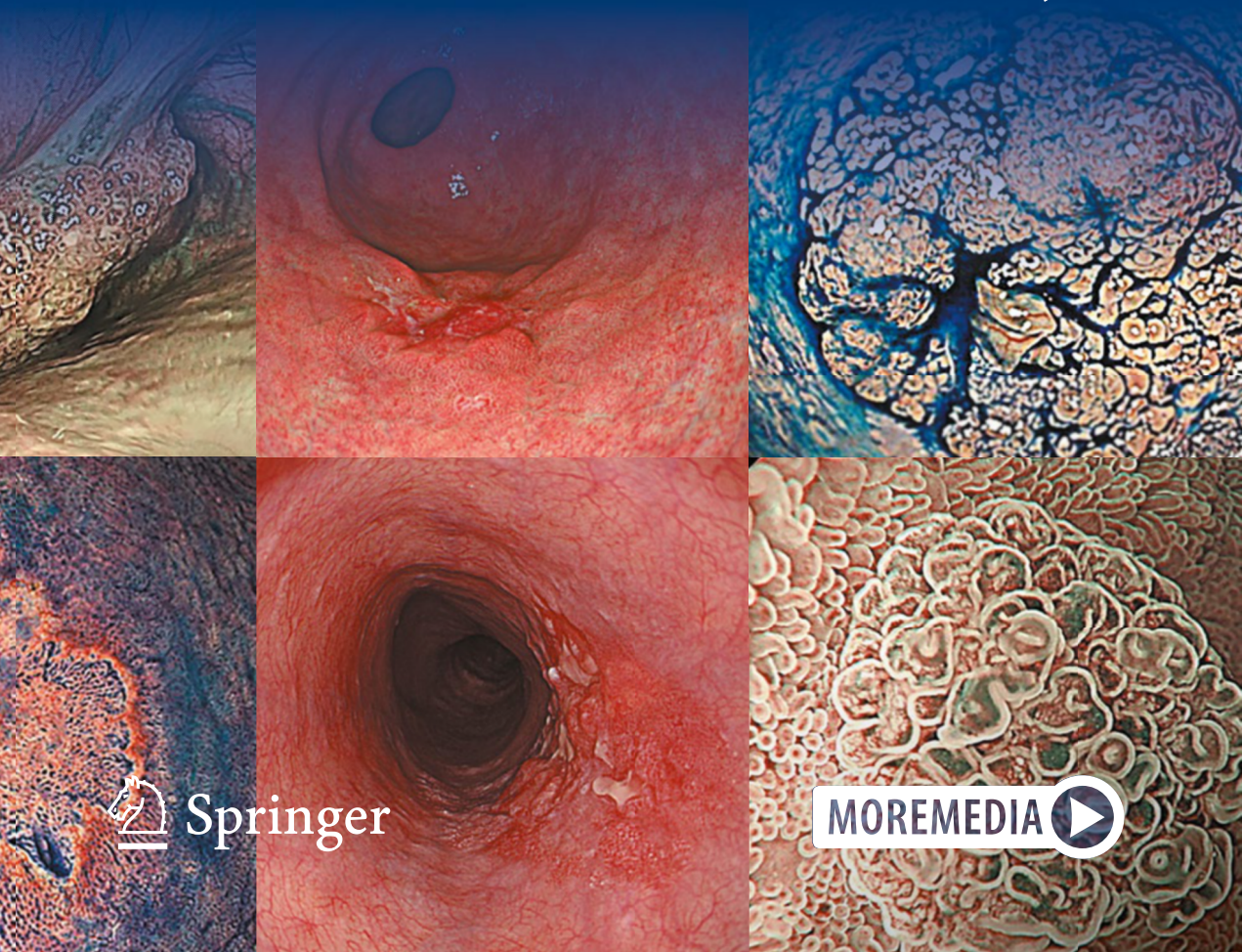
Yasushi Sano
Philip Chiu
Rajvinder Singh
Noriya Uedo
Kenichi Goda
Chikatoshi Katada *Editors*

