of publication. However, in view of ongoing research, changes in government regulations, and
the constant flow of information relating to drug therapy and drug reactions, the reader is
urged to check the package insert for each drug for any change in indications and dosage and
for added warnings and precautions. This is particularly important when the recommended
agent is a new and/or infrequently employed drug.

All rights reserved.
No part of this publication may be translated into other languages, reproduced or utilized in
any form or by any means, electronic or mechanical, including photocopying, recording,
microcopying, or by any information storage and retrieval system, without permission in writing
from the publisher.

Copyright 1994 by S. Karger AG, P.O. Box, CH-4009 Basel (Switzerland)
Printed in Switzerland on acid-free paper by ThrAG Offsetdruck, Pratteln
ISBN 3-8055-5609-8

This book is dedicated to our lovely children
Francesco and Simona,
Antoine, Hubert, Louise and Romain

Their victories put our lives
into perspective

Contents

Foreword ........................................................... IX
Preface .............................................................. XI

Primary Investigations

Deltenre, M.; Jonas, C.; de Koster, E. (Brussels): The Role of Esophagoscopy in
Functional Esophageal Diseases: A Reappraisal .............................. 2
Ott, D.J. (Winston-Salem, N.C.): Radiology of Esophageal Function and Gastroesophageal
Reflux Disease ..................................................... 27
Galmiche, J.-P. (Nantes); Scarpiignato, C. (Parma): Esophageal pH Monitoring .... 71

Advanced Investigations
After two centuries of increasingly detailed investigation of the structural basis of disease, measurement of function - sometimes called 'pathophysiology' - has gained pace only in the past 50 years, and the gut has lagged behind other organs like the cardiovascular and respiratory systems. The esophagus is the most accessible segment of the alimentary tube, and methodology and results from its investigation have been applied further down the intestine.

This book, edited by two of the leading researchers in the field, admirably demonstrates the present state of functional esophageal studies and offers a vision of the way ahead. It is not a didactic book, and carries...
throughout its pages the thoughtful, critical and questioning style of a sound academic text, but with a clear view of the practical issues. The contributors have been carefully chosen to ensure this balance. Its three main sections underline this approach, separating the routine, the advanced, and the research procedures. All too often in medicine, techniques developed in research are taken up and used 'routinely' before their proper place in the diagnostic armamentarium has been identified, with resultant waste of resources, sometimes ending with a valuable tool being unnecessarily discredited. All over the world, technological opportunities in medicine have outstripped the resources available for health care. No one can any longer afford the luxury of discovering or inventing a technique regardless of its price and particularly its cost-effectiveness: it may give more information, but does the information benefit the patient, or the health-care system, to an extent commensurate with its cost? Even if a test, carefully performed in the correct context, can be shown to be cost-effective, it loses that advantage as soon as it is employed irrelevantly.

Foreword X

(when its result will not make any difference to decision-making or management), when it simply duplicates another test, or (particularly reprehensibly) when it is performed poorly so that its results are unreliable, even misleading. This book will help to avoid all these errors by ensuring that its readers have a clear understanding both of the tests' clinical relevance and methodology.

In the 'primary' section it is good to see words like 'pitfalls' and 'misinterpretation' in the chapters offering a critical appraisal of tests used every day round the world. Uncritical application of such tests can mislead the clinician and do a disservice to patients. Anyone who reads these pages will be better equipped to apply the techniques accurately and appropriately, and interpret the results wisely.

The 'advanced' section describes novel and ingenious developments which have the potential for more detailed penetration of esophageal function in specialized centers, where the technological expertise can be concentrated: ambulatory manometry, dynamic ultrasound and three-dimensional manometry have already stimulated new insights. Improvements on old methodology are also to be found here: for example, gastric emptying now investigated by MRI, breath testing or measurement of impedance.

The third section on 'research' looks penetratingly into the future with a lingering and searching gaze at technological opportunities, some in use, some barely tried, any of which might become an everyday investigation in the next century, if they withstand the critical appraisal of the gifted scientists.
who describe them here: potential difference measurements and EMG of the esophageal muscle, for example. Anyone who studies the esophagus will benefit from reading the book, but it will be an especially rich mine for the young investigator who will find ideas and opportunities on every page, invariably clearly and thoughtfully discussed and plentifully referenced. I am delighted to add it to my bookshelf.

February 1994 John R Bennett, FRCP (London)
Honorary Clinical Professor of Medicine
University of Hull, UK

Preface

The functional disorders of the esophagus encompass a large number of diseases, with or without associated anatomical lesions, that have in common a derangement of esophageal function. Knowledge concerning esophageal pathophysiology has until recently lagged far behind that of the pathophysiology of other portions of the gastrointestinal tract for reasons that still remain unclear. Yet, it is the fact that, at least until the last few decades, interest in the esophagus was primarily based on pathologic anatomy. The recent development of methods of studying esophageal function has resulted in a better understanding of normal and abnormal esophageal patterns with a corresponding improvement in treatment which is now physiologically, rather than anatomically based. With these considerations in mind, we planned a critical overview of the available methodology and its clinical relevance. To this end, we have asked many of the world’s foremost authorities in the field, known for their direct personal experience and scientific expertise, to compile a series of reviews to synthesize the mass of general and specific information existing in the field. The volume has been organized into chapters mainly dealing with the different clinical investigations. It is hoped that this format, already adopted for the successful volume in this series on Clinical Investigation of Gastric Function, will facilitate use of the book and introduce readers to techniques they have not used before or provide deeper insights into their use.

As Editors, we are pleased to acknowledge the tremendous support we have received from the contributors to this volume. They come from six different countries and are among the foremost investigators in this clinical and research area. Without their expertise and cooperation, this volume

Preface XII
would not have been possible. We personally have found the editing of the volume an educational and rewarding experience, and strongly hope that readers, be they scientists or clinicians, will similarly benefit from its use.

This volume would never have gone to press without the careful and thorough assistance we received from people at the Book Editing Department, S. Karger AG Medical and Scientific Publishers, Basel. We thank Ms. Denise Greder for her constant advice throughout the development of the project and Ms. Anke Rogal and her colleagues at Karger's Copy Editing Department for their incomparable mastery in revising texts, reading the proofs and, generally, getting the book into workmanlike shape. In addition, we owe so much to our secretarial assistant, Miss Sabina Cavagni, for her outstanding job of managing papers, corresponding with authors and referees and following every stage of editorial work. Last but not least, our sincere gratitude goes to Janssen Pharmaceutica (Italian and French subsidiaries) for backing the production costs and rendering this publication possible.

January 1994 Carmelo Scarpignato, FCP, FACG
Professor of Pharmacology
University of Parma, Italy

Jean-Paul Galmiche, FRCP (Ed.)
Professor of Gastroenterology
University of Nantes, France