange of clinical management.

The success of the meeting was attested to by the universally rave reviews given by the attendees. Again, I am thrilled that EMJ is disseminating the highlights of our programme to the world. In addition, the fluorescence imaging session will be available for viewing on the AIS Channel.

Steven D. Wexner

M.D., PhD(Hon), FACS, FRCS(Eng), FRCSI(Hon), Hon FRCS(Glasg)

Congress Review

Review of the Israel International Colorectal Disease Symposium (ICDS) 2020

Location: The King David Citadel Hotel – Jerusalem, Israel

Date: 25th – 28th February, 2020

There are few places on Earth that can boast as significant a cultural richness as Israel, with Jerusalem, one of the oldest cities in the world, serving as an undoubted beacon of multi-ethnic and international importance. Nestled in the Judaean mountains between the Mediterranean and Dead Seas, the city's survival of countless sieges and occupations throughout the centuries is truly testament to its enduring legacy. Jerusalem's diverse and compelling history is reflected in its contributions on the modern world stage to fields such as education and science, making it an alluring platform for the coming together of like-minded specialists for discussion and debate.

For these reasons, it was not surprising to see the excitement of the global colorectal surgery community be assuredly piqued following announcement that this year's Cleveland Clinic Florida-affiliated International Colorectal Disease Symposium (ICDS), in memory of the late David G. Jagelman, was to be held in Jerusalem in 2020 joint with the Annual Meeting of the Israeli Society of Colon and Rectal Surgery. This was the first time in its history that the Symposium was held outside of its usual home in Fort Lauderdale, Florida, USA, and there was understandable optimism in the air regarding the opportunities this would allow for colorectal surgeons from vastly different clinical environments and societal backgrounds to share key insights.

The event's faculty was to comprise over 60 of the most esteemed and renowned figures in the colorectal surgery field, representing over 20 countries. Several hundred participants from over 40 countries were present to receive quality lecturing across 4 engaging days, and an inclusive atmosphere was further generated through the donor-enabled sponsorship of more than 70 fellows in training and residents in training from low-income and middle-income countries.

The scientific programme at this year's event was aptly categorised into ten distinct sessions: 1) the value of fluorescence imaging

for perfusion; 2) best practices for rectal cancer; 3) challenges to conquer; 4) critical conundrums; 5) new horizons; 6) the evolution of education; 7) free papers; 8) optimising our performance; 9) perplexing perennial problems; and 10) pelvic floor pathology. The first session on fluorescence imaging, to which an entire pre-conference day was dedicated, received sponsorship from six key industry innovators, talks from whom helped broaden the discussion across medical and business disciplines. Current controversial and cutting-edge aspects of colorectal surgery were discussed, including rectal cancer, inflammatory bowel disease, stem cells and regenerative medicine, the impact of psychological and physical conditioning on surgical outcomes, and new technologies and techniques.

In this Congress Review you will read highlight features compiled in-house by our talented editorial team. David G. Jagelman's name is inexorably linked with this event, for he was a global role model within the colorectal surgical community. Prof Steve Wexner provided a touching memorial, which was followed by an inspiring talk by Cleveland Clinic Florida CEO and President Dr Wael K. Barsoum on the innovations of the technology sector being developed to meet challenges in global healthcare: both are spotlighted in the following pages. The revealing history of colorectal surgery is presented to provide context to how far this field has progressed since its early beginnings and to offer speculation as to what is possible in decades to come. This future, in all its excitement, will assuredly be heavily influenced by the advances being made in fluorescence-guided surgery, offering precision care to patients and facilitating enhanced training for young surgeons in ways that would have once seemed a pipe dream. This potential for improving education in particular is given increased attention in a feature describing the use of AI technology to transform surgical learning in the fast-approaching future. A biopic on organiser Prof Wexner is also included.

We had the pleasure of meeting many of the specialists who are guiding this innovation into practice. Dr Ron Landmann, Prof Manish Chand, Dr Miklosh Bala, Prof Abe Fingerhut, and Prof Steve Wexner

graciously shared with us their impressions of where the colorectal surgery field has evolved from, where it stands now, and where it is set to go. Our interviews with each touch on important topics such as fluorescence-guided surgery, the minimally-invasive approach to colorectal surgery, and aspects of trauma surgery, all shared in their entirety for your reading pleasure.

As official publisher of the meeting, EMG-Health was proud to sponsor and present awards to the top three presentations given, selected by the expert organising faculty: Dr Shani Parnasa's session titled "Does Caffeine Enhance Bowel Recovery After Elective Colorectal Resection? A Prospective Double Blinded Randomized Trial"; Dr Leigh Nadler's session titled "ERAS- Enhanced Recovery After Surgery, Outcomes at St Clair Hospital"; and Soterios George Panousopoulos' session titled "Specimen Quality of Transanal Total Mesorectal Excision (TaTME)". All three were sterling additions to the programme.

Summaries of key findings presented at the meeting are also included within. Swartling et al. and Panousopoulos et al. provide key insights into the outcomes and specimen quality of transanal total mesorectal excision, respectively, whereas Djadou et al. discuss risk factors and outcomes of stomas in cytoreductive surgery and hyperthermic intraoperative peritoneal chemotherapy for colorectal and appendiceal tumours. An Israeli team led by Alon Pikarsky also share their take on the event.

As the event shifts back to the USA next year, it will be exciting to see not only how far many of the concepts discussed in Israel have progressed, but this new delegacy once again collaborate to make the meeting an even more resounding success. Until then, we hope you enjoy the following highlights from an engaging week in Jerusalem.

"As the event shifts back to the USA next year, it will be exciting to see not only how far many of the concepts discussed in Israel have progressed, but this new delegacy once again collaborate to make the meeting an even more resounding success."

A History of Colorectal Surgery

Anaya Malik
Editorial Assistant

THE HISTORY of colorectal surgery is a fascinating journey of continual innovation that spans regions globally and emphasises the significant advances made in the field. According to documentation dating back as far as the Egyptian era, ailments and more serious illnesses of the colon were treated by the likes of ointments, enemas, and suppositories. 'Surgery' in the form of cautery, sewing, and binding was performed by the Greeks, while the Romans were encouraged to use knives and execute surgery upon locating fistulas.[1] Colorectal diseases requiring surgical treatment include inflammatory bowel disease, bowel cancer, and a host of other commonly diagnosed anorectal conditions; these are often treatable and screening programmes have helped to ensure survival rates in this age are on the rise.[2]

Sir William Arbuthnot Lane was initially mocked for having completed total colectomies on patients with chronic constipation before the decision to do so was adopted as common practice for elective and emergency surgery. Sir William is included in the class of pioneering surgeons who were carrying out open colonic resections in the early 20th century, and are bestowed with the recognition for this leading to the expansion of open surgery for the colon and rectum throughout the century.[3]

The years that brought the 20th century to a close and those that subsequently followed saw a steady shift towards minimally invasive colorectal surgery for the treatment of prominent colorectal complications.[4,5] The uptake of laparoscopy in colorectal surgery increased as an alternative method to open surgery,[4] despite disinclination to adopt the technique as a result of its oncological safety and efficacy coming into question. The evidence to support its advantages over open surgery was not strong, and initial suggestions of associated tumour growth-stimulating effects led to the method being rarely performed.[3] It is now understood that laparoscopic surgery may be equal, or superior, to the open operative approach in colon and rectal surgery,[5] with advantages including reduced intraoperative blood loss, length of incision, and length of hospital stay.[4] The use of laparoscopy for the insertion of laparoscopic ports requires less significant incisions and inflicts less trauma upon the abdominal wall of the patient, as well as causing a lesser inflammatory response.[3] In addition, time for recovery and postoperative pain are reduced.[6]

The method used for laparoscopic surgery was thought to be limited in some ways due to technical parameters of the equipment, and so it was decided that further innovation was needed in the field.[6] Since the adoption of laparoscopy

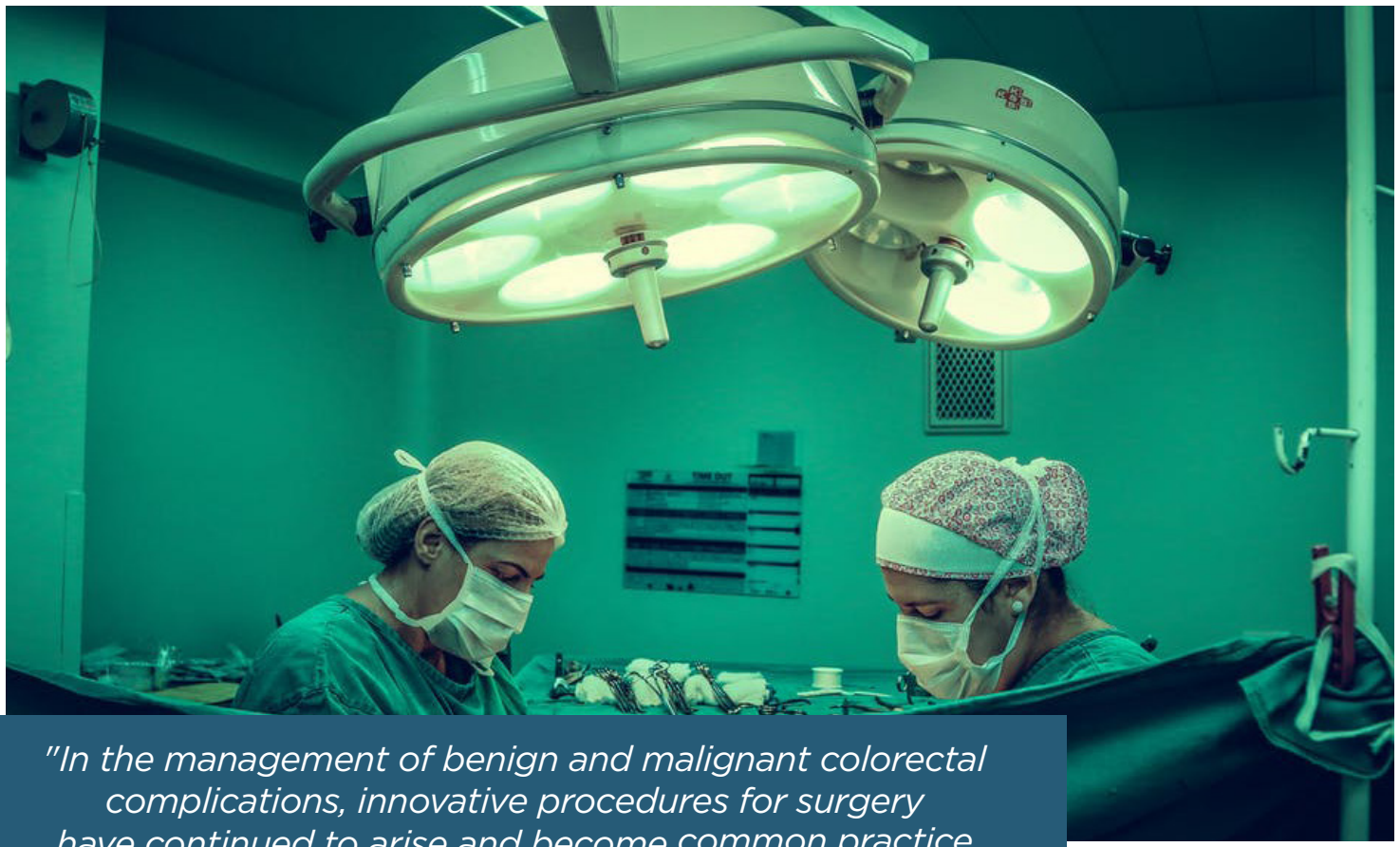
into surgical clinics, another advancement has been made in the field of colorectal surgery: the last two decades have seen the development and clinical incorporation of robotic devices to aid surgical procedures.[4,7] Robot-assisted surgery has performed successfully in place of the restrictions posed by laparoscopy. At first, this was carried out with surgeon-controlled, three-dimensional imaging, allowing for increased dexterity, and a computer interface to deliver greater accuracy in movement.[6,8]

Now acknowledged as an essential method, robot-assisted surgery provides a clearer visual aid to ease further dissection, particularly when the surgeon is faced with challenging procedures for both benign and malignant diseases.[6] Despite disadvantages associated with robotic surgery, namely high costs, the many advantages laparoscopy conferred over open surgery can be met if not exceeded with the assistance of robotic devices and may outweigh the unfavourable aspects of expense.[7]

In the management of benign and malignant colorectal complications, innovative procedures for surgery have continued to arise and become common practice in the operating theatre. Achieving minimal invasiveness and trauma without compromising postsurgical outcome continues to be the optimal goal.

References

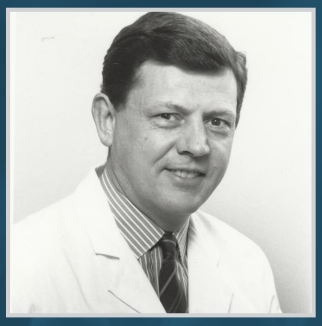
1. Shampo MA. Brief history of colorectal surgery. Female Pelvic Med Reconstr Surg. 1998:4(6);257-9.
2. Smith L et al. Tips for GP trainees working in colorectal surgery. Br J Gen Pract. 2014:64(620):157-8.
3. Blackmore AE et al. Evolution of laparoscopy in colorectal surgery: an evidence-based review. World J Gastroenterol. 2014;20(7):4926-33.
4. Trinh BB et al. Robot-assisted versus standard laparoscopic colorectal surgery. JSLS. 2014;18(4): e2014.00154.
5. Gazala, Wexner. Re-appraisal and consideration of minimally invasive surgery in colorectal cancer. Gastroenterol Rep (Oxf). 2017;5(1):1-10.
6. Addison P et al. Robotic Colorectal Surgery. Surg Clin N Am. 2020;100(2):337-60.
7. Essani, Bergamaschi. Robotic colorectal surgery. Advance or expense? Adv Surg. 2016;50(1):157-71.
8. Cheng, Rezac. The role of robotics in colorectal surgery. BMJ. 2018;360: j5304.