Atlas of Advanced Endoscopy

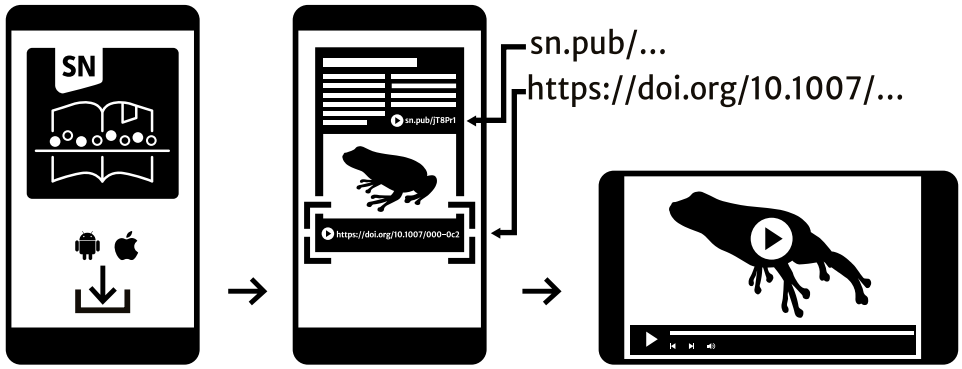


Springer

MOREMEDIA

Atlas of Advanced Endoscopy

Springer Nature More Media App



1. Download **2. Scan Link** **3. Enjoy Video**

Support: customerservice@springernature.com

Yasushi Sano • Philip Chiu • Rajvinder Singh
Noriya Uedo • Kenichi Goda • Chikatoshi Katada
Editors

Atlas of Advanced Endoscopy

Springer

Editors
Yasushi Sano
Gastrointestinal Center
Sano Hospital
Hyogo, Japan

Rajvinder Singh
Department of Gastroenterology
Lyell McEwin Hospital
University of Adelaide
Adelaide, SA, Australia

Kenichi Goda
Gastrointestinal Endoscopy Center
Dokkyo Medical University Hospital
Tochigi, Japan

Philip Chiu
Department of Surgery
Faculty of Medicine, Chinese University
of Hong Kong
Sha Tin, China

Noriya Uedo
Department of Gastrointestinal Oncology
Osaka International Cancer Institute
Osaka, Japan

Chikatoshi Katada
Department of Therapeutic Oncology
Kyoto University Graduate School of
Medicine
Kyoto, Japan

This work contains media enhancements, which are displayed with a "play" icon. Material in the print book can be viewed on a mobile device by downloading the Springer Nature "More Media" app available in the major app stores. The media enhancements in the online version of the work can be accessed directly by authorized users.

ISBN 978-981-97-2731-5 ISBN 978-981-97-2732-2 (eBook)
https://doi.org/10.1007/978-981-97-2732-2

This Springer imprint is published by the registered company Springer Nature Singapore Pte Ltd.
The registered company address is: 152 Beach Road, #21-01/04 Gateway East, Singapore 189721, Singapore

Foreword 1

The only lesion in the world

The globally accepted diagnostic classification of gastrointestinal tumors includes the Japan Esophageal Society (JES) Classification and the BING Classification for the esophagus, the VS Classification/MESDA-G for the stomach, the JNET Classification for the colon, and the Paris Classification for the entire gastrointestinal tract. When finding a lesion, we may think we have made a correct endoscopic diagnosis by classifying the lesion according to these widely accepted classifications. However, there are two problems inherent to this.

The first problem is that classifying lesions is not the goal in itself. We need to classify lesions to understand them better. Relating this to appropriate pathology and treatment after classification is the true diagnosis. Only when utilizing such classification to comprehend pathophysiology of the lesion or relating such classification to treatment, we can say that we have made a correct diagnosis.

Secondly, there are always exceptions to classification. We inevitably try to force a lesion into one of the existing classification categories, which puts us at risk of making a wrong diagnosis. An unclassifiable lesion should be diagnosed as unclassifiable, and the individuality of the unclassifiable lesion can be understood by carefully reading the characteristic findings of the lesion. An appropriate diagnosis should be possible without the classification process in such unclassifiable cases.

The components of the diagnostic classification of gastrointestinal tumors are mainly color tone or staining and changes in surface structure and microvascular architecture. Observing the lesion under conditions that allow optimal determination of these diagnostic factors is essential for appropriate classification. Editor-in-Chief Yasushi Sano and Secretary General Mineo Iwatate have meticulously compiled this world's highest-quality endoscopy atlas. It contains a selection of the best shots from among many shots observed by professional endoscopists under optimal conditions, which were considered most suitable to express the individuality of the lesion in the eyes of a professional. It is the very individuality in the only lesion in the world and a beautiful work of art that reflects highly refined truth.

In recent years, the number of journals publishing case reports as scientific articles has dramatically decreased due to the negative effects of meritocracy based on impact factors and other indicators. All clinical research components are generated based on individual patients and lesions. If each case is inappropriately diagnosed, the clinical data collected from inappropriate individuals will be unreliable. No matter how much state-of-the-art technology like next-generation sequencing or cutting-edge statistical methods like omics analysis is used, the research results will be unreliable, of low quality, and in danger of leading the world in the wrong direction. In endoscopy, which begins with observing, it is crucial to diagnose each case thoroughly, decide on a treatment strategy based on the correct diagnosis, and conduct various studies.

With these reasons in mind, *Atlas of Advanced Endoscopy*, written by members of the ANBIIG, the world's leading photographers and endoscopists, is a must-read for

current and future endoscopists worldwide. Herein, I confidently recommend this endoscopy atlas.

