Contemporary Coloproctology

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Editors
Steven R. Brown, M.D., FRCS, B.Med.Sci., M.B.Ch.B.
Department of Colorectal Surgery
Sheffield Teaching Hospitals NHS Foundation Trust, Herries Rd
Sheffield, S Yorks S5 7AU, UK

John E. Hartley, B.Sc. (Hons), M.D., FRCS
The University of Hull Academic Surgical Unit
Castle Hill Hospital
Hull, HU16 5JQ, UK

Jim Hill, M.B.Ch.B., M.Ch., FRCS
Department of Surgery
Manchester Royal Infirmary
Oxford Rd
Manchester, M13 9WL, UK

Nigel Scott, M.D., FRCS
Department of Colorectal Surgery
Royal Preston Hospital
Sharoe Green Lane
Fulwood, Preston
Lancashire, PR2 9HT, UK

J. Graham Williams, B.Sc., M.B.B.Ch., FRCS, M.Ch.
Department of Colorectal Surgery
Royal Wolverhampton Hospitals NHS Trust
New Cross Hospital
Wednesfield Road, Wolverhampton
West Midlands, WV10 0QP, UK

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Foreword

The M62, being the main motorway across the north of England, means many things to many people. In the main the memories are of inclement weather, interminable tailbacks, and delays. However, to an ever-increasing group of trainee and established colorectal surgeons, the title "M62" refers to the annual two-day colorectal meeting – inspired by Huddersfield lad Phillip Schofield – and based just off Junction 24. Over the past 16 years, the course has firmly established itself as one of the foremost postgraduate meetings in the UK and has a deserved reputation for a comprehensive, up-to-date review of coloproctology. *Contemporary Coloproctology* achieves this by bringing to a wider audience the vision of the course, and the editors, all well-respected colorectal surgeons, are to be congratulated on bringing this project to fruition.

The chapters cover, as one might expect, the four main areas of our specialty: cancer, inflammatory bowel disease, proctology, and functional bowel disorders. We cannot, however, practice modern coloproctology without a working knowledge of the many disciplines that interact with us, and it is most welcomed to see sections on the management of the seriously ill patients, including the basics of intensive care, critical care scoring systems, and an up-to-date review of fluid and nutritional support. Each chapter is well referenced and contains case scenarios. Common conditions, still with many unanswered questions, sit next to chapters on less common, but nevertheless important, problems of trauma, miscellaneous colitides, and endometriosis.

The real strength of the whole volume is to have successfully transferred the whole ethos of the "M62 Course," involving an enthusiastic gathering of committed coloproctologists, from the northern hills to the printed page. The course has evolved over the past 16 years and yet has maintained a deserved reputation for friendliness and informality. *Contemporary Coloproctology* is a most welcomed addition to the colorectal literature and deserves to be as successful as the originating source.

Paul J. Finan
John Goligher Colorectal Unit,
St James's University Hospital,
Leeds, UK

Contents

Contributors

Ian J. Adam, FRCS, M.B.Ch.B. Department of Colorectal Surgery, Northern General Hospital, Sheffield Teaching Hospitals NHS Trust, Sheffield, S Yorks, UK

Jon Armitage, M.D., FRCS The University of Hull Academic Surgical Unit, Castle Hill Hospital, Hull, UK

Ian Badger, FRCS, M.D. (Hons) Department of General Surgery, Royal Wolverhampton Hospital Trust, New Cross Hospital, Wolverhampton, UK

Daniel L. Beral, M.B.Ch.B., M.D., FRCS (Eng.) The John Goligher Colorectal Unit, St James University Hospital, Leeds, UK

Ian Botterill, M.B.Ch.B., FRCS, M.D. Department of Surgery, Leeds General Infirmary, Leeds, Yorkshire, LS, UK

Steven R. Brown, M.D., FRCS, B.Med.Sci., M.B.Ch.B. Department of Colorectal Surgery, Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, S Yorks, UK

Dermot Burke, M.B.Ch.B., FRCS, Ph.D. John Goligher Department of Colorectal Surgery, St James's Hospital, Leeds, Yorkshire, LS, UK

Keith Chapple, M.B.Ch.B., Ph.D., FRCS Colorectal Surgical Unit, Department of Surgery, Northern General Hospital, Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, S Yorks, UK