"In the management of benign and malignant colorectal complications, innovative procedures for surgery have continued to arise and become common practice in the operating theatre."

Memorial: David G. Jagelman's Legacy

Katherine Colvin
Editorial Assistant



HONOURING the impact and innovation of the career of the late David G. Jagelman, the Jagelman Oration has been held at the International Colorectal Disease Symposium since 1994. His contribution to colorectal surgery endures in the international polyposis registry he established and the department of colorectal surgery he set up at the Cleveland Clinic, Florida, USA, testament also by more than 200 research publications. However, it was his compassionate, patient-centred care and advocacy that was honoured during Prof Steve Wexner's introduction to this year's Jagelman Oration.

Jagelman was born in London, UK, in 1939 and attended King's College London before completing medical school at Westminster Hospital Medical School. Jagelman trained in London from 1963, and took on roles such as surgical registar, research lecturer, and senior registrar at the Metropolitan, Westminster, and St Mark's hospitals until 1974. It was during his years at the Westminster Hospital that he met his wife, Ann.

In 1974, Jagelman left for a year's fellowship at the Cleveland Clinic, Ohio, and his experience working under Rupert Turnbull led him to decide to stay in the USA for the remainder of his career, where he became a Fellow of the American College of Surgeons. In 1988 he was asked to set up the department of colorectal surgery at the new Cleveland Clinic in Florida, and moved to Florida with his wife and children: Richard, Jane, Sally, and Amanda.

Jagelman's contribution to the practice and understanding of colorectal medicine was profound. He established the Familial Polyposis Registry at the Cleveland Clinic in 1979, which remains part of the largest database of colorectal cancer in North America, now named the David G. Jagelman Inherited Colorectal Cancer Registries. Forty years on, these registries continue to provide education, genetic testing, and support to thousands of families, and contribute to global research.

> *"He would work as long and hard as necessary to take care of every patient"*

In 1989 Jagelman was a founding member, and elected to be the first Chariman, of the Leeds Castle Polyposis Group (LCGP). The group was a driving force behind developing a knowledge base for familial adenomatous polyposis, a disease that had previously been reliant on anecdotal evidence to direct patient care. LCGP advocated for the value of cancer registries for understanding the genetic basis of some cancers,

"David was a prolific educator, he was a gifted orator, but mostly he was incredibly empathetic, compassionate. He cared about his patients"

and the importance of multi-dimensional care for patients and families. LCGP merged with the International Collaborative Group on Hereditary Non-Polyposis Colorectal Cancer (ICG-HNPCC) in 2005 and continues today as The International Society for Gastrointestinal Hereditary Tumours (InSiGHT). His commitment to, and compassion for, his patients continues to be honoured through the David Jagelman Award from the American Society of Colon and Rectal Surgeons (ASCRC), which is awarded annually for advocacy in colorectal cancer. Each year, the Jagelman Oration at the International Colorectal Disease Symposium provides a tribute to Jagelman's role in colorectal cancer research. The Jagelman Oration for 2020 was presented by orthopaedic surgeon Wael K. Barsoum, the current CEO and President of the Cleveland Clinic, Florida, on the topic of technological innovations to help solve the global healthcare crisis.

"David was a prolific educator, he was a gifted orator, but mostly he was incredibly empathetic, compassionate. He cared about his patients." At the 2020 International Colorectal Disease Symposium, Prof Steve Wexner paid tribute to Jagelman's compassion and celebrated his patient-centred care, through his work as both an educator and a clinician. "He would work as long and hard as necessary to take care of every patient."

Jagelman passed away on the 9th of August 1993 at 53. Prof Wexner described the ongoing impact of Jagelman on the Cleveland Clinic, Florida: "A legacy that every single one of us tries to perpetuate in the department of colorectal surgery daily; passing along his teachings, to convey the sense of empathy and compassion that he had for his patients."

A Sublime Innovator

Professor Steven D. Wexner

Lenos Archer-Diaby
Editorial Assistant

STEVE WEXNER, Director of the Digestive Disease Center at Cleveland Clinic Florida and Chairman of the Department of Colorectal Surgery, is famed as the first surgeon in North America to popularise the colonic J-pouch for rectal cancer patients, and the ileal J-pouch for ulcerative colitis and familial adenomatous polyposis patients. Furthermore, his time spent improving surgical techniques has resulted in the establishment of the double-stapling technique, the gold standard for J-pouches, preventing patients from requiring permanent ileostomy. We had the pleasure of meeting and interviewing Prof Wexner at this year's International Colorectal Disease Symposium where we learned about his reasons for hosting the meeting in Jerusalem and the work he performs.

INTRODUCTION

When the International Colorectal Disease Symposium first launched in the 1990s, Prof Wexner broke the established formula of inviting only faculty from specific countries: specifically the USA, UK, Australia, and Scandinavia, where English is a first language or widely spoken. Having perceived the vast potential to learn from an extended international base, invitations were extended to individuals in various parts of the world to be included in the faculty. As a result of Prof Wexner's inclusivity, these colleagues abroad felt galvanised to attend the symposium bestowing the meeting a reputation where one feels respected and welcomed. When questioned why these meetings have gained such popularity, he stated that by extending his invitation out for people to participate a sense of collegiality was established, a necessity for any successful event.

A CHANGE IN SCENERY

For the past 30 years, the International Colorectal Disease Symposium was hosted by the Department of Colorectal Surgery at Cleveland Clinic Florida. In 2012, the Department of Colorectal Surgery at the Cleveland Clinic Ohio, who hosted the Rupert B. Turnbull MD Symposium, joined to make it a collective meeting moving forward. Following 2019's symposium, a joint decision was made to reconsider the structure and future of the event. Prof Wexner had been in Jerusalem that year as a guest of the Israeli Surgical Association. After talking to the many esteemed Israeli alumni whom he had trained in the past, the decision was made to work with the Israeli Surgical Association and the Israel Society of Colon and Rectal Surgery to host and sponsor a Cleveland Clinic Florida Israeli alumni international colorectal disease meeting. When we asked Prof Wexner what he regarded as the highlight of the meeting, he revealed that even though robotics was the overarching theme of the congress, there was a heavy emphasis on cost-effective robotics and how to optimise patient care. As a big advocate of providing education that doesn't require expensive equipment, he was delighted to see that the congress content was translatable for lower- and middle-income countries. He also elucidated that another reason for picking Israel as the venue was that many individuals in that region of the world, who require education, are unable to travel to America or western Europe where the majority of

congresses are held. Therefore, it was pivotal to make it accessible to those countries. Additionally, Prof Wexner had raised funds from friends which were then converted to scholarships enabling more individuals to have access, showcasing his inclusivity and passion for making education available to all. Next year's International Colorectal Disease Symposium will take place in Florida in conjunction with Cleveland Clinic Ohio as usual, but because of the phenomenal success of the Israeli event it has been decided that on even numbered years the symposium will be held elsewhere in the world. Testament to the massive footprint of the Cleveland Clinic, over half a dozen cities have already offered to accommodate future meetings.

NATIONAL ACCREDITATION PROGRAM FOR RECTAL CANCER (NAPRC)

Prof Wexner is one of the co-founders of the National Accreditation Program for Rectal Cancer (NAPRC), which was founded to tackle the differences between patient outcomes in the USA and Europe. The outcomes for rectal cancer have been proven to depend on how and in which setting the operation is performed, by whom, and where. Furthermore, evidence shows that surgeons who perform numerous rectal cancer surgeries are able to get clear margins and will have better patient outcomes (lower rates of recurrence and higher rate of survival) compared to surgeons who do it infrequently, alone, and without a multidisciplinary team. For years, outcomes for rectal cancer patients in Europe have been significantly better than for those in the USA attributable to their use of multidisciplinary teams to make treatment decisions. During his run as president-elect of the American Society of Colorectal Surgeons (ASCRS), Prof Wexner was prompted by the president at the time to establish similar outcomes in the country, something that had been tried previously by one of his mentors yet failed. To avoid similar outcomes, Prof Wexner approached the challenge with a different tactic and created a working group that spent 4 years gathering data from the National Cancer Database (NCDB) which was then collated into literature illuminating that outcomes in the USA were tremendously variable and far inferior to those in Europe. As a member of the Commision on Cancer (CoC) of the American College of Surgeons he presented the evidence and a proposal to create the NAPRC. This was followed by 3 years of creating a standards manual, beta testing at six different sites, and revising the manual. In 2017, the NAPRC started accepting accreditation application. Accreditation requires previous CoC accreditation, an on-site visit, and records demonstrating that NAPRC standards have been in place for at least 1 year. As of now, 20 programmes have been accredited by the NAPRC including the Cleveland Clinic Rectal Cancer Program, and the Cleveland Clinic Weston Rectal Cancer Program, and 60 more have requested accreditation. These efforts will surely lead to improved and uniform patient outcomes across the USA.

IT ALL COMES DOWN TO THE PATIENTS

As a student of David G. Jagelman, one of the world's most respected colorectal surgeons and previous chief of surgery at Cleveland Clinic Florida, Prof Wexner inherited his love for always being there for patients. According to Prof Wexner, "It all comes down to patients." Taking care of them is one of his greatest pleasures. The gratification that comes with the job of saving or improving someone's life and seeing patients ultimately do better is a driving force to continue improving. Furthermore, the teaching aspect of educating others to obtain similar outcomes and experience the same gratification: teaching them how to handle suboptimal/adverse outcomes and minimise the damage to patients as well as the surgeons is one of his main passions. When asked what are some of the biggest challenges facing researchers and clinicians who are just starting in the field of colorectal disease, he responded that these are interwoven and include burnout, lack of job satisfaction, and work hours. His advice was to try and remember why you are doing this, which is to do the best you can for every single patient every single day. Importantly, as stated by the internationally distinguished surgeon: "Don't get discouraged!"

"The gratification that comes with the job of saving or improving someone's life and seeing patients ultimately do better is a driving force to continue improving"

How to Gain Acceptance for ICG Fluorescence Imaging in Your Hospital

Rachel Donnison
Editorial Assistant

Fluorescence-guided imaging has been on the rise for many years now, but several barriers remain to its widespread application. Once these are overcome, all the evidence is showing that the technique will be a big success. Specifically in gastroenterology surgery, reduced anastomotic leak rates, a favourable outcome, has been observed in several studies and the data collated in systematic reviews. Leading world experts in colorectal surgery and fluorescence imaging gathered at the International Colorectal Disease Symposium to share their experiences, opinions, and advice on this developing specialty.

THE RISE OF FLUORESCENCE IMAGING

Originally developed during the Second World War as a dye for photography by Kodak, indocyanine green (ICG) was tested by the Mayo Clinic in 1957, and fast-tracked to U.S. Food and Drug Administration (FDA) approval in 1959 for medical diagnostics and, later, fluorescence imaging.[1] Fast forward to 2020 and PubMed alone lists 1,237 publications since January 2019 under the search term 'indocyanine green.' The reagent, with its interdisciplinary application, high sensitivity, ease of use, and portability,[2] had its importance highlighted as it featured as the opening session at the recent International Colorectal Disease Symposium in Jerusalem, Israel. However, despite its successes so far, there are several barriers to its widespread instalment into hospitals. Of the several fluorescence imaging experts present at the symposium, Dr Venkatesh Munikrishnan, of the Institute of Colorectal Surgery, Apollo Hospitals, Chennai, India, presented solutions to these challenges, offering advice on how to receive approval for ICG fluorescence-guided surgery, wherever your hospital is in the world.

TECHNOLOGY PROCUREMENT

"Adopting any new technology or technique in hospitals certainly has some challenges, and one is access to technology," was the opening statement of Dr Munikrishnan. Typically, to perform ICG-guided surgery, a laparoscope is needed alongside a high-definition camera, a xenon light source to provide visible and near-infra-red excitation light, as well as specific filters for optimum detection of the light. There are also visualisation enhancement tools available to brighten darker areas of an image without lag, so they can be used in real time, as well as

technology for intensifying colour contrast levels, which will help surgeons see critical anatomy such as blood vessels clearly.[3] These new technologies offer additional surgical aid to colorectal surgeons to ultimately lead to fewer anastomotic leaks. However, the procurement of these technologies is lacking, and Dr Munikrishnan describes the situation succinctly: "In the current healthcare scenario every health system is under strain for finding value for money for new technologies." He acknowledges that surgeons must be convinced that a new technology will be effective, not just in trials and studies but in daily practice. Dr Munikrishnan and his colleagues are familiar with ICG techniques, and he states, "What we've seen is that every time we use it, it gives you that extra confidence." But do not just take his word for it: a recent systematic review by Bianco-Colino and Espin-Basany[4] analysed results from five nonrandomised studies, concluding that ICG fluorescence imaging in colorectal cancer surgery appears to reduce anastomotic leak rates in patients. Dr Giovanna DaSilva, also a speaker at the symposium, agrees that ICG fluorescing techniques "may well increase precision, but it's hard to establish until they are readily available." The evidence of its success is out there, now hospitals need to be persuaded to procure the technology.

COST-EFFECTIVENESS

Somewhat related to technology access, cost is another element that hospitals will consider before they invest in fluorescence imaging equipment. There is the high cost associated with purchasing the technology and tools needed for ICG, though once a hospital installs a fluorescence camera system, the additional costs are limited to the cost of each dose of ICG: a 25 mg of ICG costs $65 USD or €80 EUR.[5] Dr Munikrishnan has a rebuttal for this barrier also: ICG incurs fewer costs related to surgical complications. Dr Oded Zmora, an expert from UC Health Primary Care, Ohio, USA, asks: "What's the financial toll of an anastomotic leak?" before outlining to delegates the financial costs observed in recent studies. A study by Dr Sang Lee et al.[6] analysed the economic burden of colorectal anastomotic leaks in 239,350 patients undergoing colorectal surgery. Patients with a leak incurred costs $30,760 USD greater than those without, as well as an average hospital stay of 12 days longer. The patients with leaks also had higher rates of readmission, reoperation, and reduction in quality of life. As ICG use has been shown to reduce anastomotic leak rates, the technology could make surgery much safer for patients, as well as the added benefit of proving more cost-effective in the long term.

