

# Atlas of Early Neoplasias of the Gastrointestinal Tract

Frieder Berr • Tsuneo Oyama  
Thierry Ponchon • Naohisa Yahagi  
Editors

# Atlas of Early Neoplasias of the Gastrointestinal Tract

Endoscopic Diagnosis and Therapeutic  
Decisions

Second Edition

 Springer

*Editors*

Frieder Berr  
Department of Internal Medicine I  
Paracelsus Medical University  
Salzburg  
Austria

Thierry Ponchon  
Department of Digestive Diseases  
Hôpital Eduard Herriot  
Lyon  
France

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

Naohisa Yahagi  
Division of Research and Development  
for Minimally Invasive Treatment  
Cancer Center  
Keio University School of Medicine  
Shinjuku-ku  
Tokyo  
Japan

ISBN 978-3-030-01113-0      ISBN 978-3-030-01114-7 (eBook)  
<https://doi.org/10.1007/978-3-030-01114-7>

Library of Congress Control Number: 2019930836

© Springer International Publishing 2019

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors, and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, express or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG  
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

*This book is dedicated to all colleagues who strive for proficiency in image-enhanced endoscopic analysis of early gastrointestinal cancers. Accurate endoscopic staging of superficial neoplasias results in correct indications for appropriate resection technique and serves the best interest of the patients.*

*Salzburg, August 15, 2018*

*The Editors*

# Preface

## **“State-of-the-art endoscopic skills best serve the patient”**

Since the first edition of this endoscopy atlas and compendium of indications, endoscopic en bloc resection based on ESD techniques has proven equally curative for the resection of early GI cancers as major resective surgery. And the techniques are now refined for ESD of early cancer as well as for endoscopic tunneling resection of symptomatic or pre-/malignant early intramural tumors. Consequently, some Western guidelines have adopted the principle of endoscopic en bloc resection of malignant appearing GI neoplasias, whereas others still adhere to piecemeal snaring techniques for early cancer in Barrett’s esophagus or colorectum – assigning diagnostic competence exclusively afterward to the histopathologist.

In the last decade, a network of pioneering referral centers throughout Western countries has reported on implementation of ESD technique. And the endoscopic electrosurgical performance – as taken by high rates of en bloc resection and low rates of emergency surgery and mortality – are nearly approaching East Asian standards. However, the rates of curative resection by ESD still lag behind East Asian standards due mainly to poor prediction of submucosal invasion and less to inadequate delineation of lateral margins or multiple foci of early cancer.

The updated and slightly extended second edition of this atlas on early GI neoplasias *aims* to increase *detection* of pre-/malignant neoplasias in the earliest stage, predict the *tumor category* with high accuracy, and *make the indication* for the least invasive curative resection technique based on this diagnosis. An effort is needed to accomplish professionalism and best serve the patients. The learning curve to professional image-enhanced endoscopy and accurate endoscopic diagnosis of early GI

cancers may take up to 2 years, until the technique becomes a rapid and accurate routine procedure. We publish this atlas and compendium for those who strive to accomplish state-of-the-art endoscopic diagnosis and treatment of early GI neoplasias.

Salzburg, Austria  
Saku, Nagano, Japan  
Lyon, France  
Shinjuku-ku, Tokyo, Japan  
August 20, 2018

Frieder Berr  
Tsuneo Oyama  
Thierry Ponchon  
Naohisa Yahagi

# Acknowledgments

The special thanks of the editors and authors go to all who have relentlessly contributed to the text and figures of the book, in particular Dr. Tobias Kiesslich of Salzburg and Dr. Akiko Takahashi of Nagano, as well as to the staff of Springer US, Clinical Medicine publishers, especially Mr. Andy Kwan and Mr. Richard Hruska, senior editor, Clinical Medicine.

