Clinical Ultrasound in Benign Proctology
2-D and 3-D Anal, Vaginal and Transperineal Techniques

Foreword by R.J. Nicholls
A large proportion of the proctologist’s work includes common benign disorders of the sphincter and pelvic floor musculature and anorectal sepsis. Ultrasound has been part of the pretreatment assessment of these for many years. It adds to clinical examination and may supply the essential information on which the management decision is taken. Most importantly it gives an objective picture of the pathology, which is vital for discussion among clinicians and radiologists as part of the decision-taking process. Thus it supplies a permanent record not only useful for diagnosis and treatment but also for assessing outcomes after treatment. It may have special medicolegal value. The role of ultrasound in research has been considerable. For example, it has enabled a greater understanding of the anatomy of the sphincter and pelvic floor and it has made a major contribution to the assessment of incontinence and its management. It can give important information beyond the clinical examination in establishing the surgical anatomy of anorectal sepsis.

Ultrasonography has developed immensely during the last twenty years. In proctology, its initial application to rectal cancer has expanded owing to the invention of probes suitable for anal and pelvic floor imaging. The introduction of three-dimensional ultrasound and, latterly, transperineal sonography has increased the opportunities and sensitivity for static and now dynamic assessment.

This book is written by authors who have played a major part in the development of ultrasonography in proctology. Therefore, it carries the authority of understanding and experience. In dealing with all aspects of benign anal and pelvic disorders, the authors give an up-to-date account of its present role with indications of potential future developments. The text is detailed and is a mine of information that will be useful to all practitioners dealing with proctological conditions. It will therefore appeal not only to surgeons and radiologists but also to gastroenterologists and primary care physicians whether in established independent practice or in training. The bibliography is extensive and will be a most valuable resource to the reader. It is clearly written and the illustrations are of high quality and very informative.

Clinical Ultrasound in Benign Proctology will be of great value to all practitioners involved in coloproctology.

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R.J. Nicholls
Harrow, UK
Preface

Since the introduction of endoluminal ultrasound for the assessment of anorectal diseases in 1989 by Law and Bartram, the fundamental investigative algorithm for functional disorders, in particular, the management of fecal incontinence, has changed dramatically. This period of investigative ultrasonography, driven by radiologists throughout Europe and North America has changed our understanding and perspective of anorectal anatomy. It has also enabled the marriage of our knowledge of healthy and disordered anorectal physiology with the relevant imaging and has allowed surgical treatments and reconstructions to be directed using an advanced morphological interpretation. This approach has guided a sophisticated management of medical and surgical therapies towards complicated cryptogenic and inflammatory bowel disease-related perirectal sepsis, preventing recurrence and preserving continence. In the area of evacuatory dysfunction presenting to specialized pelvic floor clinics, endoanal, transperineal and transintroital ultrasound has significantly contributed to the anatomic understanding and clinical significance of rectoceles, enteroceles, rectoanal intussusception and incipient rectal prolapse, providing clinical correlates for more directed operative therapies or audiovisual-based biofeedback treatments. The recent introduction of 3-dimensional reconstructive axial ultrasound has provided a more 'surgical' view of complicated fistula-in-ano which has correlated with more expensive and less available gold standard modalities such as enhanced magnetic resonance (MR) fistulography, resulting in a specialized approach towards this problem as well as delivering a better basis for medical therapies such as fibrin glue instillation or, in specialized circumstances, anti-TNF treatments in perianal Crohn’s disease. Three-dimensional ultrasound has also provided a coronal interpretation for incomplete sphincteroplasty in patients with persistent or recurrent fecal incontinence who present with suboptimal outcomes. It has also directed specialist coloproctological reoperation for those patients with objective prognostic indicators more likely to result in operative success. The recent introduction of simple transperineal sonography (although its interpretation is more involved) has created an opportunity in certain anorectal disorders to overcome some of the problems inherent to the endoluminal approach where it
may have a place in those patients with endoanal luminal distortion preventing the deployment of a probe assembly. Here too, in complex perirectal infections transperineal sonography can overcome the limited focal distance of the endoanal probe in defining laterally disposed extrasphincteric fistulae as well as demonstrating translevator extensions above the puborectalis floor where coupling of an endoanal probe is relatively poor. In this circumstance, transperineal sonography can also assist in delineating whether supravelvator disease is an extension of perianal infection or whether it has a primary pelvirectal origin. Comparative studies are required between these newer modalities and conventional technologies such as enhanced MR imaging, where initial data suggests that transperineal ultrasound provides complementary information rather than competitive information. The indication par excellence for transperineal ultrasound is the dynamic real-time interpretation of compartment interaction in patients presenting with rectal evacuation disorders where colonic transit is normal by its use of simulated defecation maneuvers and forcible straining, although there is much work required here to assess the objective effects of hysterectomy as well as the categorized interpretation of transperineal images in patients with coincident uterovaginal prolapse. What is clear is that there is an increasing onus on coloproctologists to understand, interpret and perform the range of anal ultrasonography available in patients with complex anorectal disorders and to correlate these findings with operative indications and with postoperative functional outcomes. Such a view provides stimulation for surgeons to become actively involved in the performance and accreditation of all forms of anorectal sonography. There is a need for close cooperation between radiologists and colorectal surgeons in the accreditation and training in this important modality as part of their wider colorectal apprenticeship. With this in mind, although there are several texts available discussing endoanal ultrasound, our approach here is novel, as it presents the operative techniques used based on ultrasonographic interpretations from the surgeons’ point of view.

In the construction of this atlas, we are indebted to the invaluable assistance of Paola De Nardi for the coordination of the text and figures.

Mario Pescatori
Rome, Italy

Clive I. Bartram
London, United Kingdom

Andrew P. Zbar
St. Michael, Barbados
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