SURGICAL TRAINING

Clinicians want to avoid risks and complications to obtain the best outcomes. This is where technology comes in, especially when it can aid surgeons to maximise patient safety. However, as pointed out by Dr Munikrishnan, "surgeons need to be trained well with the desired skillset," as "the tools that we have are changing all the time." He calls upon standardisation of training programmes across the world so that doctors can learn the basics initially, ultimately ensuring that they utilise the technology to its full potential. Minimal training appears to be required for ICG-guided surgery,[5,7] as the visuals are created simply by the click of a button. Dr Munikrishnan draws attention to the PILLAR Phase II Trial: a multicentre, nonrandomised study for the perfusion assessment of laparoscopic left anterior resection. The trial allowed for each surgeon to carry out their standard practice, any revision to their surgical plan was documented, and techniques were used at their discretion. There was an observed reduction in leak rate of 12.0% to 1.4%, demonstrating the feasibility of fluorescence imaging to be utilised, regardless of individual surgeons' preferred techniques. This again evidences that fluorescence-guided surgery requires only minimal training, eliminating this as a barrier to its use. In the words of speaker Prof Abe Fingerhut, of the Medical University of Graz, Graz, Austria: "There is no one factor that is responsible for an anastomotic leak, though probably the most important factor is the surgeon."

After addressing and overcoming these barriers to ICG fluorescence-guided surgery, Dr Munikrishnan concluded with: "These small, incremental, safety and risk-prevention strategies will make surgery much safer for patients."

References

1. Wexner S et al. The Value of Fluorescence Imaging for Perfusion. Session 1. International Colorectal Disease Symposium, 26-28 March, 2020.
2. Alander JT et al. A review of indocyanine green fluorescent imaging in surgery. Int J Biomed Imaging. 2012;2012:940585.
3. Boni L et al. Clinical applications of indocyanine green (ICG) enhanced fluorescence in laparoscopic surgery. Surg Endosc. 2015;29(7):2046-55.
4. Bianoco-Colino R, Espin-Basany E. Intraoperative use of ICG fluorescence imaging to reduce the risk of anastomotic leakage in colorectal surgery: a systematic review and meta-analysis. Tech Coloproctol. 2018;22(1):15-23.
5. Baiocchi GL et al. Indocyanine green-based fluorescence imaging in visceral and hepatobiliary and pancreatic surgery: State of the art and future directions. World J Gastroenterol. 2018;24(27):2921-30.
6. Lee SW et al. Clinical and economic burden of colorectal and bariatric anastomotic leaks. Surg Endosc. 2019; doi. org/10.1007/s00464-019-07210-1.
7. Ris F et al. Multicentre Phase II trial of near-infrared imaging in elective colorectal surgery. Br J Surg. 2018;105(10)1359-67.
8. Jafari et al. Perfusion assessment in laparoscopic left-sided/anterior resection (PILLAR II): a multi-institutional study. J Am Coll Surg. 2015;220(1):82-92.

Innovation in Surgical Education

Layla Southcombe
Editorial Assistant

Undeniably, the technology used during surgery has drastically evolved over the last 100 years, but the training that surgeons undergo in their initial years and throughout their career has not matched this trend. With the improvements in technology showing no signs of stopping, will training and education programmes catch up and allow both young and experienced surgeons to keep up with these developments?

STANDARD SURGICAL TRAINING

A standard medical teaching programme following a science-related bachelor's degree in the USA comprises 2 years in a classroom learning about basic sciences and disease followed by 2 years in clinical wards. This structure has been in place for many years, but has been challenged by leading surgeons. During 'The Evolution of Education' session at the International Colorectal Disease Symposium (ICDS) 2020, Dr Laurence Sands shared the plans of his institution to radicalise their training programme. They plan to bring students into the clinical environment much earlier, and change the approach to how diseases, their signs and symptoms, are taught. In explaining how the standard educational approach is to learn about a disease and the symptoms it may present with, he gave the example of myocardial infarction. Students learn that myocardial infarction is accompanied by symptoms including chest pain, but they plan to flip this on its head and teach symptoms and the diseases associated; for example, that chest pain could be a symptom of myocardial infarction. It is thought that this approach of breaking down diseases into symptoms will improve decision-making when diagnosing patients.

CADAVER TRAINING

Concerning teaching the techniques involved in surgery, there are numerous approaches that can be utilised. Cadavers have been a staple in surgical training for decades, mainly because they are the most anatomically correct model available and produce the most realistic setting of operating without having to operate on a live patient. Cadaver training has been shown to be better than model simulation or standard training;[1] however, it can be difficult to access cadavers and is relatively expensive, thus it is not feasible to conduct all training using this approach. A technological advancement that has supplemented the shortfall of available training equipment is surgical simulators.

SURGICAL SIMULATORS

The benefits of surgical simulation are wide-ranging, including that their use provides medical professionals with more hands-on experience in a non-threatening environment. Individuals can be taught and practise technical training before operating on patients meaning that trainee surgeons are better prepared for future surgeries, with the ultimate aim of improving patient

"it should come as no surprise that innovators of the 21st century are drawing their attention to this area"

outcomes. Despite surgical simulators appearing to be a positive addition to the collection of surgical training programmes, issues regarding the standardisation of assessments, reliability, and validity are holding back their integration. A further limit to surgical simulators is that they are incapable of teaching how to care for a patient or the ethics or morals involved: a fundamental aspect of a surgeon's role.

In the session, Dr Sands noted that in a 2006 study comparing 30 randomised controlled trials of different training methods including surgical simulation (with or without computers), computer simulation was shown to be better than no training at all, but was not convincingly superior to standard training.[1] Video training was also compared, but was not consistently better than groups that had no training at all, and there was not sufficient data to determine if video simulation was better than standard training or the use of models. Video simulation tools have drastically improved since this study, calling for analyses of more recent randomised clinical trials.

VIRTUAL REALITY SURGERY

The movement towards a more technology-centric future has inspired innovators to incorporate virtual reality into surgical training, one group in particular being FundamentalVR. This company has developed a software platform called Fundamental Surgery, which has a mission to provide everyday access to the best simulations to surgeons so they have the opportunity to rehearse, practise, and test themselves, all within a safe, controllable environment that reflects a real-life theatre and operation as closely as possible.[2] By combining both virtual reality and haptics (sense of touch), this approach has the potential to equip surgeons with valuable realistic experience during their training. The current speciality available is orthopaedics, but there are plans to soon branch out to general surgery, neurosurgery, urology, and more.

VIDEO LEARNING

Advances in Surgery Channel

An example of a training tool that utilises video is Advances in Surgery (AIS) Channel.[3] Nicknamed a Netflix of medicine, this visual educational tool aims to reduce the learning curve in surgery and be in line with the new generation of surgeons. To do this, the surgical education online platform offers online courses, lectures, live surgeries, and congresses to share the latest changes in surgical techniques, as well as ensure that surgeons have access to information from leading surgeons for

"A technological advancement that has supplemented the shortfall of available training equipment is surgical simulators. "

continual improvement of their surgical skills. In the ICDS session, Dr Antonio Lacey, the conceiver of the idea of AIS Channel, commented that: "The main goal of AIS is to create bridges between leading surgical communities worldwide," and "the most important thing about AIS is the transfer of knowledge."

Live Surgeries

Dr Lacey also commented that vision and hearing are probably the most important senses of a surgeon. The sense of touch is still important, but has been somewhat mitigated by the use of robotics. One aspect of AIS Channel that supports visual and auditory learning is the option to watch live surgeries accompanied by a commentary from the leading surgeon performing the surgery. There is also a forum in which the audience can ask questions and interact with the session and surgeon directly to ask about tests that should be conducted during and post-surgery, and tips on how a technique should be performed. The ability to receive training from a leading surgeon can be difficult, meaning that this simple solution is vital and actively contributes to the mission of transferring knowledge from experts to surgeons around the world.

SUMMARY

Given the rapidly progressing field of surgery and that surgical training has been relatively stationary for the last decade, it should come as no surprise that innovators of the 21st century are drawing their attention to this area, which is much needed. It is evident that recent developments, such as surgical virtual reality and simulation, have the possibility to revolutionise how surgery and the techniques associated with it are taught. As to whether they will be formally integrated into a standard surgical training programme is not clear yet, but they will undoubtably be a worthy supplementation of knowledge to facilitate continual learning in the evolving field that is surgery.

References

1. Sutherland ML. Surgical simulation: a systematic review. Ann Surg. 2006;243(3):291-300.
2. Fundamental Surgery. Available at: https://www.fundamentalsurgery.com/. Last accessed: 19 March 2020.
3. Advances in Surgery (AIS) Channel. Available at: https://aischannel.com/. Last accessed: 13 March 2020.

Technological Innovations to Help Solve the Global Healthcare Crisis

Mike Dodsworth
Editorial Assistant

GLARING truths are beginning to emerge and challenge the healthcare sector. Where once it was the prerogative of local and international healthcare systems to focus on facilitating personalised doctor–patient relationships wherein care could be administered through direct consultation, we now are beginning to witness these same bodies struggle to cope with a burgeoning global population and similarly rising costs. Technological innovation could hold some of the answers to these significant logistical hurdles, yet it is important to realise that these exciting new technologies arrive in the healthcare sector accompanied with their own complexities and nuances.

Hard statistics are perhaps the best way to put into context the challenges facing the global healthcare community: 50% of the global population do not have access to essential healthcare services often taken for granted in economically developed countries,[1] including screening colonoscopies and mammograms. The USA alone is predicted to be some 100,000 physicians short of providing optimum care to its population in 2030,[2] whereas from a financial perspective, global healthcare spending is set to rise from an estimated $8 trillion in 2013 to $18 trillion by 2040.[3] By the year 2035, the global shortage of healthcare professionals needed to provide optimum care could reach 13 million.[4] These findings from the World Health Organization (WHO) highlight global healthcare exposure on a scale not previously seen in our time, however this message need not be one of despair, but one of opportunity for innovation.

When speaking at the 2020 Israel International Colorectal Disease Symposium, Dr Wael K. Barsoum, CEO and President of Cleveland Clinic Florida, proclaimed: "We do not have enough healthcare providers in the United States, here in Israel, all around the world, to take care of every patient that needs healthcare; we have to be more thoughtful around how we use our resources." One such resource is the smart phone; it's thought that of the 5 billion individuals with restricted healthcare, around 60% have access to a smart phone.

"it is important to realise that these exciting new technologies arrive in the healthcare sector accompanied with their own complexities and nuances"

Whilst this fact may at first glance seem insignificant, the door smart phones open towards tapping into remote healthcare delivery cannot be understated. The 'True North' concept when applied to healthcare comprises three pillars of optimum management: improving quality, lowering costs, and increasing access. Whereas the last 10–20 years have seen these pillars supported through the innovation of improved tools and products in the surgical and general healthcare industries, looking towards the future this strategy has shifted. Concepts such as big data, artificial intelligence (AI), telemedicine, and augmented reality are leaving their respective induction phases and finding appropriate adoption across a huge number of therapeutic disciplines.

"AI in particular is already offering tangible benefits to healthcare providers"

AI in particular is already offering tangible benefits to healthcare providers. Researchers at Google have recently detailed the design of AI models to pinpoint four findings on human chest X-rays: airspace opacities, nodules and masses, fractures, and pneumothorax. By using thousands of images across data sets with high-quality labels for evaluation, expert radiologists are claiming that the technology demonstrates "radiologist-level" accuracy in identifying these pathologies, as well as at unprecedented speed.[5] Other innovators are following suit: Nvidia have now developed an AI platform that can produce synthetic scans of brain cancer,[6] DeepMind are claiming 94% accuracy in the recommendation of treatments for more than 50 eye diseases using a machine learning algorithm they have created,[7] and Houston Methodist Research Institute researchers have developed software that can accurately diagnose a patient's breast cancer risk 30 times faster than doctors using mammogram results and personal medical history.[8]

This is not to say, however, that opening the floodgates to AI adoption in the clinic is prudent. Whilst AI has developed to a stage at which it can deeply analyse patterns and gain inferences from these patterns, the capacity for cognitive reasoning, i.e., the ability to think independently and make decisions, is some way away yet. Take the management of diabetic patients as an example: although wearable AI devices can monitor blood glucose levels accurately and provide recommendations for changes in insulin dosage,

these devices cannot take into consideration extenuating circumstances that directly influence clinical decision making, for instance the fact that the patient may live alone and as such could run the risk of unattended dosing complications like diabetic ketoacidosis.

Elsewhere, different technological innovations are in the midst of their own respective debates. Big data platforms such as electronic health records offer highly comprehensive sets of information to the physician and allow predictive analysis based on consideration of multiple lifestyle and medical risk factors, however important questions regarding privacy and confidentiality need to be asked.[9] Telemedicine allows patients to access specialists and information that they might not readily have access to otherwise and massively improves the efficiency of routine processes such as prescription ordering. However, complete buy-in across the patient spectrum will likely be a long process and fears exist as to whether doctors will too-readily resort to telemedicine communications with their patient as opposed to, in certain scenarios, better-suited direct consultation.[10] And augmented reality can help transform the training programme of young surgeons and give them the confidence to perform complex operations; however, there is undoubted risk surrounding conflicting capabilities across hardware platforms and operating systems, not to mention the costs associated.

Regardless of these questions, the healthcare sector is becoming better equipped with an arsenal of technological innovations. Although there are evidently practical considerations to be made regarding digital integration and to what extent this can feasibly occur across the international stage, it is hard not to be impressed by the promising results emerging from clinical studies spanning numerous therapeutic disciplines. Now is a more important time than ever for researchers, innovators, and clinicians from across healthcare to hold constructive discussion with regulatory bodies and governments; only by doing this can we determine the best ways for these developments to translate into better care for the global population.