Mitsuhiro Fujishiro
Department of Gastroenterology, Graduate School of Medicine
The University of Tokyo
Tokyo, Japan

Foreword 2

The world's best atlas of endoscopic diagnosis of digestive tract.

Currently, endoscopic diagnosis of the digestive tract is performed using high-resolution videoendoscopy. In addition to white light observation, various technological innovations such as image-enhanced endoscopy, magnifying endoscopy, and endocytoscopy have been developed, and recently, AI/CAD has also become available. Extensive learning and training are essential for the accurate clinical application of international diagnostic classifications, such as the Japan Esophageal Society Classification, the BING Classification for the esophagus, the VS Classification (MESDA-G) for the stomach, the NICE Classification, and the JNET Classification for the colon, and the Paris Classification for the entire digestive tract. While various learning methods exist, listening to excellent lectures multiple times does not necessarily lead to true diagnostic expertise. It is crucial to gain experience through numerous case discussion, particularly under the guidance of competent clinical and pathological instructors, using invaluable cases and their high-quality endoscopic images. The comparison between endoscopic and pathological images is the most critical process during an effective learning method. Understanding how endoscopic findings are formed based on pathological tissue structures leads to diverse applications to various clinical cases. Learning with low-quality endoscopic images does not improve diagnostic ability. The *Atlas of Advanced Endoscopy*, the world's best atlas of endoscopic diagnosis, is now available. This issue, under the leadership of Editor-in-Chief Yasushi Sano and Secretary General Mineo Iwatate, with experts mainly from The Asian Novel Bio-Imaging and Intervention Group (ANBIIG), provides sufficient comparison with the highest-quality endoscopic and pathological images (histological structures) and commentary including tips on diagnostic procedures. This atlas is highly beneficial to supplement individual case experience and apply to clinical case discussions.

Recently, in the era of AI/CAD, standardized images such as X-ray, CT, MRI, and pathological images can be simply evaluated by AI; however, endoscopic images are entirely different. Endoscopic image quality varies greatly depending on the endoscopist's skill level. Endoscopists can only take high-quality images if they can control various challenging situations such as folds, flexures, and blind spots and conditions such as endoscopic operability, colonic preparation (residues, mucus) quality, observation angles for lesions, distance from lesions, focus, air volume during observation, and light intensity (halation). To achieve correct endoscopic diagnosis with AI/CAD, we must be aware that sufficient skill level of individual endoscopists is required. This atlas can also help learn what kind of endoscopic images should be captured for efficient AI diagnosis.

Finally, various endoscopic techniques, classifications, and the emergence of AI/CAD have brought many learning opportunities in the endoscopic diagnosis of the digestive tract. I express my respect and gratitude to Editor-in-Chief Yasushi Sano and Secretary-General Mineo Iwatate for publishing this timely *Atlas of Advanced Endoscopy* and to the many experts for providing variable clinical cases with detailed

explanation and reviews. I sincerely hope this atlas becomes the bible for endoscopists worldwide to elevate the global level of endoscopic diagnosis of the digestive tract and contributes to as many endoscopists as possible.

Shinji Tanaka
Japan Gastroenterological Endoscopy Society (JGES)
Tokyo, Japan

Omichi General Hospital, Onomichi
Hiroshima, Japan

Hiroshima University
Hiroshima, Japan

Foreword 3

Recently, with regard to endoscopic diagnosis of the gastrointestinal tract, a perceptible discordance of diagnostic quality has emerged between Japan and the Western world, particularly the United States. It is as if these two worlds now occupy disparate spheres. On occasion, Western researchers express bemusement regarding the detailed Japanese approach to endoscopy, deeming it excessively thorough and akin to a pastime. What led to this significant divergence of endoscopic diagnosis between Japan and the West? This disparity may be attributable to the distinct developmental trajectories of endoscopic diagnosis in Japan and the West.

Gastrointestinal endoscopic diagnosis in Japan traces its lineage back to the deployment of gastric cameras, which captured images of the stomach without direct observation. Consequently, the fundamental diagnostic procedure involved painstaking interpretation of the captured images, including areas beyond the primary target, much akin to the interpretation of X-ray images. In contrast, the Western approach, commencing with fiber endoscopes, prioritized observation, relegating image capture to specific findings. This initial divergence likely played a pivotal role in shaping subsequent diagnostic methodologies. With its recorded images, the Japanese approach facilitated retrospective diagnosis and fostered extensive feedback, including discussions on missed early cancerous findings and their associated features. This made it possible to investigate the significance of more detailed findings as a viable research agenda, along with advances in biopsy diagnosis. Undoubtedly, the increased incidence of gastric and colorectal cancer in Japan contributed to the evolution of this meticulous approach to diagnosis. Nevertheless, the consensus among Japanese endoscopists regarding the importance of recording—viewing it not as a burden but as an essential element—elevated endoscopic diagnosis to the status of photographic art.

