

# Introduction

## INTRODUCTION

The gastrointestinal tract has a myriad of functions, such as digestion, absorption and excretion, as well as the synthesis of an array of hormones, growth factors and cytokines. In addition, a complex enteric nervous system has evolved to control its function and communicate with the central and peripheral nervous systems. Finally, as the gastrointestinal tract contains the largest sources of foreign antigens to which the body is exposed, it houses well-developed arms of both the innate and acquired immune systems. Therefore, it is not surprising that malfunction or infection of this complex organ results in a wide spectrum of pathology. However, its importance in disease pathogenesis is matched only by its inaccessibility to traditional examination. Few discoveries in medicine have contributed more to the practice of gastroenterology than the development of diagnostic and therapeutic endoscopy. Although spectacular advances in radiology have occurred recently with the introduction of multislice spiral computed tomography (CT) and magnetic resonance imaging (MRI), the ability to take targeted mucosal biopsies remains a unique strength of endoscopy. Historically, radiological techniques were required to image areas of jejunum and ileum inaccessible to the standard endoscope; however, the introduction of both capsule endoscopy and single-/double-balloon enteroscopy allows both diagnostic and therapeutic access to the entire gastrointestinal tract. Image enhancement with techniques such as chromoendoscopy, magnification endoscopy and narrow band imaging allows increased resolution at the mucosal level and increases diagnostic yield. Endoscopic ultrasound (EUS) can examine all layers of the intestinal wall as well as extraintestinal structures. Finally, experimental techniques such as confocal Harold Horace Hopkins, 1918–1994, Professor of Applied Optics, The University of Reading, Reading, UK. laser endomicroscopy give resolution at a level compatible with standard histology. The advances in the diagnostic accuracy of endoscopy lend themselves to disease surveillance for specific patient groups as well as population screening for gastrointestinal malignancy. Likewise, there has been a rapid expansion in the therapeutic capability of endoscopy with both luminal and extraintestinal surgery being performed via endoscopic access. As in all areas of interventional practice, competent endoscopists must match a thorough grounding in anatomy and physiology with a clear understanding of the capabilities and limitations of the rapidly advancing techniques available. Perhaps most importantly they must appreciate all aspects of patient care, including preprocedural management, communication before and during the procedure and the management of endoscopic complications. This chapter aims to guide the reader through these areas in addition to introducing the breadth of procedures that are currently performed.

The indications for diagnostic and therapeutic endoscopic procedures including endoscopic ultrasound  
The recognition and management of complications • Novel techniques for endoscopic  
the small bowel • Advances in diagnostic ability •

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