References

1. World Health Organization (WHO). World Bank and WHO: Half the world lacks access to essential health services, 100 million still pushed into extreme poverty because of health expenses. 2017. Available at: https://www.who.int/news-room/detail/13-12-2017-world-bank-and-who-half-the-world-lacks-access-to-essential-health-services-100-million-still-pushed-into-extreme-poverty-because-of-health-expenses. Last accessed: 20 March 2020.
2. Association of American Medical Colleges (AMCC). Research shows shortage of more than 100,000 doctors by 2030. 2017. Available at: https://www.aamc.org/news-insights/research-shows-shortage-more-100000-doctors-2030. Last accessed: 20 March 2020.
3. Institute for Health Metrics and Evaluation (IHME). Global spending on health is expected to increase to $18.28 trillion worldwide by 2040 but many countries will miss important health benchmarks. 2016. Available at: http://www.healthdata.org/news-release/global-spending-health-expected-increase-1828-trillion-worldwide-2040-many-countries. Last accessed: 20 March 2020.
4. World Health Organization (WHO). Global health workforce shortage to reach 12.9 million in coming decades. 2013. Available at: https://www.who.int/mediacentre/news/releases/2013/health-workforce-shortage/en/. Last accessed: 20 March 2020.
5. Google AI Blog. Developing deep learning models for chest x-rays with adjudicated image labels. 2019. Available at: https://ai.googleblog.com/2019/12/developing-deep-learning-models-for.html. Last accessed: 20 March 2020.
6. Condon S. Nvidia researchers generate synthetic brain MRI images for AI research. 2020. Available at: https://www.zdnet.com/article/nvidia-researchers-generate-synthetic-brain-mri-images-for-ai-research/. Lats accessed: 20 March 2020.
7. Johnson K. DeepMind's AI can recommend treatment for more than 50 eye diseases with 94% accuracy. 2018. Available at: https://venturebeat.com/2018/08/13/deepminds-ai-can-recommend-treatment-for-more-than-50-eye-diseases-with-94-accuracy/. Last accessed: 20 March 2020.
8. MacDonald F. AI can analyse mammogram results 30 times faster than doctors, and with 99% accuracy. 2016. Available at: https://www.sciencealert.com/ai-analyses-mammograms-30-times-faster-and-20-more-accurately-than-doctors. Last accessed: 20 March 2020.
9. Fatt QK, Ramadas A. The usefulness and challenges of big data in healthcare. J Healthc Commun. 2018;3:21.
10. eVisit. What is telemedicine? 2018. Available at: https://evisit.com/resources/what-is-telemedicine/. Last accessed: 20 March 2020.

We want you to write for the EMJ blog.

Contribute your ideas on current healthcare conversations: submit your blog today.

EMJREVIEWS.COM /BLOG

Congress Interview

We sat down with several of the ICDS faculty to discuss the most pressing topics in colorectal surgery.

Professor Abe Fingerhut

Section for Surgical Research, Department of Surgery, Medical University of Graz, Graz, Austria.
Department of General Surgery, Ruijin Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai.
Minimally Invasive Surgery Center, Shanghai, China

Q1

As an experienced colorectal surgeon with an interest in anastomotic leakage, could you provide a brief overview of your experiences?

I've been interested in anastomotic leakage for a long time. I can honestly admit that perhaps this might be because when I was a resident surgeon, I had a lot of leaks. I didn't understand why they were happening and why my boss at that time was unable to help me, besides stating that I was doing something wrong. Therefore, I tried to understand exactly what I was doing wrong. My various other interests have helped me understand that the mindset of the surgeon has a lot to do with the way anastomotic leakages occur. In many cases, surgeons don't adhere to the rules. They know, or at least should know, what they should do, but choose not to because they are pressed for time. They think they know better than everyone else and don't want to take instruction from anybody else. For instance, take the example of staples. It is well known and recognised that when you put a linear stapler on a piece of tissue that you have to wait 10–15 seconds for the tissue to creep out and even up, ensuring that the stapler jaws are parallel before you fire. Unfortunately, no one does this. Another cause of anastomotic leakage beside the surgeons being in a hurry is the fact that they don't test for air leakage, which is a very a simple test to perform, whether that's the additional air test or the reverse air test that's becoming popular today with transanal surgery. It's so easy to do if it works. If it's positive, we have a leak: if it doesn't, then the negative predictive value is not so high. These are the easy things surgeons certainly can do that they don't.

Q2

You presented a very inspiring session on improving the surgeon's mindset at the International Colorectal Disease Symposium in Jerusalem. Could you please provide the key takeaway message for our readers?

My talk focussed on surgical mindset and how that mindset may lead to intraoperative complications or even postoperative complications. A major aspect of this is that surgeons can be very egoistic and narcissistic. They have a very strong ego. While having an

ego can be positive, it can also be a negative trait. Sometimes bad aspects of the surgical ego such as: 'I know better than anybody else, I don't have to listen to what people are telling me, I know how to do this and I've done it many times before and never had a problem' become a surgeon's predominant mindset. Therefore, surgeons continue to make mistakes because of errors and behaviour patterns like this.

Q3

Considering your long-standing career, how many articles have you peer-reviewed and book chapters have you written to date? Furthermore, could you elucidate what personally drives you to continually contribute to literature?

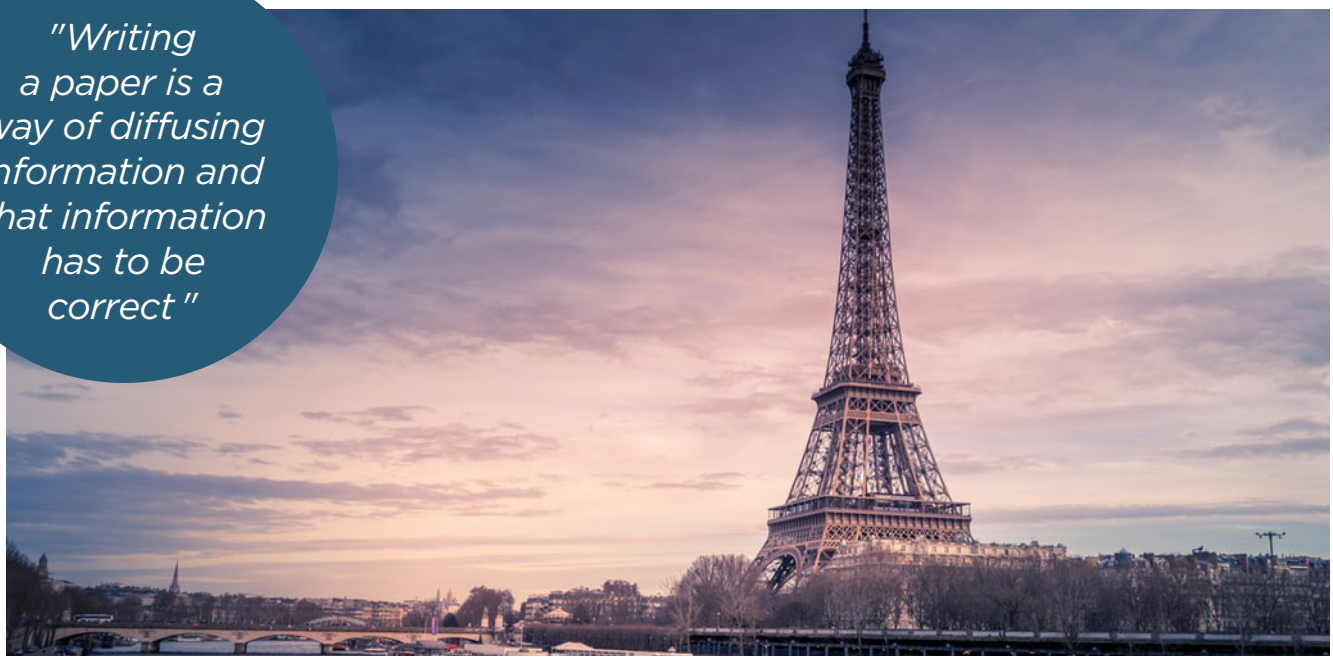
I cannot tell you exactly how many articles I have reviewed because I don't keep them saved on a computer. However, I estimate that during my prime I was reviewing around 40–50 a year and that was for around 15 years. Potentially, I may have reviewed a couple thousand. My mission when I write a paper or when I run a project stems from a core value of mine. I think surgeons have a basic role as researchers as much as being practitioners. There are a lot of questions that have to be resolved and those questions cannot be answered other than through well-conducted scientific research, which is something that surgeons have to learn and be a part of. The same applies to statistics, which all surgeons have to know about. We cannot write a message without having the scientific background of what we're trying to say and prove. Writing a paper is a way of diffusing information and that information has to be correct. It has to be understandable without any ambiguity, the most difficult part of medical writing, and it has to be reproducible because people are going to use that information to do their own research within their own care of patients in that same way. This is very important.

Q4

You contributed to the 2016 Emergency Surgery Course (ESC®) Manual as an Editor. What are your thoughts on emergency surgery and what inspired you to write the manual?

My feeling about emergency surgery, especially during my time in Europe, was that it was not a specific discipline. It was a part of general surgery. People performed numerous general and elective surgeries and when emergencies arose, we tried to do the best we could; however, we had no formal education or training for emergency surgery. Importantly, something I consider very crucial today, the decision-making process was completely wrong. This is something I did not know at the time but serves as one of the reasons why I wrote the manual or started to write the manual. We learned decision-making through our mentor when we were residents. We were told that in these situations this is what I do so you do it too. However, there was no general

"Writing a paper is a way of diffusing information and that information has to be correct"



procedure and no thinking process behind that. The thinking process of emergency surgery today is recognising the situation, recognising a pattern, recognising what I am capable of, how I can do it, but above all, doing it.

Q5

Reflecting on your memories from medical school, what do you consider to be your favourite memory?

My medical training was very special because I was supposed to attend Johns Hopkins University in 1961, which is a renowned medical school. However, like many others at that time I went to Europe to celebrate my accomplishments and never came back. Therefore, I went to medical school in Paris, but I didn't speak a word of French, making it very difficult for me. It took me 11 years to complete school although the French system only takes 6 years.

Q6

Since your graduation in 1971, what has been the most profound change within the medical/surgical field?

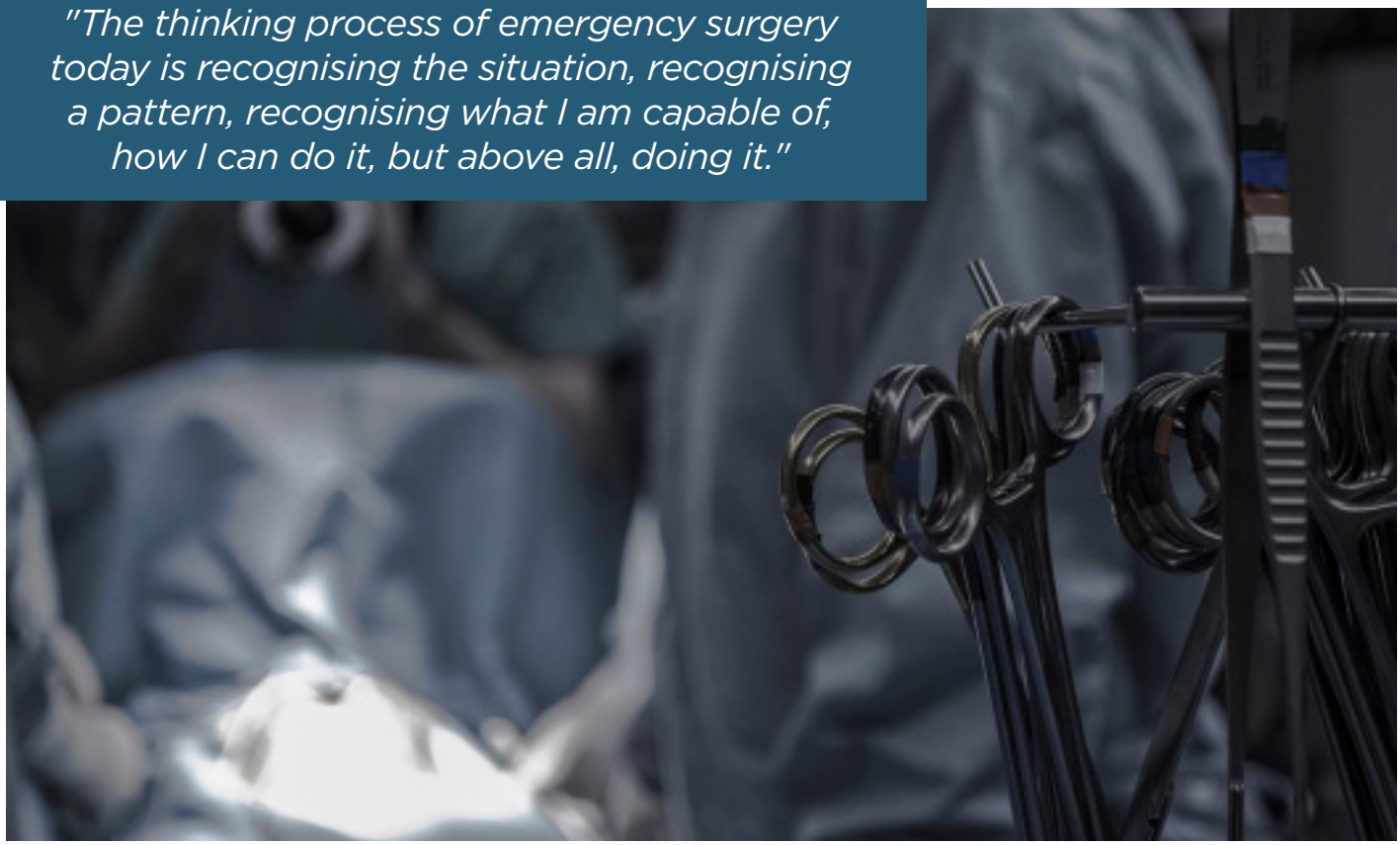
I would have to say that laparoscopic surgery granting minimal access is a profound change. However, it's important to note that it's only the access which is minimal, because the surgery is always as invasive as anything else. I also think that things such as medical writing, medical research, and making surgeons conscious of the fact that they must be scientists at the same time as practitioners has been very important. While not well known, this is one of my holy grails.