Another hallmark of Japanese-style endoscopic diagnosis is its synergy with pathologists. Interpretation of fine endoscopic details based on a one-to-one comparison with corresponding pathological results from biopsies or resected specimens became the gold standard. The enthusiasm of endoscopists to reveal the true nature of diseases drove them to demand more detailed diagnostic modalities, leading to the development of dye endoscopy, magnifying endoscopy, image-enhanced endoscopy (IEE), and endocytoscopy (endoscopic microscopy).

This atlas embodies the goal of detailed endoscopic diagnosis, striving to clarify the intrinsic nature of gastrointestinal lesions and provide the highest-quality cases within the novel diagnostic field of "endoscopic pathology." While specific technical terminology and interpretations may pose challenges for Western endoscopists, the cases presented herein unquestionably represent the various ways in which endoscopy can be a valuable tool for diagnosis of gastrointestinal lesions.

As mentioned at the outset, it is acknowledged that various criticisms have been leveled at this Japanese-style painstaking approach to endoscopy, akin to questioning the rationale for high-speed bullet trains. The history of high-speed rail travel can be traced back to Japan's Shinkansen in 1964, followed by the TGV in France (1981) and the ICE in Germany (1991). While these high-speed railroad systems have now become commonplace in numerous European countries, their value has yet to be

fully embraced in the United States. In other words, the development of a high-speed railroad necessitates substantial technological, labor, and capital investment (Japan National Railways received a significant loan from the World Bank). However, once established, their utility becomes an everyday fixture, and high-speed travel is no longer perceived as extraordinary.

With these reflections in mind, I conclude this foreword, expressing the hope that detailed endoscopy, in pursuit of more accurate endoscopic pathology, will become commonplace in Japan and elsewhere worldwide, and that readers will better appreciate the dedication of endoscopists to reveal in greater detail the nature of gastrointestinal lesions.

Shigeaki Yoshida
Aomori Prefectural Hospital Administration
Aomori, Japan

Preface

To the readers,

I would like to express my sincere gratitude to you for picking up and reading this book.

This book is a collaborative work by the top experts in the field of gastrointestinal endoscopy in the Asia-Pacific region, and I am proud that it was published in a timely manner. We created this endoscopy atlas to provide the latest knowledge on the classification, diagnosis, and treatment in gastrointestinal endoscopy fields, and to provide contents that can be immediately useful in clinical practice.

1.1 Project Background

Last year, in 2022, we agreed to publish an atlas of advanced endoscopy using new endoscopic technologies, mainly with members of The Asian Novel Bio-Imaging and Intervention Group (ANBIIG, URL: ▶ https://anbig.org/), which was originally formed under the leadership of Koji Fujio (Olympus). After several rounds of communication with Springer Publishing, we officially signed a publishing agreement. In producing this book, over 90 experts from the Asia-Pacific region in the fields of pharynx, esophagus, stomach, duodenum, colon, and anorectum agreed to write this book. Despite the very short period of manuscript writing, the generous cooperation of the authors made it possible to create the rich content of this book. I would like to thank them again for their enthusiasm and contribution.

1.2 Japanese-Style Endoscopic Photo-Documentation

I have been involved in the production of international atlases in the past, but unfortunately, there was no book that I was satisfied with all the endoscopic photos. One reason for this is that when it comes to international co-authorship, there are problems with deadlines, languages, and differences in thinking, and often the uniqueness and beauty of Japanese-style endoscopic photography are not fully shared and expressed. However, in this project, we overcame the international barriers by communicating closely with the authors and reviewing all the endoscopic photos ourselves, and sometimes asking for resubmission. We were able to complete a book that shows the true beauty of Japanese-style endoscopic photos to the world. I am confident that this book symbolizes the fusion of Japanese-style endoscopic aesthetics and endoscopic medicine.

1.3 Endoscopy and Artificial Intelligence (AI)

In an era where AI technology is rapidly spreading, endoscopy atlases may be considered outdated. However, even when AI becomes widely used, if you cannot accurately capture lesions and take beautiful photos of areas of interest, you will not be

able to obtain AI-assisted diagnosis. I would like you to take a look at the section on AI overview and how to take beautiful photos in this book and understand its importance. Perhaps this excellent atlas of endoscopic photos and videos produced by members from the Asia-Pacific region will retain its value for the next 10 years. I leave this book as a testament to the excellent photography techniques of our predecessors for future generations. I hope you enjoy the beautiful photos in this book.

Finally, without the dedicated cooperation of my respected doctors and friends who are editors, and my colleagues at Sano Hospital, it would have been impossible to publish this book in such a short period. I am truly grateful. I hope that this atlas will become an essential book in endoscopy rooms around the world and contribute to the development of the endoscopy field. Let us continue to move forward for the future endoscopy and contribute to the health and happiness of the patients.

Thank you very much.