Salzburg, August 15, 2018

The editors

# Contents

<b>Part I General Principles of Endoscopy for Early Gastrointestinal Neoplasias</b>	
<b>1</b>	<b>Endoscopic Detection and Analysis of Mucosal Neoplastic Lesions: Enhanced Imaging and Tumor Morphology . . .</b> 3
	Frieder Berr, Thierry Ponchon, and Toshio Uraoka
<b>2</b>	<b>Histopathology of Early Mucosal Neoplasias: Morphologic Carcinogenesis in the GI Tract . . . . .</b> 25
	Daniel Neureiter and Tobias Kiesslich
<b>3</b>	<b>Principles of Endoscopic Resection: Diagnostic and Curative Resection of Mucosal Neoplasias . . . . .</b> 47
	Tsuneo Oyama and Naohisa Yahagi
<b>4</b>	<b>Subepithelial Gastrointestinal Tumors: Diagnosis and Indications for Resection . . . . .</b> 63
	Frieder Berr, Jürgen Hochberger, and Tsuneo Oyama
<b>5</b>	<b>High-Resolution Endoscopic Ultrasound: Clinical T-Staging of Superficial and Subepithelial Gastrointestinal Neoplasias . . . . .</b> 79
	Hans Seifert, Daisuke Kikuchi, and Naohisa Yahagi
<b>6</b>	<b>Endoscopic Screening and Surveillance: Indications and Standards . . . . .</b> 101
	Thierry Ponchon, Frieder Berr, and Tsuneo Oyama



**Part II Organ-Specific Endoscopic Analysis of Early Neoplasias**

**7 Squamous Cell-Lined Esophagus and Hypopharynx:  
Mucosal Neoplasias** ..... 121  
Tsuneo Oyama

**8 Columnar Epithelium-Lined (Barrett’s) Esophagus:  
Mucosal Neoplasias** ..... 149  
Pierre H. Deprez and Takashi Toyonaga

**9 Stomach: Mucosal Neoplasias** ..... 175  
Tsuneo Oyama

**10 Duodenum and Small Bowel: Mucosal Neoplasias** ..... 223  
Motohiko Kato, Naohisa Yahagi, and Thierry Ponchon

**11 Colorectum: Mucosal Neoplasias** ..... 241  
Andrej Wagner, Tadateru Maehata, Frieder Berr,  
and Naohisa Yahagi

**12 Chronic Inflammatory Bowel Disease in Remission:  
Mucosal Neoplasias** ..... 291  
Naohisa Yahagi, Tadateru Maehata, and Atsushi Nakayama

**Appendix: Terminology** ..... 307

**Index** ..... 311

# Contributors

**Frieder Berr** Department of Internal Medicine I, Paracelsus Medical University, Salzburg, Austria

**Pierre H. Deprez** Department of Hepato-Gastroenterologie, Cliniques Universitaires Saint-Luc, Université Catholique de Louvain, Brussels, Belgium

**Jürgen Hochberger** Department of Gastroenterology, Vivantes Klinikum Berlin Friedrichshain, Berlin, Germany

**Motohiko Kato** Division of Research and Development for Minimally Invasive Treatment, Cancer Center, Keio University School of Medicine, Shinjuku-ku, Tokyo, Japan

**Tobias Kiesslich** Department of Internal Medicine I & Institute of Physiology and Pathophysiology, Paracelsus Medical University, Salzburg, Austria

**Daisuke Kikuchi** Department of Gastroenterology and Endoscopy Unit, Toranomon Hospital, Tokyo, Japan

**Tadateru Maehata** Division of Research and Development for Minimally Invasive Treatment, Cancer Center, Keio University School of Medicine, Shinjuku-ku, Tokyo, Japan

**Atsushi Nakayama** Division of Research and Development for Minimally Invasive Treatment, Cancer Center, Keio University School of Medicine, Shinjuku-ku, Tokyo, Japan

**Daniel Neureiter** Institute of Pathology, Paracelsus Medical University, Salzburg, Austria

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

**Thierry Ponchon** Department of Digestive Diseases, Hôpital Edouard Herriot, Lyon, France

**Hans Seifert** Department of Internal Medicine – Gastroenterology, University Hospital Oldenburg, Oldenburg, Germany

**Takashi Toyonaga** Department of Endoscopy, Kobe University Hospital, Kobe, Japan

**Toshio Uraoka** Department of Gastroenterology and Hepatology, Gunma University Hospital, Maebashi, Prefecture Gunma, Japan

**Andrej Wagner** Department of Internal Medicine I, University Hospital, Paracelsus Medical University, Salzburg, Austria

**Naohisa Yahagi** Division of Research and Development for Minimally Invasive Treatment, Cancer Center, Keio University School of Medicine, Shinjuku-ku, Tokyo, Japan