Q7

What do you consider to be your fondest memory during your run as Chief of Gastrointestinal Surgery in the Centre Hospitalier Intercommunal of Poissy, France, which lasted from 1987–2006?

Today my best memories of my time when I was chief of surgery is when I see my students and how well they've done. I have some that are professors and others that are well-known experts, some of whom have attended this congress. It's personal pride. I'm not stating that I'm a good teacher but it's something to be proud of. I can see the results of something I have helped.

"The thinking process of emergency surgery today is recognising the situation, recognising a pattern, recognising what I am capable of, how I can do it, but above all, doing it."



Doctor Manish Chand

Consultant Surgeon at University College Hospital London

Associate Professor of Surgery at the University College London

Q1 What were you most excited for leading up to the International Colorectal Disease Symposium in Israel this year?

I thought it was a great opportunity for surgeons from around the region and the world to come together and listen to expert speakers in an informal environment. Having moved from its usual location in Fort Lauderdale to Jerusalem this year, a new cohort of delegates was involved, and I think that can only be good for the meeting and the delegates themselves, as expertise is shared from different regions of the world.

Q2 Can you talk about the importance of fluorescence in colorectal surgery?

One of the key talking points at this year's meeting was fluorescence-guided surgery, and in recent years it has become evident that fluorescence really is a surgeon's best friend. There are so many different ways it can be used; for us, as colorectal surgeons, the most popular application may be for determining bowel perfusion, as there is accumulating evidence to show its beneficial application for reducing anastomotic leakage. We still await longer-term results and findings from randomised controlled trials, however it certainly appears that using fluorescence decreases leak rates.

Beyond bowel perfusion however I believe fluorescence can be used in so many different ways in surgery, from identification of anatomy, to actually looking at pathology. For example, I could administer a dye which specifically targets cancerous cells in the bowel and identify what I need to excise in a more precise manner than has ever been allowed before.

Q3 What sort of implications will virtual meetings hold for the surgical field?

One of the things we have seen in recent years is that the traditional model for holding surgical meetings is evolving. Where once you would have to travel a certain distance, pay a registration fee, and find study leave for such meetings, this model is changing with the increased availability of online materials and the use of technology platforms.

Recently, we here at UCL alongside our collaborators in the AIS Channel and Cleveland Clinic Florida have been putting on a digital meeting that attracts 25–30,000 live viewers, and this is a meeting of no delegates: we have faculty from around the world either sending in their recorded lectures, or joining us here in attendance within a live television studio environment to put on a live broadcast. This allows people from all over the world to tune in at any time they wish for free.

This democratisation of the surgical conference represents a real shift that we are seeing. Of course, these will never fully replace delegate-attended meetings such as the one in Jerusalem, which still hold real value; however, interspersed virtual meetings negate a lot of the practical nuisances associated with travel and time off.

Q4 Can you comment on the evolution of laparoscopy and how it has become standard-of-care in colorectal surgery?

Much of my work as a surgeon involves colorectal cancer, and recent improvements in this field have in fact been two-fold. The first has been the significant improvements in cross-sectional imaging and MRI so we can plan our surgery more effectively, and the second has been the

ability to perform these procedures in a minimally invasive fashion. Often we think of open surgery being the gold standard, but I think at least with colon cancer we have reached a point where laparoscopic surgery is the gold standard.

The new techniques of trans-anal total mesorectal excision (TATME), and of course robotics which has been around for some time now, are certainly being adopted more, and I think without a shadow of a doubt that this is where we are heading in the future. We're not going to be doing open surgery or straight laparoscopy to the same degree as now in 50 years' time; we're going to be using 'smarter' tools such as robotic and image-guided platforms, and the aim now is to determine how to do this in a cost-effective and clinically appropriate manner.

Q5 How important an impact has mentorship had on your professional career?

It is important for young and newly appointed consultant surgeons to have a mentor. I think it can be difficult to traverse the career pathway on your own, and a mentor can give you mental, emotional, and in a surgeon's case, physical guidance to help you on your way. In my career, certainly Richard Cohen, Steve Wexner, and Antonio Lacy have been very influential and helped through times of difficulty and uncertainty. Mentorship can be highly valuable for young and experienced surgeons alike, and these individuals need not be from your same institution: mentors can be individuals whom you respect from other institutions. It is key however in this somewhat treacherous world of surgery to have someone who can help and guide you.

Q6 Finally, what are your impressions of the work EMG-Health is doing and how it can benefit yourself and other professionals in the field?

I think the work is tremendously exciting. I think having another platform that has rich multi-media content for surgeons to use as a reference point is certainly the way forward for the world that we live in. Historically surgeons would need to go to the library and trawl through articles and textbooks under inconvenient circumstances, so having an online platform whereby one can access a whole variety of content is undoubtedly valuable. We are all time-poor now: in the theatre, to learn, and in our social life. Having information on demand is not only useful, but essential for the working surgeon. EMG-Health's work is exciting as it brings together experts from different fields and provides the traditional open-access journal model alongside more multi-media content. In short, I'm really looking forward to seeing the work they can produce in the next few months and years.

"in recent years it has become evident that fluorescence really is a surgeon's best friend"

Doctor Ron G. Landmann

Executive Council for the US Commission on Cancer National Accreditation Program for Rectal Cancer

Chief of Colorectal Surgery/Surgical Oncology Section at Baptist-MD Anderson Cancer Center

Q1 How has computer-aided digital and robotics surgery transformed your practice over the years and how has it transformed the field of colorectal disease as a whole?

I think we're still extraordinarily early in the journey of computer-aided and robotics surgery. I do a lot of robotic surgery: in fact, 90% of my practice is 'robotic' colorectal surgery, but I wouldn't really call it robotic. The only thing the robot does is translate my motion at a console into other motions at the bedside. Granted, there are key features of the robot that are useful in terms of visualisation, articulation, and instrumentation, but that's not the robotic part. In reality, these are just terminals and almost a means to an end. We don't really have digital surgery in the way that we think of it, at least in regard to augmented reality, improved visualisation, and enhanced diagnostics in real or clinical practice. I think although there have been trials, there are a lot of companies with invested interest which are trying to get input from surgeons and are excited to see how it can work in order for us to augment it. We are pretty close, but still a little far away. I think that the next key focus is going to encompass improved visualisation: not just regular three-dimensional white light, but targeted visualisation and definition of anatomy and planes based on molecular tags. We can then be using, for example, fluorescence imaging in combination with other preoperative imaging techniques, such as CT or MRI.

Q2 What are some of the problems or barriers that can really prevent something like augmented reality being adopted into the clinic?

I think the biggest barrier is going to be cost, access, and availability, especially to begin with. The cost of the robot can be prohibitive for many American medical centres. The biggest issue is getting the cost to be within reason because the hospital doesn't get paid any extra to do these procedures using robotic assistance or augmented reality. The more cost-effective you can do it, the better. And if it doesn't really add true benefit to the hospital, especially with reimbursement now going down, the hospital CEO or Chief Financial Officer may say: "You've got great outcomes; where is the true benefit for the hospital and for the patient for this additional cost?" That's going to be the critical thing; as it is now, we are paying extra amounts of millions of dollars for these devices and even more add-ons.

Q3 You recently co-authored a paper on the conversion from minimally invasive to open sigmoidectomy for diverticular disease. What was the take-home message?

The aim of this study was to try and view why people were converting from laparoscopic or robotic surgery to open, whether there was any difference, and also why in some cases open surgery is being used for a standard benign disease from the get-go, which we know should be done in a more minimally invasive procedure. If it's not a cancer, why aren't you giving the patients the benefit of a more minimally invasive procedure for a benign disease? The goal was to evaluate and look at surgeons and institutions with lower and higher volumes of patients and see the compelling reason for conversion. We found that when using robotics, patients had lower conversion rates for benign, yet otherwise complex surgical procedures. That's why we're trying to push for the more minimally invasive procedure, and perhaps the robotic approach will be easier than the laparoscopic approach to implement.

Q4 You touched on that aspect of minimal-invasiveness and preservation. Do you think that sort of patient-centric consideration has always been prioritised in the field?

I really think so. There have been times when we swayed a little bit away from this, before realising that patients don't care about size of the incision and whether you do a single site or not: they do care, however, about immediate function postoperatively and in the long term. If we can improve the postoperative function and quality of life, both in the immediate period of the following 30–60 days and obviously the long term, that's huge. Minimally invasive surgery over open surgery can get patients back to work sooner. They can be active participants in their lives, both with family and at work, with less pain and fewer narcotics. I tell patients: "I'm going to do this robotically, it's minimally invasive, and all you will be left with is a couple of little scars that eventually fade." Sometimes they reply saying they don't care, which is an okay response in theory, however it is important to emphasise in the case of cancer that this can actually be cured. I often reply to these patients saying: "We're going to cure the cancer for you, and once all is said and done, you're going to have a reminder one way or another. The smaller the reminder the better because that means you can continue to live your life outside the shadow of your cancer." Body image is clearly important, as people don't want that constant reminder every time they get out of the shower, or in the morning when they're getting dressed, to see those scars. They want to live their lives. Nobody really needs a constant reminder of what they went through, so let's change this.

Q5 You serve on both the National Accreditation Program for Rectal Cancer and the American Society of Colon and Rectal Surgeons (ASCRS) Rectal Cancer Coordinating Committee. Are there any unique challenges in the USA towards overseeing accreditation programmes and setting guidelines and parameters, perhaps compared to other countries you are aware of?

In the UK or other parts of Europe where they have a national health system, patients are almost 'prescribed' where to go, for instance in patients with rectal cancer. We don't have that in the USA. The USA guiding and starting principles were of freedom and liberty, meaning we experience unique challenges in physicians or clinicians feeling infringed upon when told that they should be treating their patients differently to how they want. What we have to do is try to educate physicians, surgeons, hospitals, health systems, and eventually the payers to emphasise that these are often not simple disease processes. This is a complex process, and if you dedicate yourself to this treatment of increasing volume, you have better outcomes in both the short and long term. We can't compel people to only go to the major academic medical centres: we don't have that ability to do that. We need the processes and the accreditation to be nearly universal, whether you're a small community hospital with one surgeon or a major medical centre with 12 surgeons treating rectal cancer. If the same regulations and standards apply, we should all get the same response. The end goal of this process is that no matter where you go in the country, you get the same operation or treatment, whether it's chemotherapy, radiation, or combination surgery, with the same outcomes.

Q6 You've spoken before about an approach to patient care versus empowerment and personalisation. How do you adopt that ethos in your day-to-day practice? How do you empower your patients?

This is perhaps the easiest thing and what I enjoy the most, second to actually operating. Engagement of the patient and their family in their management goes a long way because that really builds up the patient–physician relationship. My goal when I see the patient for the first time is not just to say: "You have 'x', and this is the treatment." Engagement really involves educating the patient as to what is going on, why we're doing what we want to do, and what the long-term outcomes are going to be.

I focus more on long-term outcomes, prognosis, and quality of life than I do on the episode of care. Ideally, the episode of care, either for a simple benign disease process such as haemorrhoids or diverticulitis, or a complex lethal cancer, should be a finite period in those patients' time. What the patient really cares about is how it's going to

affect them in the long term, if they're going to be able to work day-to-day, if they're going continue being able to go out with a spouse for dinner, and to see their kids grow up and graduate: that's what they care about. They care about the cancer, but also about the impediments they are going to experience socially, professionally, and also sexually. I address all those features, because sometimes people are very afraid of that. If you just come out and openly talk to them about all those issues it shows patients that you're engaged.

Q7 Finally, what was the most valuable aspect that you took home from this year's International Colorectal Disease Symposium?

I started attending this conference in 2007. The reason I had started attending was because I was told by one of my mentors, who has since passed away, that this is perhaps one of the leading conferences, more so than our national societies even. We get to learn about new innovations, techniques, and management before it comes out and diffuses to the established societies. I think the integration, collaboration, and the collegiality is fantastic. It is infectious. That is perhaps the best part of this meeting: you can meet and talk to other colleagues, perhaps not even physicians, to exchange ideas. And that's the key thing. The only way we can improve medicine and improve humankind is through communication. The answer to everything is always communication. So I do believe that the communication and exchange of ideas that lead to further innovation and further improvements is the best thing about this meeting.

"We need the processes and the accreditation to be nearly universal, whether you're a small community hospital with one surgeon or a major medical centre with 12 surgeons treating rectal cancer"

Doctor Miklosh Bala

Department of Surgery, Director of Trauma, Hadassah Medical Centre, Jerusalem, Israel

Q1 Your parents are from Hungary, you were born in Russia, went to medical school in Moscow, are now living in Israel, and can converse in English. You are well-travelled, but could you tell us about your experiences at medical school in Russia?

It was very good because I went to the best medical school in the whole of the Soviet Union. I guess I got a good education there in my 6 years. After medical school, I worked for about a year in Moscow as a junior doctor and then I left for Israel. I did all my residency here in Jerusalem at the Hadassah Medical centre.

Q2 At what point did you decide you were going to be a surgeon? What was the attraction?

From the first day I decided to be a doctor really. It is the best way to help people; you do something, you have a result, and there is immediate satisfaction. I decided to devote myself to trauma care; it was not easy, but I still did it. After residency in general surgery I travelled to the USA for a fellowship at the world-renowned R Adams Cowley Shock Trauma Center in Baltimore, Maryland, USA. After 2 years, I came back to Israel and I started my career in trauma surgery. I have now been given the position of Director of Trauma Services.

Q3 What would you say it is about combining emergency surgery and trauma surgery that is appealing to you?

