

*To my wife, Anna,
and to my son, Giuseppe*

G.A.S.

To my family

G. Di F.

Giulio Aniello Santoro • Giuseppe Di Falco

Atlas of Endoanal and Endorectal Ultrasonography

***Staging and Treatment Options
for Anorectal Cancer***

With contributions by

D.C.C. Bartolo • C.H. Crane • A. D'Annibale • C.O. Finne
L.L. Gunderson • R. Labianca • U. Hildebrandt • T. Hull • M. Hünerbein
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Foreword

Endoanal and endorectal ultrasound represents considerable progress in the field of anorectal imaging.

Its importance in the staging of rectal and anal cancer, in identifying perianastomotic neoplastic recurrences, in defining acute and chronic suppurative disease and in assessing sphincteral anatomical integrity, is now a confirmed reality.

The evidence provided by endoanal and endorectal ultrasonography guides the colorectal surgeon in his choice among the various therapeutic approaches and helps in assessing the effects of the treatments applied.

The great flexibility and high degree of reliability make this exploratory method an indispensable tool at all stages of the clinical course in the majority of patients with anorectal problems, including the fundamental follow-up stage.

The publication of this excellent volume on intraanal and intrarectal ultrasonography is therefore to be appreciated, especially since it is in the form of an atlas. As we are dealing with imaging, it is particularly appropriate that it is the images that tell the story.

Like all important things, this volume does not come out of nothing.

It is the result of many years of skilled work by Drs. G.A. Santoro and G. Di Falco and is based on the experience of internationally renowned professional experts.

The ten sections of the atlas begin with general information on ultrasonography, gradually progressing to the technical problems of the method and the aspects relative to anorectal tumors. This last section leads to a review of traditional and modern therapeutic possibilities.

The inclusion at the end of each chapter of an invited commentary, signed by personalities with experience on a par with the authors, provides an interesting comparison between different points of view on extremely topical matters.

A very interesting book, therefore, useful both to the newly qualified and to the more expert. I hope it will become a volume that is found on everyone's shelf, be they a surgeon, a gastroenterologist, an oncologist, a radiologist or a pathologist, who is involved or interested in coloproctology.

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Bologna, November 2003

The great transformation in rectal surgery in the early 1990's, from surgery oriented towards extended resections, with disappointing results for the patients' social life, to the current sphincter-saving and minimally invasive procedures, has increased the importance of accurate preoperative staging in decision-making. Endorectal ultrasonography for the staging of rectal cancer was first reported at the beginning of 1985 by Hildebrandt and Feifel, from the Department of Surgery at the University of Saarland, in Homburg, Germany. They proposed an ultrasonic classification based on the tumor node metastases (TNM) system. Currently this technique remains the best modality for accurately staging depth of penetration and presumptive nodal status in rectal neoplasms, guiding therapeutic decisions by identification of lesions suitable for local excision, transanal endoscopic microsurgical excision or laparoscopic resection. Recently, three-dimensional ultrasound has resulted in a better understanding of normal and abnormal anorectal patterns and has improved overall accuracy in preoperative staging and follow-up of anorectal tumors. In parallel, the progressive advances in both operative technique and instrumentation has greatly enabled the possibility of minimally invasive surgery. Combined modality treatments with preoperative neoadjuvant radiochemotherapy and intraoperative radiotherapy have encouraged this development, reducing the volume of tumors which would otherwise not be resectable, thus enabling previously impossible minimally invasive surgery to be carried out successfully. The complexity of problems associated with rectal surgery has led to the need of a multidisciplinary approach to anorectal tumors with close collaboration between surgeons, radiologists, gastroenterologists, oncologists and radiotherapists.

With these considerations in mind we planned this volume, fruit of over ten years of experience, as both a textbook and surgical atlas to describe the endoanal and endorectal ultrasonographic techniques and their clinical relevance along with the main operative techniques in the field of rectal surgery. The three initial sections of the book present a broad base of information on physical principles of ultrasound, currently available ecographic equipment and techniques, future technological trends and basic surgical and endosonographic anatomy of the rectum and anal canal. The following sections (IV-VII) provide a considerable detailed description of the role of endoanal and endorectal ultrasonography in preoperative staging and postoperative follow-up of anorectal cancers and summarize our personal knowledge in this field with a detailed review of recent ultrasound literature. The more practical aspects of surgical management, including traditional surgery, total mesorectal excision with autonomic nerve preservation, sphincter-preserving procedures, transanal endoscopic microsurgical techniques, advanced laparoscopic procedures, intraoperative laparoscopic ultrasound and robotic techniques, are discussed in the eighth section taking into account indications, contraindications, risks, bene-

fits and limitations. The final two sections review combined modality therapy for rectal cancer and treatment options for anal carcinoma. A number of highly regarded specialists in the field, internationally recognized for their direct personal experience and scientific expertise, have been selected to provide a critical discussion of each of the different sections of this atlas. This book is designed to be didactically sonography and practice-oriented. For this reason considerable space has been dedicated to drawings illustrating anatomy and techniques and to two-dimensional and three-dimensional ecographic figures derived from our experience in clinical practice compared with radiological, endoscopic, pathologic and histologic images in order to show the many different facets of a given disease and enable the examiner to make the correct diagnosis with greater facility. Finally, a comprehensive bibliography accompanies each section, which will help the reader further explore the topic.

We are convinced that endoanal and endorectal ultrasonography represent the first diagnostic approach in staging of anorectal cancer. In many cases ultrasonography provides an immediate diagnosis or suggests subsequent diagnostic tools. As editors we hope this book will give greater insight into the value of this procedure and will be useful to surgeons training in colorectal surgery to learn how to see and interpret ecographic images, providing more experienced proctologists with an opportunity to review and reassess their techniques. Many of the sections, however, should interest radiologists, gastroenterologists, pathologists, oncologists and radiotherapists.

The authors wish to express their deep appreciation to all colleagues, among the foremost investigators in this clinical and research area, who have contributed towards the realization of this book. Without their expertise and cooperation, this volume would not have been possible. Thanks must go to our Hospital, whose advanced technological support gave us the possibility to accomplish to this project, to the medical illustrator Mr. Massimiliano Crespi who has realized the numerous artistic drawings, to Mr. Giancarlo Pengo for his help in collecting the radiological and photographic illustrations, to Mr. Fabrizio Giavenni, managing director of B-K Medical Italia for gathering much of the data and photographic material of the technological equipment, and to Mrs. Antonella Cerri, executive editor at Springer-Verlag Italia, for her constant advice throughout the development of the project, following every stage of the editorial work.

Treviso, November 2003

G.A. Santoro, G. Di Falco

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