Mark Cheetham, M.B.Ch.B., FRCS Department of General Surgery, Royal Shrewsbury Hospital, Shrewsbury, Shropshire, UK

Susan K. Clark, M.A., M.B.B.Chir., M.D., FRCS (Gen Surg.) The Polyposis Registry, St Mark's Hospital, Middlesex, London, UK

Nicola Eardley Department of Surgery, Royal Liverpool University Hospital, Liverpool, UK

Martin Farmer, FRCS Department of General Surgery, University Hospital North Staffordshire, Stoke-on-Trent, North Staffs, UK

Andrew Fisher, M.B.Ch.B. John Goligher Department of Colorectal Surgery, St James's Hospital, Leeds, Yorkshire, LS, UK

Paul Flanagan Link 5Z, Royal Liverpool University Hospital, Liverpool, UK

Aidan Fowler Department of Colorectal Surgery, Gloucestershire Hospitals Foundation NHS Trust, Gloucester, Gloucestershire, UK

Basil Fozard Department of Colorectal Surgery, Royal Bournemouth Hospital, Bournemouth, Dorset, UK

Kaori Futaba, FRCS Department of Colorectal Surgery, Queen Elizabeth Hospital, Birmingham, West Midlands, UK

Hugh J. Gallagher, M.B.Ch.B., FRCS Department of Surgery, The Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK

Jeff Garner, M.B.Ch.B., M.D., MRCS (Glasg.), FRCS, FRCSEd (Gen. Surg.) Department of Surgery, The Rotherham NHS Foundation Trust, Rotherham, South Yorkshire, UK
Academic Department of Military Surgery and Trauma, Royal Centre for Defence Medicine, Birmingham, UK

Jonathon R. Goodall Department of Critical Care, Salford Royal Hospital, Salford, Greater Manchester, UK

Benjamin P. Goorney, M.B.Ch.B., FRCP Sexual Health, Salford Royal Foundation Hospital Trust, Salford, UK

John E. Hartley, B.Sc. (Hons), M.D., FRCS The University of Hull Academic Surgical Unit, Castle Hill Hospital, Hull, UK

Niklas Hennessy Department of Colorectal Surgery, Royal Bournemouth Hospital, Bournemouth, Dorset, UK

Jim Hill, M.B.Ch.B., M.Ch., FRCS Department of Surgery, Manchester Royal Infirmary, Manchester, UK

Alan F. Horgan, M.B.Ch.B., FRCS, M.D. Department of Colorectal Surgery, Freeman Hospital, Newcastle upon Tyne, UK

Lesley M. Hunt, M.D., FRCS, M.B.Ch.B. Department of Colorectal Surgery, Northern General Hospital, Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, UK

Saurabh Jamdar, M.D., FRCS Specialist Registrar in HPB Surgery, Hepatobiliary Surgery Unit, Department of Surgery, Manchester Royal Infirmary, Manchester, UK

David G. Jayne, M.D., FRCS Department of Colorectal Surgery, Leeds General Infirmary, Leeds, West Yorkshire, UK
John Goligher Colorectal Unit, D Floor, Clarendon Wing, Leeds General Infirmary, Leeds, West Yorkshire, UK

Edward S. Kiff, M.D., FRCS Pelvic Floor Service, Department of General Surgery, University Hospital South Manchester, Manchester, UK

Hasan T. Kirat, M.D. Department of Colorectal Surgery, Cleveland Clinic Foundation, Cleveland, OH, USA

Rachael Lawrence, M.B.B.S., B.Sc., MRCS The University of Hull Academic Surgical Unit, Castle Hill Hospital, Hull, UK

Stephen H. Lee, M.B.B.S., FRCS (Ed.), FRCR Department of Radiology, Manchester Royal Infirmary, Manchester, UK

Keith Leiper Link 5Z, Royal Liverpool University Hospital, Liverpool, UK

Sonia Lockwood The University of Hull Academic Surgical Unit, Castle Hill Hospital, Hull, UK

Arun Loganathan, B.Sc. (Hons), M.D., MRCS The University of Hull Academic Surgical Unit, Castle Hill Hospital, Hull, UK

Tony Mak, FRCS Department of Surgery, The Chinese University of Hong Kong, Prince of Wales Hospital, Hong Kong, China