You might have a specialty interest but if a trauma patient comes in, be it a gunshot or knife wound, motor vehicle accident, or a perforated diverticulitis, you would be required to do those surgeries as well. Any form of surgery specialisation leads to improved skills. Trauma surgery became very much less operative because of different technologies and we now understand more about the trauma physiology. It's a lot of intensive care work and a lot of angiography and such like. The emergency cases are very similar to the trauma patients in terms of physiology. It's a different mindset; I think about physiology first, then about how to get the patient better, and then how to treat their anatomy. This is converse to elective surgery such as colorectal where, for example, you have your disease, you know how to take it out, and that's it.

Q4 There's a big move in surgery at the moment for Enhanced Recovery after Surgery (ERAS®). You don't have that luxury unfortunately because you're dealing with people who are acutely ill, though you can implement some of the changes such as maintenance of body temperature. What are your thoughts, given your specialty, about ERAS and how it plays into elective cases, and what elements can you bring to your surgery, given that you don't have preoperative preparation?

I think it's all about the quality of care. You must have some kind of quality control, even though patients are sick and severely ill, and the ERAS actually helps to maintain the flow of processes to make the right decision. So technically you do something that is not quite planned, but then you come to the point when you can actually switch to enhancement. By doing whatever you have to do for the patient, they are doing better from the beginning because of the multidisciplinary approach. If we have more quality assessment in emergencies, it would probably be better.

Q5 Personal audit is also a key component of monitoring your own successes and your morbidity, which is an inevitable part of the role. Could you tell us a bit about how you use personal audit?

It is not implemented enough here in Israel. I learnt that in the USA, and here we have tried to maintain some registry and move toward the care that is built under the set of guidelines. We spend a lot of time putting together guidelines with people who work abroad, such as the World Society of Emergency Surgery (WSES). I'm very active in that and we do publish a lot of guidelines for acute diseases related to surgery in order to try and make this happen.

Q6 You have previously mentioned the non-operative management of trauma; can you tell us some of the examples of noninvasive, or less invasive, management that is seen today?

We have seen the impact of moving away from operative to less invasive. Most of the trauma today is managed noninvasively. Even with trauma such as penetrating injury to the liver we have a lot of experience with treating non-operatively. We just feel that it's better for patients. Sometimes you want to operate but it's not about what you would like to do, it's about what is best for the patient. Sometimes it's better to keep your hands in your pocket than to open their abdomen and cause multiple postoperative complications.

Q7 The team approach for the management of trauma is critical; for example, interventional radiologists, critical care staff, and respiratory physicians are all involved. Who are the key team members for you, and do you have regular conferences in your hospital, such as tumour board, to evaluate the care of trauma patients?

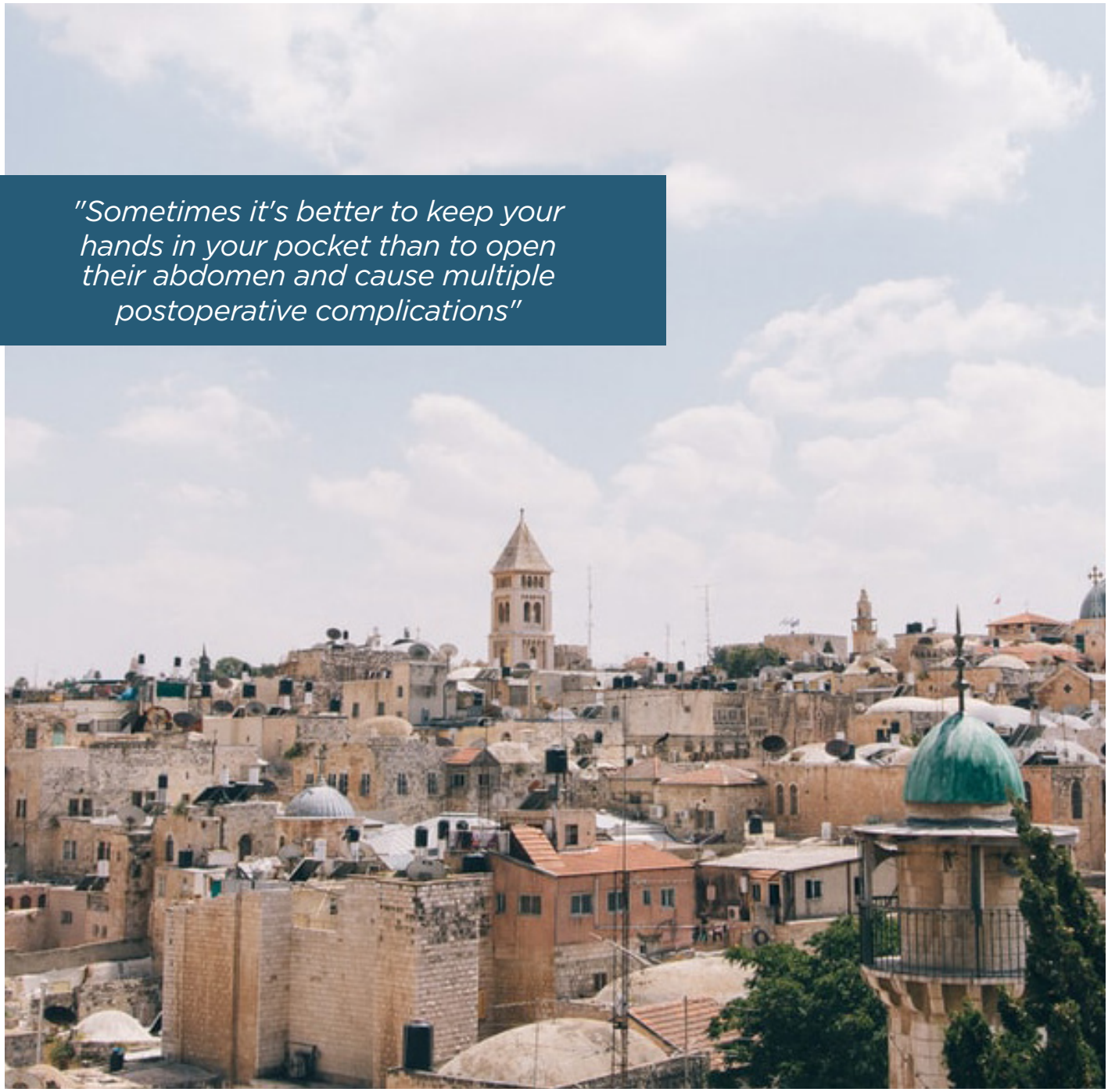
We have trauma meetings every month. We have a national trauma society which I am the chairman of; that is a lot of responsibility as most often it is all about teaching. In our centre here in Israel, the general surgical department and trauma services are in charge of all trauma patients. We also cooperate with orthopaedics and the intensive care unit, although every department in the hospital should be involved in the case if it's their specialty. For example, at this symposium I gave talks about major trauma, what to do about the rectal injuries etc. Our colorectal surgeons are involved in patient care by helping out the whole team with decision making. Some things they are doing better at than me!

Q8 For people who are not former surgeons or don't see trauma, the general public image of what the emergency room is like is very different to reality. It should be a very calm, well-drilled team. Is that your experience?

We try not to be too loud and we respect others. The people know when a trauma case arrives, so they know who's in charge. It makes things much, much easier because nobody is trying to be too hands-on before a decision is made by me or my partner, who is another trauma surgeon at the hospital.

Q9 Could you tell us a little bit about the mix of trauma that you see in Israel? Everyone is aware of the sadness in our world, such as terrorist incidents, but presumably there are the usual motor vehicle accidents etc. Are there any special kinds of trauma you see as a result of terrorist activities, for example blast injuries and such like?

For the past 20 years, we are more or less not in a period of mass casualty anymore. The years 2000-2004 were the bad days. It was 5 years of hard work every day, with terror attacks twice a week in Jerusalem, let alone the whole of Israel. It was good experience for the surgeon, but bad experience generally. These occurences went down slowly, and now we get so-called lone wolf attacks. Some people get consumed by any idea; for example, a few months ago, we had an attack of somebody who took his car and drove into a crowd to target soldiers and other security personnel. People were very badly injured, but it was a different type of injury. Unfortunately stabbing still exists here in the Old City, but it only happens occasionally.



"Sometimes it's better to keep your hands in your pocket than to open their abdomen and cause multiple postoperative complications"

On a day-to-day basis, we deal with falls in the elderly. I'm not saying it's all geriatrics, but it does make up a majority. People that have even small impact trauma can get sick very quickly. However, intensive care has got much better in the last 20 years. So, we do still have a job in trauma, but it's more emergency surgery.

Q10 You're participating at the meeting here in Jerusalem, which is a joint effort between the Cleveland Clinic David G. Jagelman Memorial and the Israel Society of Colon and Rectal Surgery (ISCRS). Have you had a chance to spend any time at the meeting yet? Is there anything in particular that you've got your eye on in the programme that you want to see?

There's a lot of things that are very important. For me personally, I am interested in the emergency cases and the discussion of new technologies that could improve daily surgical work. With elective surgery, it's very important to be up to date.

Professor Steven D. Wexner

Director of the Digestive Disease Center, Cleveland Clinic Florida, Weston, Florida, USA

Prof Steve Wexner and Dr Jonathan Sackier sat down at the International Colorectal Disease Symposium to talk about how this meeting came to be, and more.

Q1

Jonathan Sackier: Steve, it's a pleasure to talk to you. Once again, you've chaired and put together an amazing meeting, the David Jagelman Memorial Colorectal Meeting, for the first time being held in Jerusalem in conjunction with the Israel Society of Colon and Rectal Surgery (ISCRS). Can you first tell me about how the decision came to hold the meeting in Jerusalem?

Steve Wexner: In May I was here as a guest of the Israeli Surgical Association (ISA) which is another co-sponsor of this meeting. Just in talking to the 10 or so alumni of mine who I've trained who now run the surgical departments here, I thought: you know something, maybe we should do a meeting with these alumni, because there's so many of them here. So that's how it evolved, it was literally just a hallway conversation in late May and we had June through to January to get everything organised and ready. However, it seems to have been such a success that now we'll be rotating it. So, on the odd-numbered years the symposium will be back in Florida with my colleague from our main campus in Ohio, and then the even-numbered years somewhere else. We have offers now from about half a dozen others in Asia and the Middle East to host the meeting.

Q2

Jonathan Sackier: Of course, the Cleveland Clinic has a pretty massive footprint. I didn't see it when it first opened, but it was a 150 bed...

Steve Wexner: Very good memory, 153 beds from when we opened until last year, the beginning of 2019, and then we had a rapid expansion, but it's always been that number. It's largely a surgical hospital led for many years by colorectal surgery, and then bariatric surgery by Raul Rosenthal and more recently orthopaedics led by our CEO and President Wael K. Barsoum and others. However, lately it's more of an all-service hospital, but that number of beds worked in the USA firstly because of short lengths of stay and secondly because it wasn't all things to all people.

Q3

Jonathan Sackier: So, when you introduced the Jagelman Oration, I remember you putting up a slide showing the number of institutions under his leadership. I guess you've now metastasised, if you will, all over Florida. How many total hospitals and clinics are there on the list?

Steve Wexner: There's now five hospitals. So we've gone from 153 beds to just under 1,100 beds. We had one campus back in 1988–2001. Once we moved out to Weston in 2001, we had a small outpatient campus, but effective last year we now have a total of 34 outpatient campuses of different medical office buildings and hospitals in which people can be seen. They wouldn't be able to have procedures, or major procedures at least, but they can be seen and then people are funnelled into the hospitals as necessary.

Q4

Jonathan Sackier: For the benefit of people who don't know, where in the world does the Cleveland Clinic have bases other than Florida and Ohio?

"There's now five hospitals. So we've gone from 153 beds to just under 1,100 beds"

Steve Wexner: Well the model we've recently done in Florida is based on what happened in Cleveland under the leadership of Fred Loop who was two CEOs ago and whose mark was expanding within Ohio, and that was continued by Toby Cosgrove who was the next CEO. Basically they started acquiring other hospitals: Fairview,

Hillcrest, and then started spreading the net to Akron. So just as we're now doing in Florida, we are bringing hospitals into the fold, gradually changing the model so that everybody's pulling in the same direction, sharing best practices, sharing resources, sharing data, quality control, but not necessarily changing the practice model in terms of how the doctors are compensated, plus acquiring a lot of outpatient clinics. Then in Toronto there's a Family Health Centre, and the Cleveland Clinic licenses management skills to a variety of cardiothoracic departments and also Cleveland Clinic Innovation. Those affiliates are scattered around, but in terms of full campuses, the first one that opened out of the USA is in Abu Dhabi. That relationship originally was operated as Sheikh Khalifa hospital, but then ultimately opened as its own freestanding hospital and that's become the first hospital in that part of the world that's been doing successful liver and kidney transplants at a very high-level acuity care. So, Abu Dhabi is a little bit of a different model; we manage it, we don't own it as far as I know. And now, coming online imminently, is London.

Q5

Jonathan Sackier: A fabulous facility and the great news is that you've just got your registration with the General Medical Council: you're going to be a token Brit!

Steve Wexner: Exactly! Richard Cohen is our Digestive Disease and Surgical Institute Chair there and there'll be a variety of people from London who will be doing cases there. That's the model with the exception of people like Richard who would be full-time, all of the other people are going to just be bringing their private cases there to do. It's a beautiful hospital, there are a few offices there. The support officers are next door, but there's no patients being seen there. Patients will be up in Portland Place and there's a very nice facility just near the Charles Bell House of University College London (UCL). And then the next one coming online is Shanghai, which may be harder to staff in the current environment.

Q6

Jonathan Sackier: One thing that's, I think, lovely about our profession is it is very collegial. There's something about the atmosphere at your meetings that is very special. What do you think the magic sauce is?

Steve Wexner: I'd like to think that one major issue is when I started the meeting in 1990 I kind of broke the formula of inviting faculty only from the USA, the UK, Canada, Australia, Scandinavia, or people whose first language, or at least near first language, was English. Instead, I thought that there's a lot to be learned from people from Latin America, Argentina, Brazil, Russia, China, Japan, Korea, and other under-represented countries. I think that I made their compatriots and colleagues in their respective countries very comfortable by being inclusive of them as faculty, and so it got a reputation that this was a meeting where you gain some respect. It's not just being lectured at by the usual cast of characters. I think that may be a large part of it, because the days are not short, the schedule is not light, and the fact that we're in a beautiful place doesn't change when you're inside a room with a window. I like to think of the collegiality and really extend it out to these people to participate in.