Yasushi Sano, MD, PhD
Chairman, The Asian Novel Bio-Imaging and Intervention Group

Clinical Professor, Kansai Medical University, Osaka, Japan

Director, Gastrointestinal Center, Sano Hospital, Hyogo, Japan

Contents

Editors and Contributors

1.1 About the Editors

Yasushi Sano
is a Clinical Professor at Kansai Medical University as well as the Director of Gastrointestinal Center at Sano Hospital, Kobe, Japan. He is one of the world leaders in the field of diagnostic and therapeutic colonoscopy. He has presented many lectures regarding image-enhanced endoscopy (IEE) technique and demonstrated endoscopy live with EMR/ESD technique at several countries. He skillfully uses magnifying colonoscopy with advanced imaging technique. He has published more than 180 peer-reviewed manuscripts and 9 book chapters. He is a member of several advisory boards including Gastroenterological Endoscopy (JGES, JGA, Japan), Gastrointestinal Endoscopy (GIE, USA), and Chairman of Asian Novel Bio-Imaging and Intervention Group (ANBIIG). He has participated in more than 230 workshops/symposiums across various countries.

Philip Chiu
is Professor of Division of Upper GI and Metabolic Surgery, Department of Surgery, Director of Multi-Scale Medical Robotics Center, Director of Endoscopy Center, Institute of Digestive Disease and Director of CUHK Chow Yuk Ho Technology Center for Innovative Medicine and Dean (External Affairs), Faculty of Medicine, Chinese University of Hong Kong. He is the first to perform ESD for treatment of early GI cancers in Hong Kong in 2004. In 2010, he performed the first peroral endoscopic myotomy (POEM) in Hong Kong as well as pioneered the world first robotic gastric ESD in 2011, followed by the world first robotic colorectal ESD in 2020. His research interests include esophageal cancer management, minimally invasive and robotic esophagectomy, novel endoscopic technologies for diagnosis of early GI cancers, endoscopic surgery as well as robotics for endoluminal surgery. He has published more than 370 peer-reviewed manuscripts and 6 book chapters. He is currently co-editor of endoscopy and subject editor for surgical endoscopy.

Rajvinder Singh
is a Professor of Medicine with the University of Adelaide and the Director of Gastroenterology at the Lyell McEwin and Modbury Hospitals, South Australia. He is an Editorial Board member of Clinical Endoscopy and past Editorial Board member of Endoscopy, Digestive Endoscopy, and Endoscopy International Open. He has an h-index of 41. He has authored more than 150 publications and book chapters on advanced endoscopic mucosal imaging and resection techniques. He has been involved in various committees drafting national and international guidelines on this subject. He was the past chair of the Australian Gastrointestinal Endoscopic Association (AGEA). He is frequently invited to conduct Basic and Advanced Endoscopy Workshops and has participated in more than 200 workshops/symposiums across various countries.

Noriya Uedo
is a Vice-Director, Department of Gastrointestinal Oncology, Osaka International Cancer Institute. He graduated from the School of Medicine, Kagoshima University, in 1992 and started his training in gastrointestinal oncology and endoscopy in the current institution from 1994. He is a Councilor of several Japanese medical societies. He is serving as a Visiting Professor in Fukuoka University Chikushi Hospital and used to serve as a Visiting Professor in Lund University, Malmö University Hospital, and Chinese PLA General Hospital.

Kenichi Goda
graduated from National Defense Medical College in 1993. He is a gastroenterologist specialized in gastrointestinal endoscopy and the Professor and Director of Gastrointestinal Endoscopy Center of Dokkyo Medical University Hospital. He is the chairperson-elect of Barrett's esophagus society of Japan. He has more than 90 peer-reviewed international publications and has delivered numerous oral and poster presentations in numerous international meetings. He has received awards of Distinguished Paper Award of Japan Gastroenterological Endoscopy Society 2004 and Distinguished Presentation of JDDW 2012.

Chikatoshi Katada
graduated from Kitasato University School of Medicine in 1998. From 2001 to 2005, he worked at National Cancer Center Hospital East. From 2005 to 2022, he worked at Kitasato University Hospital. From 2018 to 2019, he participated in the visiting clinician program at Mayo Clinic. From 2022 to the present, he worked at Kyoto University Hospital. He has more than 120 peer-reviewed international publications and has delivered numerous presentations in international meetings. His areas of expertise are clinical research on carcinogenesis and prevention of alcohol-related cancers of the esophagus and head and neck. Therefore, he is well versed in the endoscopic diagnosis and treatment of cancers arising in this area.