Francisca E. Marti, LMS, MRCP Department of Medical Oncology, The Christie Hospital NHS Foundation Trust and Paterson Institute for Cancer Research, Manchester, UK

Sushil Maslekar, FRCS Department of Colorectal Surgery, Leeds General Infirmary, Leeds, West Yorkshire, UK

Catherine McCarthy Department of Colorectal Surgery, Royal Bournemouth Hospital, Bournemouth, Dorset, UK

Peter J. Mitchell, M.D., FRCS Pelvic Floor Service, Department of General Surgery, University Hospital South Manchester, Manchester, UK

Dion Morton, FRCS Academic Department of Surgery, Queen Elizabeth Hospital, Birmingham, UK

Rick Nelson, FRCS Department of Surgery, Northern General Hospital, Sheffield, UK

Sophie E. Noblett, M.B.Ch.B., FRCS Department of Surgery, The Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK Department of Colorectal Surgery, Freeman Hospital, Newcastle upon Tyne, UK

Helen O'Grady, M.D., FRCSI The University of Hull Academic Surgical Unit, Castle Hill Hospital, Hull, UK

Lars Påhlman Department of Surgical Sciences, University hospital, Uppsala, Sweden

Nagarajan Pranesh, FRCS Department of Surgery, Royal Liverpool University Hospital, Liverpool, UK

Feza H. Remzi, M.D., FACS, FASCRS, FTSS (Hon) Department of Colorectal Surgery, Cleveland Clinic Foundation, Cleveland, OH, USA

Paul Rooney, FRCS Department of Surgery, Royal Liverpool University Hospital, Liverpool, UK

Mark P. Saunders Department of Oncology, Christie Hospital NHS Foundation Trust, Manchester, UK

Nigel Scott, M.D., FRCS Department of Colorectal Surgery, Royal Preston Hospital, Fulwood, Preston, Lancashire, UK

Asha Senapati, Ph.D., FRCS Department of Surgery, Queen Alexandria Hospital, Portsmouth, Hampshire, UK

Rishi Sethi, M.B.B.S., MRCS, FRCR Department of Radiology, Manchester Royal Infirmary, Manchester, UK

Aali J. Sheen, M.D., FRCS Consultant Hepatobiliary Surgeon, Hepatobiliary Surgery Unit, Department of Surgery, Manchester Royal Infirmary, Manchester, UK

Ajith K. Siriwardena, M.D., FRCS Professor of Hepatobiliary Surgery, Hepatobiliary Surgery Unit, Department of Surgery, Manchester Royal Infirmary, Manchester, UK

Paul Turner, M.B.Ch.B., FRCS Department of Surgery, Leeds General Infirmary, Leeds, Yorkshire, LS, UK

Ciaran J. Walsh, M.Ch., FRSCI Department of Surgery, Wirral NHS Trust, Arrowe Park Hospital, Wirral, UK

J. Graham Williams, B.Sc., M.B.B.Ch., FRCS, M.Ch. Department of Colorectal Surgery, Royal Wolverhampton Hospital NHS Trust, Wolverhampton, UK

Malcolm Wilson Department of Surgery, The Christie Hospital, Manchester, UK

Chapter 1
Introduction: Colorectal Surgery – The Specialty

Nigel Scott and Lars Påhlman

Four generations ago, a practical textbook of operative surgery instructed the "general surgeon" in the techniques of abdominal, orthopedic, neurosurgical, ophthalmic, and faciomaxillary surgery [1]. In the intervening years, there has been a progressive evolution of distinct surgical specialties from this historical body of surgical technique. Although this process has been partly compelled by development in technique, the overwhelming driver for specialization has been the need for the "surgical physician" to become expert in disease management. The demands of doing a specific procedure according to constantly revised guidelines have made each surgical therapy more specific, and for this reason alone it is obvious today that all surgeons cannot cover the whole spectrum of "general surgery." Thus, any surgeon can be taught how to operate, but a specialist knows when and when not to operate.