Q7

Jonathan Sackier: And the talks were fantastic. It's always hard to pick a highlight, but what did you see at this meeting that has surprised you or delighted you?

Steve Wexner: In this part of the world there's a lot of people who are in need of education that can't necessarily come to North America or even Western Europe, such as Nigeria, Ghana, Ethiopia, some of the former Russian Republic countries, Nepal, and India. So, I raised philanthropic funds from friends which then got transmitted as scholarships to bring people from these places. Thus, a lot of this was translatable to middle- and lower-income countries. I think that, to me, that was the most important thing to see coming across. Other highlights include sessions like the ones this afternoon on mentoring, teaching, mental conditioning, and all the other things that are very low budget.

Q8

Jonathan Sackier: It's commendable that you do that, and I think those of us who are fortunate to live in wealthier countries forget that. I know you've travelled extensively teaching oversees, I'm going to guess that teaching is probably your main love?

Steve Wexner: I've got multiple: my family, Mariana and my two sons, my mom, and then of course my trainees and my patients. I mean it all comes down to patients, and it's the old adage: if you give a person a fish, they have a meal, but if you teach somebody to fish, they have meals for life.

So, taking care of patients still is what motivates me; there is nothing quite like the gratification of somebody saying to you "thank you". You see people with inflammatory bowel disease who after surgery live normal lives, and you see people with cancers who become cured, and so on. That's what it's all about. Now, the teaching part is teaching other people how to get similar outcomes so that they can experience that same gratification. I certainly do not have a monopoly on good outcomes, nor do I have exclusively good outcomes, unfortunately, because I'm honest and that's what surgery is about. It's also teaching people how to deal with suboptimal outcomes and adverse outcomes, from how to minimise damage to the patient as well as to the surgeon.

Q9

Jonathan Sackier: I had the privilege of meeting David Jagelman just very briefly over the years and I know that you were close. Tell me one enduring memory of David.

Steve Wexner: One of the things that I think was the most enduring was the way he would always be there for patients. He said, do not tell me why I need to see the patient, just send me the patient. David always taught me to just take care of the patient and the rest of the stuff will sort itself out. That's a very, very important thing that I learned from him, a lot of technical things too, but certainly that one. The second one is communication, and I still maintain that habit. He used to send a note to the patient and the patient's doctors every time he saw them in the office preop, postop, and post-hospital discharge, and I do that to this day. It's not one of these new automated letters from the electronic medical record. That is a personalised letter and people love it because the patient has a record of what you did, the doctors all know what's going on, and that's a great habit I picked up from him.

Q10

Jonathan Sackier: So, switching tack a little bit: The National Accreditation Program for Rectal Cancer (NAPRC). Can you tell me a little bit about that?

Steve Wexner: The outcomes for rectal cancer have been proven time and again to be dependent upon how the operation is done, by whom it's done, where it's done, and the setting in which it's done. So surgeons who do a lot of rectal cancer surgery and are able to get circumferentially clear margins with a near total or total mesorectal excision with appropriate use of neoadjuvant therapy are going to have better outcomes with their patients or lower rates of permanent colostomy, lower rates of local recurrence, and higher rates of survival than surgeons who sort of dabble in it and/or do it independently without a multidisciplinary team and/or without appropriate preop imaging. This had been proven multiple times in Europe; that you could move the needle and you could show that there were less colostomies being created, fewer rates of local recurrence, more appropriate evidence-based guidelines being followed, and better survival.

"There's a lot of talk about burnout, so I think the best way to deal with all of that is to remember why you are doing this"

In 2011 when I was President-elect of the American Society of Colorectal Surgeons (ASCRS), Feza Remzi prompted me to try and do something like this in the USA. It had been tried and had not succeeded in the past by one of my mentors, David Rothenberger, so I took a different approach and I got a working group together. We spent about 4 years gathering data from the National Cancer Database and other forums, put in the literature as awareness showing how outcomes in the USA were inferior to Europe, showing how, when it comes to the USA, they were tremendously variable and needed to improve so that we made the case that there's room for improvement. Then, having been on the commission on the cancer and accreditation committee, I presented a proposal to create this programme. The accreditation committee went for it because by that point we had the evidence. I very deliberately included the radiologists and the pathologists just like they did in Europe, and we included all four surgical societies with an interest in rectal cancer. In early 2014 I presented our plan to the accreditation committee and then to the executive committee of the Commission on Cancer (CoC). After their approval, I went to the Board of Regents of the American College of Surgeons (ACS), because they have to provide the funding, and they also approved it. We then spent 3 years working on creating a standards manual, and as of October this past year, we officially convened the NAPRC.

I chair the programme and I chair the executive committee. We also have a quality committee, accreditation committee, and education committee. The composition is very egalitarian, each society has one seat at the table for each committee, plus the college has four fellows at large for each committee. We also include representatives from the Resident and Affiliate Society and from the Young Fellows Association. We now have almost 20 programmes accredited, about 60 more have requested accreditation, and the programme revolves around processes and performance. You have to show that you are evaluating every patient with rectal cancer before you make a decision on how to treat them, and that decision is made as the consensus of the group and that was alluded to in the meeting today.

Q11

Jonathan Sackier: This is a mammoth task that you have undertaken and have executed. I have a final question for you: what do you believe to be the biggest challenges facing people who are just starting out in colorectal surgery in terms of either clinical practice or research?

Steve Wexner: There are several, I'm not sure there is one big challenge, they are a bit interwoven. There's a lot of talk about burnout, so I think the best way to deal with all of that is to remember why you are doing this, and you are doing this to do the best you can for every single patient, every day. I think if you go in with the attitude that this is really unique, it's not confined to colorectal surgery, but we have the most fabulous, most unique jobs in the world in my opinion. If you choose to do clinical care, you are going to get the opportunity to help people every day. If you decide to go into administration, you are going to get the opportunity to help direct the healthcare system, which is going to improve people's health. There are many avenues you can take; however, the vast majority of people did go into this so they could operate on a daily basis. Just remember why you are doing it, and how you are doing it to help people out. What you need to do on a personal level to maintain your sanity, whether that is going to the gym, or yoga, or being with your family, or fishing, or flying airplanes, or whatever it is. Make sure you maintain the time to do that. Do not get discouraged; not every day is going to be great, but the vast majority of them will be.

Abstract Reviews

EMJ is proud to present a hand-picked selection of some of the top abstracts from the International Colorectal Disease Symposium, summarised by the presenters themselves.

Outcome of Transanal Endoscopic Microsurgery for Rectal Cancer

Authors: *Torbjörn Swartling, Lars Börjesson, Karl Kodeda, Kristoffer Derwinger, Göran Kurlberg

Department of Surgery, Institute of Clinical Science, Sahlgrenska Academy, University of Gothenburg, Sweden
*Correspondence to torbjorn.swartling@gmail.com

Disclosure: The authors have declared no conflicts of interest.

Keywords: Rectal cancer, recurrence, Scandanavian TEM registry, transanal endoscopic microsurgery (TEM).

INTRODUCTION

Local excision using transanal endoscopic microsurgery (TEM) for rectal cancer may be considered for selected patients. Management demands assessment of risk of local (LR) and distant (DR) recurrence.

METHODS

In this retrospective study, patients who underwent full-thickness TEM for rectal cancer in western Sweden in a period from 2000 to 2012 were identified through the Scandinavian TEM registry. For reference, Swedish patients who had undergone primary resection of early rectal cancer during the same time period were identified through the Swedish Colorectal Cancer Registry, including non-irradiated patients staged as tumour stage 1 (T1) with any lymph node (N) involvement with tumour height exceeding up to 13 cm from the anus.

RESULTS

A total of 113 patients in western Sweden underwent TEM for rectal cancer (Figure 1); 24 patients underwent completion salvage resection, four patients died post-operatively, and four patients were lost to follow up. Eighty-one patients were followed after TEM-only, with additional radiotherapy in two patients with T2 tumours. Specimens were staged as T1, T2, and T3 in 52, 24, and five patients respectively. Median follow-up was 76 (9–195) months. LR was detected in 19 (23.5%) patients, and DR in 11 (13.6%). Nine patients had both LR and DR.

Figure 1: Transanal endoscopic microsurgical outcomes in Scandinavian rectal cancer patients.

Treatment	TEM rectal cancer	Excluded TEM	TEM-only	TEM-only T1 with any N	TEM-only sm1/2<3 cm	Primary TME T1 with any N	Excluded TME	Primary TME T1 with any N
	113	4 postoperative deaths	81	52	20	358	9 postoperative deaths	346
		4 lost to follow up					3 lost to follow up	
		24 salvage						
		TME						
LR			19	7	0			5
DR			11	4	0			22

DR: distant recurrence; LR: local recurrence; N: nodal involvement; T1: tumour stage 1; TEM: transanal endoscopic microsurgery.

Median time to LR was 13.5 (5–47) months. LR was detected in seven of 52 (13.5%) patients with T1, in five of 22 (22.7%) patients with T1>30 mm, in two of 30 (6.7%) patients with T1<30 mm, in four of 15 (26.7%) patients with T1 submucosal depth of invasion 1/2 (T1sm1/2), in none of 20 (0.0%) patients with T1sm1/2<30 mm, in three of 12 (25.0%) patients with T1sm1>30 mm, and in none of 12 (0.0%) patients with T1sm1<30 mm. In total, 346 patients who had undergone primary resection were selected for reference as described. Median follow-up was 80 (6–196) months. LR was diagnosed in five of 346 (1.4%) patients and DR in 22 of 346 (6.4%) patients.

CONCLUSIONS

TEM resulted in a high LR rate compared to primary resection for early rectal cancer. Recurrence rates differed considerably according to stage and size. T1sm1/2 tumours smaller than 3 cm seem to have a favourable outcome.

Specimen Quality of Transanal Total Mesorectal Excision (TaTME)

Authors: *Soterios George Panousopoulos, Georgios Panousis, Doukakis Paradellis, Constantinos Mavrantonis

6th Surgical Dept, Hygeia Hospital, Athens, Greece
*Correspondence to dr.panousopoulos@gmail.com

Disclosure: The authors have declared no conflicts of interest.

Keywords: Minimally invasive rectal cancer surgery, rectal cancer, rectal cancer surgery, total mesorectal excision (TME), transanal total mesorectal excision (TaTME).

INTRODUCTION

The adoption of total mesorectal excision of the rectum (TME) revolutionised surgical treatment of rectal cancer, leading to significant improvement in oncologic outcomes in recent decades. Laparoscopic TME has since proved to be non-inferior to the open technique, while conferring lower morbidity and reducing hospital stay. However, for tumours of the distal third

of the rectum, TME still presents significant difficulty due to the anatomy of the pelvis. The advent of transanal surgery has encompassed the innovation of transanal total mesorectal excision (TaTME) in an effort to facilitate complete excision while preserving the desired oncologic results.

AIM

In this study, the authors present an experience with 41 cases of patients with rectal cancer who were subjected to TaTME in the 6th Surgical Department of Hygeia Hospital, Athens, Greece.

METHODS

Between March 2018 and September 2019, 41 patients were subjected to TaTME for rectal cancer (Figure 1). The procedures were performed by a single surgeon and surgical team. The technique consists of transanal dissection of the rectum and mesorectum up to the level of the peritoneal recess. Following this, a laparoscopic left hemicolectomy and diverting ileostomy are performed. Finally, a coloanal handsewn anastomosis is fashioned.

Pathology reports were collected and compared to pathology reports of rectal cancer patients with distal rectal cancer subjected to laparoscopic sphincter-saving transanal specimen extraction operation (TaSE) by the same surgeon and surgical team. Completeness of TME, circumferential resection margin (CRM), and distal resection margin (DRM) were considered.

RESULTS

The TaTME group (n=41) had a complete or nearly complete TME specimen in 92.7% of cases versus 89.6% for the TaSE group (n=48) (Table 1). The CRM was free >1 mm in 87.8% of TaTME cases versus 85.4% of TaSE cases. The DRM was free >2 cm in all cases in both groups (Table 2).

TaTME setup

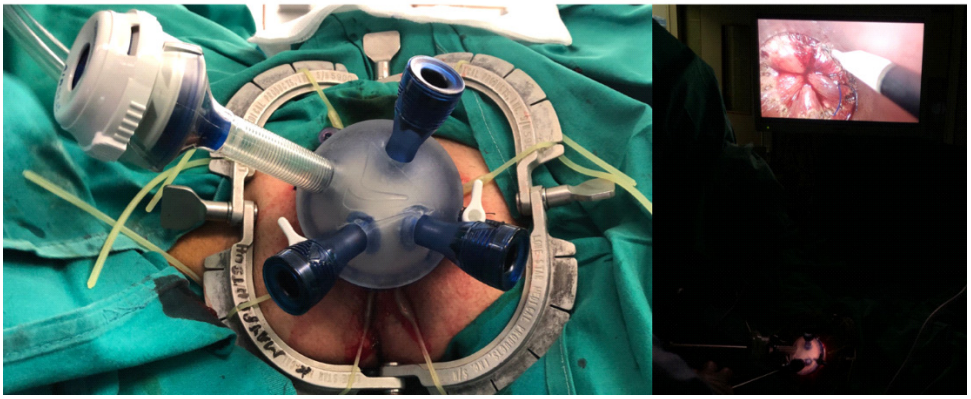


Figure 1: Operative field setup for transanal total mesorectal excision.

Table 1: Specimen quality.

	Complete TME	Nearly complete TME	Incomplete TME
TaTME	34 (82.9%)	4 (9.8%)	3 (7.3%)
TaSE	38 (79.2%)	5 (10.4%)	5 (10.4%)

TaSE: transanal specimen extraction operation; TaTME: transanal total mesorectal excision; TME: total mesorectal excision.

Table 2: Circumferential resection margin.