1.2 About the Contributors

Mitsuhiro Fujishiro
was born in Toyohashi city, Aichi prefecture, Japan in 1970. He graduated from the School of Medicine, The University of Tokyo, in 1995. After finishing 2 years of training as a general internist, he became a resident of Endoscopy Division and Department of Gastroenterology, National Cancer Center Hospital, Tokyo, to learn fundamental skills of diagnostic and therapeutic GI endoscopy, especially endoscopic submucosal dissection (ESD). He returned to The University of Tokyo in 2000 as a graduate student at the Department of Gastroenterology and intensively investigated innovation of ESD, especially in injection solution and endoscopic electrocautery device and got a PhD in 2004. He became an Assistant Professor at the Department of Gastroenterology in 2005, an Associate Professor at the Department of Endoscopy and Endoscopic Surgery in 2009. In the meantime, he established the clinical application of ESD, while educating young endoscopists at The University of Tokyo. Recognized for his achievements, he became a Professor at the Department of Gastroenterology and Hepatology, Nagoya University Graduate School of Medicine in January 2019. In July 2021, he became a visiting professor at Nagoya University and a professor at the Department of Gastroenterology, The University of Tokyo, to further advance research and education in the wide field of gastroenterology with his colleagues. He is a director of the Japanese Society of Internal Medicine and the Japan Gastroenterological Endoscopy Society and a councilor of the Japanese Society of Gastroenterology. He is a board-certified specialist in these scientific societies. He also serves as a director of the Asian Pacific Digestive Week Federation and a councilor of the Asian Pacific Society of Digestive Endoscopy. He is primarily interested in endoscopic diagnosis and treatment for early-stage GI neoplasms, having more than 550 English publications and more than one hundred times of foreign invitations.

Shinji Tanaka, MD, PhD, FJGES, FASGE
is President of JA Onomichi General Hospital; he is a Professor Emeritus, Hiroshima University. He serves as a visiting professor of Gastroenterology at the Graduate School of Biomedical and Health Sciences, Hiroshima University. He graduated from Hiroshima University School of Medicine in 1984. Dr. Tanaka served as Associate Professor at the Department of Endoscopy, Hiroshima University Hospital in 1998. He also serves as Professor at the Department of Endoscopy, Hiroshima University Hospital and Endoscopy and Medicine, Graduate School of Biomedical and Health Sciences, Hiroshima University in 2007. He became President at JA Onomichi General Hospital in 2023. Dr. Tanaka is President of the Japan Gastroenterological Endoscopy Society (JGES), Board Certified Trainer; President of the Japanese Association for Capsule Endoscopy (JACE), Board Certified Trainer; Executive councilor of the Japanese Society of Gastroenterology (JSGE), Board Certified Trainer; Executive of the Japanese Society for Cancer of the Colon and Rectum (JSCCR), etc.

Shigeaki Yoshida
graduated from the Faculty of Medicine at Hokkaido University in 1971. After working at NCCH as Head of the GI Endoscopy Division (1985–1995), he moved to NCCHE as Head of the Division of Endoscopy and GI Oncology (1992–1995), Deputy Director (1995–2004), and Director (2004–2007). He has inspired and trained many world-renowned endoscopists with leading global endoscopy innovations such as NBI. In 2007, he became the Chief Executive Officer of the Aomori Prefectural Hospital Administration and has worked to balance administration and community healthcare, focusing on cancer control.

1.3 Contributors

Seiichiro Abe Endoscopy Division, National Cancer Center Hospital, Tokyo, Japan

Yoichi Akazawa Department of Gastroenterology, Juntendo University School of Medicine, Tokyo, Japan

Tiing Leong Ang Department of Gastroenterology and Hepatology, Changi General Hospital, Singapore, Singapore

Amol Bapaye Shivanand Desai Center for Digestive Disorders, Deenanath Mangeshkar Hospital & Research Center, Pune, India

Naresh Bhat Department of Gastroenterology, Hepatology and Clinical Nutrition, Aster CMI Hospital, Bengaluru, India

Patricia Anne I. Cabral-Prodigalidad Institute of Digestive and Liver Diseases, St Luke's Medical Center Global City, Taguig, Philippines

Philip Chiu Department of Surgery, Faculty of Medicine, The Chinese University of Hong Kong, Shatin, NT, Hong Kong SAR, China

Jonard T. Co Institute of Digestive and Liver Diseases, St Luke's Medical Center Global City, Taguig, Philippines

Hisashi Doyama Department of Gastroenterology, Ishikawa Prefectural Central Hospital, Kanazawa, Ishikawa, Japan

Takahiro Fujii Takahiro Fujii Clinic, Tokyo, Japan

Takahiro Fujimori Department of Pathology, Sano Hospital, Kobe, Hyogo, Japan

Mikio Fujita Gastrointestinal Center, Sano Hospital, Kobe, Hyogo, Japan

Yasuaki Furue Department of Gastroenterology, Kitasato University School of Medicine, Sagamihara, Kanagawa, Japan

Kenichi Goda Gastrointestinal Endoscopy Center, Dokkyo Medical University Hospital, Tochigi, Japan

