HISTORY OF ENDOSCOPY

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- Over the last 50 years, endoscopy has become a powerful - diagnostic and therapeutic tool. However, its development required two obvious but formidable barriers to be overcome. - First, the gastrointestinal tract is rather long and tortuous and, second, no natural light shines through the available orifices! Therefore, successful visualisation of anything beyond the - distal extremities requires a flexible instrument with an intrinsic light source that can transmit images to the operator. The breakthrough was the discovery that images could be transmitted using flexible quartz fibres. Although this was first described in the late 1920s, it was not until 1954 that Hopkins built a model of a flexible fibre imaging device. The availability of highly transparent optical quality glass led to the development in 1958 of the first flexible fibreoptic gastroscope by Larry Curtiss, a graduate student in physics, and Basil Hirschowitz, a trainee in gastroenterology . Over the next 30 years, the fibrescope evolved to allow exam ination of the upper gastrointestinal tract, the biliary system and the colon. In parallel with advances in diagnostic ability , a range of therapeutic procedures was developed (Table 9.1 Although the fibreoptic endoscope has been the workhorse of many endoscopy units ov er the last three decades, its obsoles cence was guaranteed by the invention of the charge-coupled device (CCD) in the 1960s, which allowed the creation of a digital electronic image, permitting endoscopic images to be processed by a computer and transmitted to television screens. T hus, the modern endoscope was born (Figure 9.1). Larry E Curtiss , physicist, University of Michigan, Ann Arbour, MI, USA. Basil I Hirschowitz , 1925–2013, Professor of Medicine, University of Alabama, Birmingham, AL, USA. tinue with the replacement of much diagnostic endoscopy with capsule endoscopy and virtual imaging. Enhanced resolution with high-definition operating systems, dye and digital chromo - endoscopy and e ven histological-grade images have increased the diagnostic yield of surveillance procedures. EUS allows diagnosis and therapy to extend beyond the mucosal surface of the intestine. Endoscopy has become increasingly therapeu - tic and historical divisions betw een medicine, radiology and surgery will become progressively blurred. As the complexity of the procedures increases, the distinction between special - ist and general endoscopists will become mor e definite. This reinforces the need for all endoscopic practitioners to have a detailed understanding of the units in which they work and the instruments that they use.

endoscopy. 1958 Development of /f_i breoptic gastroscope 1968 Endoscopic retrograde pancreatography 1969 Colonoscopic polypectomy 1970 Endoscopic retrograde cholangiography 1974 Endoscopic sphincterotomy (with bile duct stone extraction) 1979 Percutaneous endoscopic gastrostomy 1980 Endoscopic injection sclerotherapy 1980 Endoscopic ultrasonography 1983 Electronic (charge-coupled device) endoscope 1985 Endoscopic control of upper gastrointestinal bleeding 1990 Endoscopic variceal ligation 1996 Introduction of self-expanding metal stents 2008

Endomicroscopy delivers histological mucosal de /f_i nition Figure 9.1 Photograph of a standard gastroscope and colonoscope.

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