	Free (>1 mm)	Involved (<1 mm)
TaTME	36 (87.8%)	5 (12.2%)
TaSE	41 (85.4%)	7 (14.6%)

TaSE: transanal specimen extraction operation; TaTME: transanal total mesorectal excision.

CONCLUSIONS

It appears that TaTME achieves excellent CRM, DRM, and TME specimen quality in patients with distal rectal cancer, and should be considered as an alternative when treating patients in whom TME is expected to be technically challenging trans-abdominally.

Stomas in Cytoreductive Surgery and Hyperthermic Intraoperative Peritoneal Chemotherapy for Colorectal and Appendiceal Tumours: Risk Factors and Outcomes

Authors: Teresa M. Djadou,[1] Keat S. Poh,[1] Shlomo Yellinek,[1] Hana Fayazzadeh,[2] Kevin El-Hayek,[2] Conrad H. Simpfendorfer,[3] Steven D. Wexner,[1] *Giovanna DaSilva[1]

1. Department of Colorectal Surgery, Cleveland Clinic Florida, Weston, Florida, USA
2. Cleveland Clinic Foundation, Cleveland, Ohio, USA
3. Department of General Surgery, Cleveland Clinic Florida, Weston, Florida, USA
*Correspondence to DASILVG@ccf.org

Disclosure: The authors have declared no conflicts of interest.

Keywords: Appendiceal cancer, colorectal cancer, cytoreductive surgery (CRS), hyperthermic intraperitoneal chemotherapy (HIPEC), stoma.

BACKGROUND

Cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC) have evolved as promising treatments for patients with peritoneal carcinomatosis. When a concomitant resection is performed, a stoma might be employed in an attempt to mitigate risk of anastomotic leakage. The primary aim of this study was to evaluate the factors regarding the decision making and outcomes of performing a stoma during CRS/HIPEC.

METHODS

An Institutional Review Board (IRB)-approved database from November 2009 to February 2018 was used to identify patients with appendiceal and colorectal cancer whose diagnosis of peritoneal carcinomatosis was suspected or confirmed. The authors divided the sample between two groups of patients: with stoma and without stoma. Comparison was made for demographics, surgical parameters, and postoperative outcomes.

RESULTS

In the study, 110 consecutive patients underwent CRS/HIPEC due to appendiceal or colorectal cancer; a stoma was performed in 32 patients (29.1%) (Table 1). Preoperative factors associated with stoma formation included rectal tumour

(21.9% versus 7.7%; p=0.031), BMI <30 (81.3% versus 58.4%; p=0.023), chemotherapy (78.1% versus 57.7%; p=0.043), hypoalbuminaemia (12.5% versus 2.6%; p=0.036), and peritoneal carcinomatosis index ≥10 (59.4% versus 29.5%; p=0.002). A greater cytoreduction surgery (87.5% versus 32%; p<0.001), residual disease (50.0% versus 20.5%; p=0.002), estimated blood loss (662.5±687.4 versus 250.0±305.6; p<0.001), red blood cell transfusions (43.7% versus 11.5%; p<0.001), multiple small bowel (71.9% versus 34.6%; p<0.001), and multi-visceral resections (59.4% versus 25.6%; p<0.001) were intraoperative factors that significantly led to more stoma formation. Patients with stomas exhibited significantly higher morbidity (Clavien–Dindo class 3 and 4: 25.0% versus 7.7%, 21.9% versus 7.7%, respectively; p=0.017) and mortality (50.0% versus 20.5%; p<0.002).

CONCLUSIONS

Patients with appendiceal or colorectal cancer with higher carcinomatosis burden requiring major CRS and red blood cell transfusions are more likely to have stoma constructed. These patients with stoma could have more morbidity and mortality. However, there is a need for further evaluation of the prognostic significance of these factors, ideally in large prospective trials.

Table 1: Multivariate analysis of perioperative factors associated with stoma formation.

Prognostic Factor	OR	Lower 95% CI	Upper 95% CI	p value
BMI ≥30 kg/m^2	1.136	0.089	1.153	0.082
Albumin <3.5 gr/dL	1.471	0.459	41.322	0.200
Preoperative chemotherapy	0.358	0.360	5.682	0.611
PCI ≥10	0.696	0.617	6.526	0.247
EBL	0.001	0.999	1.002	0.239
Multi-visceral resection	1.522	1.343	15.627	0.015
Small bowel resection	1.674	1.472	19.316	0.011

BMI: body mass index; CI: confidence interval; EBL: estimated blood loss; OR: odds ratio; PCI: peritoneal carcinomatosis index

The 31st International Colorectal Disease Symposium (ICDS), Jerusalem, Israel

Authors: Noam Shussman, Mahmud Abu-Gazala, Ido Mizrahi, Liat Appelbaum, *Alon J. Pikarsky

Hadassah Hebrew University Medical Center, Jerusalem, Israel
*Correspondence to AlonP@hadassah.org.il

Disclosure: The authors have declared no conflicts of interest.

Keywords: Colorectal disease, colorectal surgery, Israel, Jerusalem.

The David G. Jagelman memorial International Colorectal Disease Symposium is an initiative of the Department of Colorectal Surgery at the Cleveland Clinic Florida that has been conducted consecutively for the past three decades. The first meeting took place in 1990 and ever since the Cleveland Clinic Florida has been hosting it annually in Fort Lauderdale, Florida. This annual symposium was originally defined by its chairperson for the past two and a half decades, Prof Steven D. Wexner, as 'a course', and included all invited lectures from leading colorectal surgeons worldwide. In later years, the Department of Colorectal Surgery at Cleveland Clinic Ohio joined this initiative, and in the past few years the symposium has included several free paper sessions. After celebrating the symposium's 30th anniversary in February 2019 in Florida with hundreds of attendees from all around the world, it was decided to continue this annual get-together at another international location biennially and back in Florida intermittently.

During the past 30 years, the Department of Colorectal Surgery at the Cleveland Clinic Florida headed by Dr Wexner has trained many surgeons from all around the world both as research fellows and in clinical positions. A unique group of those were Israeli surgeons who came to Florida following completion of their training in general surgery seeking additional training in colorectal surgery, and whom completed a combined research and clinical 2-year fellowship programme. Given this group of Israeli alumni, it was only natural that the first international colorectal disease symposium outside of the USA was to take place in Israel. Dr Wexner offered this opportunity during the annual Israeli Surgical Association meeting in May 2019, and both the Israeli Surgical Association and the Israeli Society of Colon and Rectal Surgery were understandably happy to accept the offer and host the meeting.

The meeting took place at the David Citadel Hotel overlooking the old city of Jerusalem from 26th–28th February, 2020. Jerusalem was first built 3,000 years ago and was the focus of many historical and religious events. Nowadays it is the Israeli capital and the largest city of the country with a population of approximately 930,000. This city appears in old maps at the centre of the world, and many describe it as a city of overwhelming emotions that promises religious and spiritual experiences. Four-hundred and twenty-seven participants attended the meeting, including 130 Israeli surgeons, 202 surgeons from 36 countries around the globe, and 95 industry representatives. The faculty included 77, of whom 22 were Israeli and 55 international. There was no disputing the number of attendees and variety of countries they arrived from being second-to-none compared to previous surgical conferences that have taken place in Israel in past decades.

The scientific programme comprised 10 plenary sessions and three multidisciplinary panel discussions. Eight of the plenary sessions included invited lectures and two were free paper sessions during which 21 abstracts originating from 10 different countries were presented. A pre-

conference intra-operative fluorescence imaging day preceded the symposium. This day included three plenary sessions from leading surgeons and industry representatives regarding this cutting-edge technology. The organising committee planned the main symposium programme with a major focus for each day: rectal cancer was the focus of the first day, inflammatory bowel diseases was that of the second, and pelvic floor was that of the third. This focus along with the lively multidisciplinary panel discussions proved to be a great success, and raised interest and audience involvement.

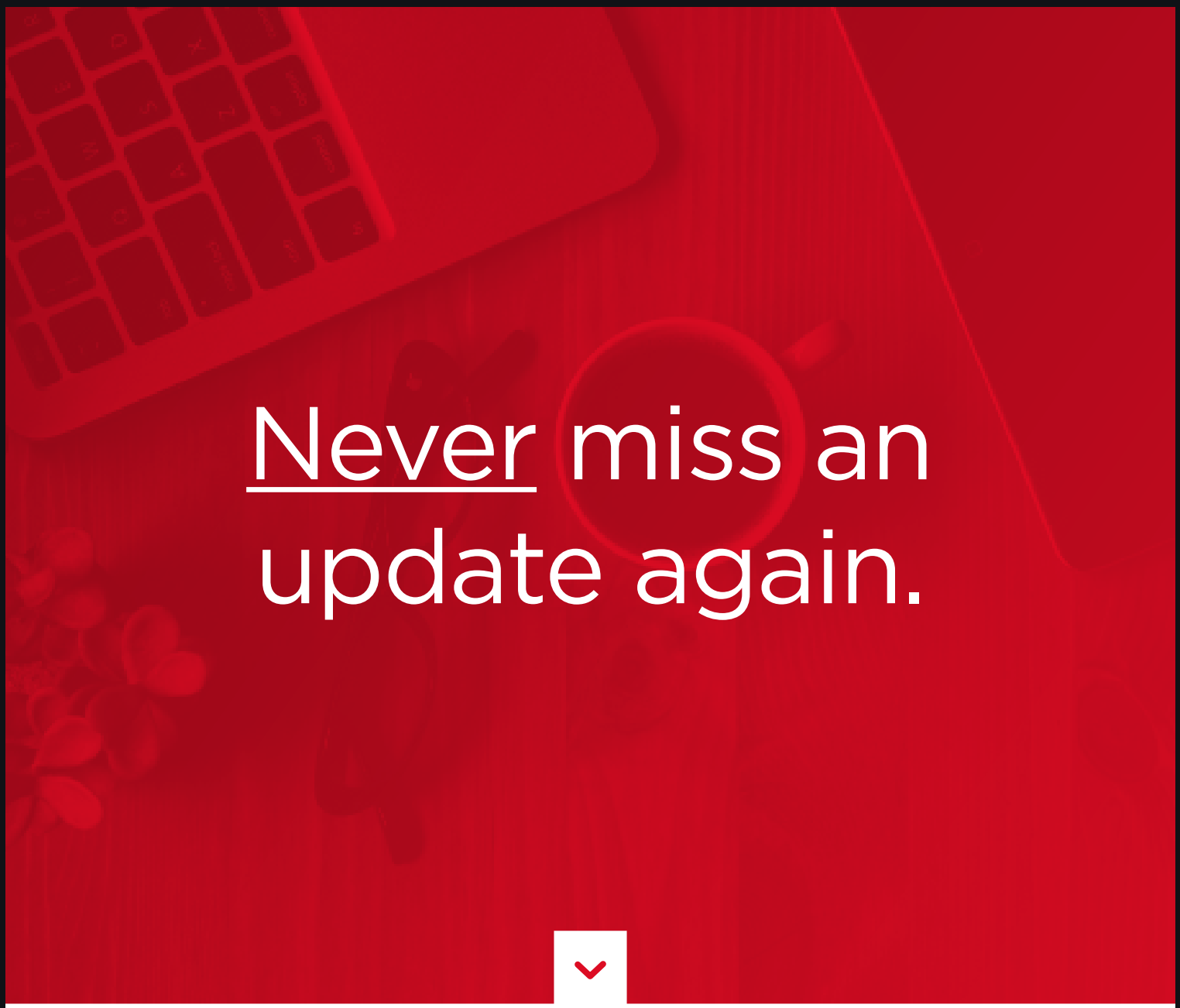
Turning attention to the social aspect, the meeting location at Jerusalem was magical. The close proximity of the venue in walking distance to the Old City along with the perfect weather induced a unique atmosphere. The meeting was the largest of its kind in Israel yet intimate in its international scale, which along with the social events brought people from all around the world together.

The authors anticipate some developments in the field of colorectal surgery and hope that these will be incorporated into the 32nd symposium in Fort Lauderdale, Florida, USA. Intraoperative radiation for recurrent rectal cancer and cancers where it is impossible to achieve an R0 resection is increasingly utilised throughout the world. The growing experience with intraoperative radiation would hopefully benefit patients with advanced rectal cancer. Ergonomics of surgical procedures and their contribution to surgeon safety are also recognised as being extremely important. That may be one of the most important advantages of robotic surgery over laparoscopic surgery. Surveillance of the long-term physical injuries to surgeons from laparoscopic surgery (hand injury, herniated cervical disks) is of vast importance and may affect our future surgical practice.

The coronavirus outbreak has changed the practice of colorectal surgery throughout the world. Lessons have been learned in all facets of the profession: patient and surgeon safety, evacuation of CO_2 following laparoscopy, Zoom™ meetings, changes in medical student education, and follow-up of patients via remote visits. All that may change our perspective of daily practice, even long after the outbreak has ended. Hopefully, in 2021, the 32nd International Colorectal Diseases Symposium will be a great meeting, answering some of these important new debates.

This meeting took place at a unique point in history, when the coronavirus outbreak had reached its peak in the Far East and was starting to evolve in Europe as well. On the last day of the meeting, the Israeli ministry of health issued a recommendation not to travel to international conferences any more nor to hold international conferences in Israel. Luckily, we were able to hold the meeting 'in the last minute' prior to these recommendations coming into force. Soon afterwards, both the European Society of Coloproctology (ESCP) and the American Society of Colon and Rectal Surgeons (ASCRS) cancelled their annual meetings scheduled for later this year. We hope that by 2021 meetings such as ours will be possible once again, and we look forward to the 32nd International Colorectal Disease Symposium in Fort Lauderdale, Florida.

We feel fortunate and grateful having been able to take part in this wonderful educational meeting, most probably the only international colorectal surgery meeting of 2020, in our hometown of Jerusalem, Israel.



Never miss an update again.

Join today for free to receive the latest publications, newsletters, and updates from a host of therapeutic areas.

EMJREVIEWS.COM /SUBSCRIBE