For Anna, Giuseppe 
and Paolo… again. 
More than ever 
G.A.S.

To my family 
G. Di F.
Benign Anorectal Diseases

*Diagnosis with Endoanal and Endorectal Ultrasound and New Treatment Options*

Foreword by

G.G. Delaini
Benign anorectal diseases are quite common among the general population. Although the exact incidence is unknown, we estimate an overall prevalence of 3–7%. Most of these diseases significantly affect patients’ quality of life. For example, fecal incontinence is a devastating condition, and it is the second leading cause of admission to long-term care facilities in the United States. Besides, more than US $400 million is spent each year for adult diapers necessitated by fecal incontinence.

During the last 10 years, the attention given by the media to these diseases has led to less embarrassment and fewer social stigmas associated with them, which in turn has led to a greater willingness for sufferers to talk openly about their conditions and seek medical care.

Fistula-in-ano, obstructed defecation, and fecal incontinence are still major surgical challenges. The high rate of surgical failure and the need for repeat surgery are common experiences of physicians dealing with these conditions. One reason for these poor results is the lack of comprehensive knowledge about the pathophysiology of these diseases, and therefore, surgery treats the symptoms and not the causes. In the last decade, funding opportunities for benign anorectal disease research has increased vastly. The turning point was a better comprehension of anatomic damage, determined by magnetic resonance imaging and endoanal–endorectal ultrasound. The latter is becoming the paramount diagnostic instrument for use by colorectal surgeons, as it allows a clear understanding of underlying anatomic defects. Paradoxically, even if the method most likely to alter management of these diseases is endoanal–endorectal ultrasound, there remains a lack of formal training programs in most countries. The investigation is usually carried out by interested clinicians. It is clear that endoanal-endorectal ultrasound is heavily operator dependent, and it is most important that accreditation be put in place to ensure quality assurance.

*Benign anorectal diseases: Diagnosis with endoanal and endorectal ultrasound and new treatment options* offers a balanced and clear overview on the approach to these conditions. Ranging from the endosonographic anatomy of the normal anal canal and the rectum, through the ultrasonographic assessment of the different benign anorectal diseases to state-of-the-art surgical therapy and new treatment options by expert authors, this book offers a major contribution to the effort of stan-
dardizing diagnostic and therapeutic approaches. High-quality and extensive illustrations along with practice-orientated guidelines make this book a fundamental reference for all specialists – from colorectal surgeons to gastroenterologists, radiologists and gynecologists.

Verona, January 2006

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Benign anorectal and perineal diseases occur very frequently and should be considered a social problem, constituting an important economic burden to health care resources.

Fecal incontinence has a major impact on quality of life. The true prevalence of this devastating condition is grossly underestimated due to embarrassment experienced by patients often reluctant to admit their symptoms. In the majority of cases, fecal incontinence occurs in women with an obstetric injury, and symptoms may develop even in an elderly population who experienced vaginal deliveries earlier in life.

Anorectal fistula is a common disorder. Understanding the anatomy and pathogenesis of fistulas is mandatory to identify the primary fistula tract and the internal opening; to ascertain whether there are secondary tracts, horseshoe configurations, or abscesses; and to tailor treatment accordingly. Recurrences are frequently a result of the surgeon’s failure to expose the entire fistula tract out of fear of impairing anal continence.

Obstruction defecation syndrome is another common benign anorectal disease, which is characterized by an impaired expulsion of the bolus after calling to defecate. Patients complain of different symptoms that often lead to a poor quality of life. This condition may be due to a broad range of causes, and the precise pathophysiology should always be cleared to offer the appropriate management of these complex cases.

In the last two decades, different tests and procedures for evaluating benign anorectal and perineal diseases developed, improving our knowledge of the pathogenesis of these disorders. Within these techniques, endoanal and endorectal ultrasonography have become an important, integral part of the routine colorectal practice because of their accessibility, relative simplicity of performance, and low cost. Anal endosonography is used most often to detect anal sphincter defects in patients with fecal incontinence, to classify anal fistulas and perianal abscesses, and to evaluate patients with obstructed defecation, providing important diagnostic and prognostic information and directly altering management. A major advance has been the recent introduction of high-resolution, three-dimensional ultrasound with surface- and volume-rendered modes, which has resulted in a better understanding of normal and abnormal anorectal patterns.

For these reasons, 2 years after publishing the Atlas of Endoanal and Endorectal Ultrasonography: Staging and Treatment Options for Anorectal Cancer, we felt the necessity to present this second book, Benign Anorectal Diseases: Diagnosis with Endoanal and Endorectal Ultrasound and New Treatment Options. This book is the fruit of over 10 years of personal experience in this field and of a collaborative effort by radiologists, gastroenterologists, and colorectal surgeons. Sections I and II present
a broad base of information on fundamental principles of ultrasound imaging and currently available equipment for endoanal and endorectal ultrasonography, with new technical developments in three-dimensional reconstruction. Section III provides the state of the art in pelvic floor imaging, with considerable detailed description of endosonographic anatomy of the normal anal canal and rectum. Magnetic resonance imaging of the anorectal region and pelvic structures is also described. Sections IV and V extensively evaluate the role of endoanal ultrasonography in the assessment of patients with fecal incontinence, perianal sepsis, and fistula-in-ano. Accuracy and reliability of ultrasonography is reported, along with a detailed review of recent ultrasound literature and a critical comparison between ultrasound and magnetic resonance imaging. Section VI focuses on updates in the evaluation of outlet obstruction. Here, the conventional defecographic study is discussed, along with the new procedures of endorectal ultrasound, dynamic anorectal endosonography, transvaginal ultrasonography, transperineal dynamic ultrasonography, and dynamic magnetic resonance defecography. Section VII focuses on the description of other physiologic procedures, such as manometry and electromyography, in an effort to show which testings are really necessary and should be recommended in evaluating benign anorectal disorders. Sections VIII–X assess the more practical aspects of treatment options for anal fistulas; traditional and innovative surgical techniques for fecal incontinence, including dynamic graciloplasty, artificial anal sphincter, sacral neuromodulation, radiofrequency delivery, bulking agent injection, biofeedback, and other nonoperative modalities; and for outlet obstruction. Indications, contraindications, risks, benefits, and limitations are accurately examined.

Considerable space has been dedicated to drawings illustrating anatomy and techniques and to two-dimensional and three-dimensional echographic images in order to help the reader to learn how to see and interpret ultrasound and to provide more experienced proctologists with an opportunity to review and reassess their techniques.

We wish to express our deep appreciation to all colleagues, among the foremost experts with outstanding qualifications in this complex field, who have contributed to the many different chapters and provided critical commentaries of the different sections of this volume. Without their experience and cooperation, this book could not have been possible. Once more, thanks must go to our hospital, the advanced technological support of which gave us the possibility to accomplish this new project; to the medical illustrator Mrs. Nadia Simeoni, who has realized the numerous artistic drawings; and to Mr. Fabrizio Giavenni, managing director of B-K Medical Italia and Bjørn Fortling, biomedical engineer – Denmark, for gathering much of the data and photographic material of the technological equipment. Finally, our sincere gratitude goes to Mrs. Antonella Cerri and Mrs. Angela Vanegas of the medical editorial staff of Springer-Verlag Italia, for their constant assistance throughout the development of the project, organizing every stage of the editorial work.

We are confident that this textbook will be met with great interest from colorectal surgeons and all other clinicians involved in the care of patients suffering from benign anorectal diseases.
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