Santa Hattori Gastrointestinal Center, Sano Hospital, Kobe, Hyogo, Japan

Hirokazu Higuchi Department of Medical Equipment, Kyoto University Hospital, Kyoto, Japan

Toshiaki Hirasawa Department of Gastroenterology, Cancer Institute Hospital, Tokyo, Japan

Daizen Hirata Gastrointestinal Center, Sano Hospital, Kobe, Hyogo, Japan

Shiaw-Hooi Ho Department of Medicine, Faculty of Medicine, Universiti Malaya, Kuala Lumpur, Malaysia

Hiroaki Ikematsu Division of Advanced Gastroenterology and Endoscopy, The Institute of Medical Science, The University of Tokyo, Tokyo, Japan

Kenichiro Imai Division of Endoscopy, Shizuoka Cancer Center, Shizuoka, Japan

Haruhiro Inoue Digestive Diseases Center, Showa University Koto Toyosu Hospital, Tokyo, Japan

Kazuyuki Ishida Department of Diagnostic Pathology, Dokkyo Medical University, Tochigi, Japan

Mineo Iwatate Gastrointestinal Center, Sano Hospital, Kobe, Hyogo, Japan

Takao Kanemitsu Department of Endoscopy, Fukuoka University Chikushi Hospital, Fukuoka, Japan

Takashi Kanesaka Department of Gastrointestinal Oncology, Osaka International Cancer Institute, Osaka, Japan

Koichi Kano Department of Otorhinolaryngology, Head and Neck Surgery, Kitasato University School of Medicine, Sagamihara, Kanagawa, Japan

Hiroshi Kashida Department of Gastroenterology and Hepatology, Kindai University, Osaka-Sayama, Osaka, Japan

Chikatoshi Katada Department of Therapeutic Oncology, Kyoto University Graduate School of Medicine, Kyoto, Japan

Motohiko Kato Center for Diagnostic and Therapeutic Endoscopy, Keio University, School of Medicine, Tokyo, Japan

Takuji Kawamura Department of Gastroenterology, Kyoto Second Red Cross Hospital, Kyoto, Japan

Supakij Khomvilai Colorectal Surgery Division and Surgical Endoscopy, Department of Surgery, Chulalongkorn University, Bangkok, Thailand

Daisuke Kikuchi Department of Gastroenterology, Toranomon Hospital, Tokyo, Japan

Masaaki Kobayashi Department of Gastroenterology, Niigata Cancer Center Hospital, Niigata, Japan

Nozomu Kobayashi Endoscopy Division, National Cancer Center Hospital, Tokyo, Japan

Shin-ei Kudo Digestive Disease Center, Showa University Northern Yokohama Hospital, Yokohama, Kanagawa, Japan

Wataru Kurihara Department of Gastroenterology, Cancer Institute Hospital, Tokyo, Japan

Louis H. S. Lau Department of Medicine and Therapeutics, Faculty of Medicine, The Chinese University of Hong Kong, Shatin, NT, Hong Kong SAR, China

Ching-Tai Lee Department of Gastroenterology, E-Da Hospital and I-Shou University, Kaohsiung City, Taiwan

James Weiquan Li Department of Gastroenterology and Hepatology, Changi General Hospital, Singapore Health Services, Simei, Singapore

Noriko Matsuura Division of Research and Development for Minimally Invasive Treatment, Cancer Center, Keio University School of Medicine, Tokyo, Japan

Masashi Misawa Digestive Disease Center, Showa University Northern Yokohama Hospital, Yokohama, Kanagawa, Japan

Kurato Miyazaki Division of Gastroenterology and Hepatology, Department of Internal Medicine, Keio University, School of Medicine, Tokyo, Japan

Yasuhiko Mizuguchi Endoscopy Division, National Cancer Center Hospital, Tokyo, Japan

Makoto Naganuma Third Department of Internal Medicine, Kansai Medical University, Hirakata, Osaka, Japan

Shigenori Nagata Department of Diagnostic Pathology and Cytology, Osaka International Cancer Institute, Osaka, Japan

Shinji Nagata Department of Gastroenterology, Hiroshima City North Center Asa Citizens Hospital, Hiroshima, Japan

Keiichiro Nakajo Department of Gastroenterology and Endoscopy, National Cancer Center Hospital East, Kashiwa, Chiba, Japan

Shiro Oka Department of Gastroenterology, Hiroshima University Hospital, Hiroshima, Japan

Hiroyuki Ono Division of Endoscopy, Shizuoka Cancer Center, Shizuoka, Japan

Tsuneo Oyama Department of Endoscopy, Saku Central Hospital Advanced Care Center, Nagano, Japan

Rapat Pittayanon Division of Gastroenterology, Department of Medicine, Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital, The Thai Red Cross Society, Bangkok, Thailand

Yutaka Saito Endoscopy Division, National Cancer Center Hospital, Tokyo, Japan

Wataru Sano Gastrointestinal Center, Sano Hospital, Kobe, Hyogo, Japan

Yasushi Sano Gastrointestinal Center, Sano Hospital, Kobe, Hyogo, Japan
Kansai Medical University, Hirakata, Osaka, Japan

Stefan Seewald Centre of Gastroenterology, Hirslanden Clinic, Zurich, Switzerland

Kenjiro Shigita Department of Gastroenterology, Hiroshima City North Center Asa Citizens Hospital, Hiroshima, Japan

Yuto Shimamura Digestive Diseases Center, Showa University Koto Toyosu Hospital, Tokyo, Japan

Kensuke Shinmura Department of Gastroenterology and Endoscopy, National Cancer Center Hospital East, Kashiwa, Japan

Kazuo Shiotsuki Department of Gastroenterology (Endoscopy), Kanagawa Cancer Center, Yokohama, Kanagawa, Japan

Rajvinder Singh Department of Gastroenterology, The Lyell McEwin Hospital and University of Adelaide, Adelaide, SA, Australia

Naoki Sugimura Gastrointestinal Center, Sano Hospital, Kobe, Hyogo, Japan

Kazuki Sumiyama Department of Endoscopy, The Jikei University School of Medicine, Tokyo, Japan

Hisao Tajiri World Endoscopy Organization (WEO), The Jikei University School of Medicine, Tokyo, Japan

Kaoru Takabayashi Center for Diagnostic and Therapeutic Endoscopy, Keio University, Tokyo, Japan

Hiroyuki Takamaru Endoscopy Division, National Cancer Center Hospital, Tokyo, Japan

Masafumi Takatsuna Division of Gastroenterology and Hepatology, Nagaoka Red Cross Hospital, Niigata, Japan

Manabu Takeuchi Division of Gastroenterology and Hepatology, Nagaoka Red Cross Hospital, Niigata, Japan

Yoji Takeuchi Department of Gastroenterology and Hepatology, Gunma University Graduate School of Medicine, Maebashi, Gunma, Japan

Kohei Takizawa Department of Gastroenterology (Endoscopy), Kanagawa Cancer Center, Yokohama, Kanagawa, Japan

Naoto Tamai Department of Endoscopy, The Jikei University School of Medicine, Tokyo, Japan

Hidenori Tanaka Department of Gastroenterology, Hiroshima University Hospital, Hiroshima, Japan

Shinji Tanaka Omichi General Hospital, Onomichi, Hiroshima, Japan

Chin Kimg Tan Department of Gastroenterology and Hepatology, Changi General Hospital, Singapore, Singapore

Jin Lin Tan Department of Gastroenterology, The Lyell McEwin Hospital and University of Adelaide, Adelaide, Australia

Jun Liang Teh Department of Surgery, Ng Teng Fong General Hospital, National University Health System, Jurong East, Singapore

Akira Teramoto Department of Gastroenterology and Hepatology, Royal Brisbane and Women's Hospital, Herston, QLD, Australia

Kasenee Tiankanon Division of Gastroenterology, Department of Medicine, Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital, The Thai Red Cross Society, Bangkok, Thailand

Shigetsugu Tsuji Department of Gastroenterology, Ishikawa Prefectural Central Hospital, Kanazawa, Ishikawa, Japan

Kunihisa Uchita Department of Gastroenterology, Kochi Red Cross Hospital, Kochi, Japan

Noriya Uedo Department of Gastrointestinal Oncology, Osaka International Cancer Institute, Osaka, Japan

Hiroya Ueyama Department of Gastroenterology, Juntendo University School of Medicine, Tokyo, Japan

Takeshi Uozumi Endoscopy Division, National Cancer Center Hospital, Tokyo, Japan

Lai Mun Wang Department of Anatomical Pathology, Changi General Hospital, Singapore, Singapore

Wen-Lung Wang Department of Gastroenterology, E-Da Hospital and I-Shou University, Kaohsiung City, Taiwan

Tomonori Yano Department of Gastroenterology and Endoscopy, National Cancer Center Hospital East, Kashiwa, Chiba, Japan

Kenshi Yao Department of Endoscopy, Fukuoka University Chikushi Hospital, Chikushino, Japan

Hon Chi Yip Department of Surgery, Faculty of Medicine, The Chinese University of Hong Kong, Shatin, NT, Hong Kong SAR, China

Masao Yoshida Division of Endoscopy, Shizuoka Cancer Center, Shizuoka, Japan

Shigeaki Yoshida Aomori Prefectural Hospital Administration, Aomori, Japan

Edward Young Department of Gastroenterology, The Lyell McEwin Hospital and University of Adelaide, Adelaide, SA, Australia

Ni Yunbi Department of Anatomical and Cellular Pathology, Faculty of Medicine, The Chinese University of Hong Kong, Shatin, NT, Hong Kong SAR, China

Review-X1 System

Contents