While logical in its advance, surgical specialization has not been smooth sailing. Indeed, this process has often been difficult and prolonged especially when the move to specialization has come into conflict with more "generalist" professional concerns. Urology now practiced universally as a distinct specialty was only finally defined in the UK until 1945 – against significant opposition from vested "general surgery" interests [2]. Post-1945, the considerable residuum of gastrointestinal, oncological, endocrine, transplant surgery along with vascular surgery of the trunk and limbs has continued under the umbrella of "general surgery." However, in the last 20 years, further significant change has taken place within the subspecialties of general surgery, catalyzed by a desire to improve patient outcomes by becoming

N. Scott, M.D., FRCS (✉)
Department of Colorectal Surgery, Royal Preston Hospital,
Sharoe Green Lane, Fulwood, Preston, Lancashire, PR2 9HT, UK
e-mail: nigel.scott11@btinternet.com

L. Påhlman
Department of Surgical Sciences, University hospital,
SE-751 85, Uppsala, Sweden
e-mail: lars.pahlman@surgsci.uu.se

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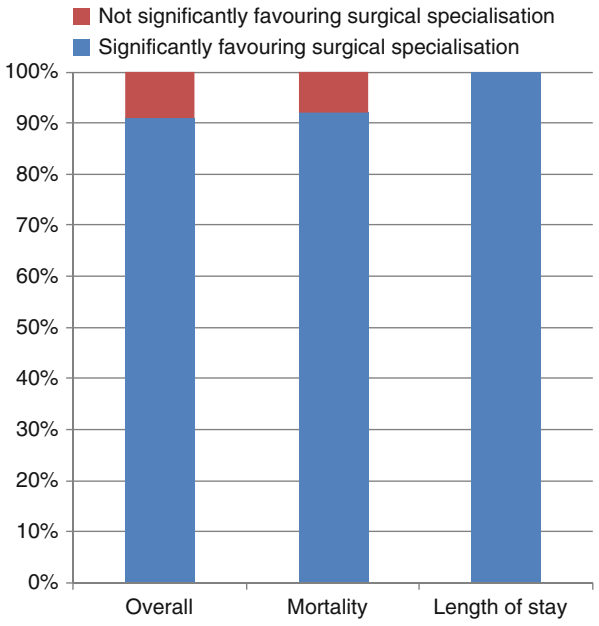

Fig. 1.1 Histogram illustrating the effect of specialization on outcome, as measured by overall outcome, mortality, length of hospital stay, and complication rate for specialist surgeons compared with general surgeons (Based on Chowdhury et al. [4])

expert in specific areas of disease management. These developments have culminated in the development of specialist groups of vascular, breast, colorectal, upper gastrointestinal (upper GI), hepatobiliary, transplant, and endocrine surgeons.

A further recent change has been the reduction in the time residents can train in Europe and the USA – adding force to the logic of early specialist training [3]. However, of fundamental importance to colorectal surgery proceeding as a distinct specialty is the confirmation that patients benefit from such specialization. In addition for specialization in colorectal surgery to be meaningful, a credentialing mechanism is required by which patients and primary care physicians can recognize the accredited colorectal surgeon.

1.1 Colorectal Specialization: Patient Benefit

The rationale of specialization within surgical practice is that expert knowledge and technique benefits patient outcomes. That this is the case is becoming increasingly well recognized – with measurable patient benefit resulting from specialization across all surgical practice [4]. Among a total of 22 studies that included 144,421 patients, specialist surgeons had a significantly better overall outcome than general surgeons performing the same procedure in 20 of 22 studies (91%). Thus, surgical specialization was associated with fewer patient deaths in 11 of 12 studies (92%), shorter hospital stay in five of five studies (100%), and fewer complication rates in 14 of 17 studies (82%) (Fig. 1.1).

Table 1.1 Specialization and outcome for cancer surgery

	Colorectal specialist outcome	Nonspecialist outcome	*P*
Bokey et al. [5]	40% 5-year survival	34% 5-year survival	0.005
Luna-Perez et al. [6]	9.5% local recurrence	50% local recurrence	0.0007
	63% 5-year survival	54% 5-year survival	0.04
Porter et al. [7]	13.4% local recurrence	37.4% local recurrence	0.001
	60.8% 5-year survival	43.8% 5-year survival	0.03
Read et al. [8]	77% 5-year survival	68% 5-year survival	0.005

Table 1.2 The impact of belonging to a specialist society on outcome after colectomy

Subspecialty status	Number of surgeons	Number of patients undergoing colectomy	Operative mortality – observed*	Operative mortality – adjusted**
Members of the Society of Colorectal Surgery in New York State	61	4,757	1.9	2.4
Nonmember	2,590	43,771	4.9	4.8

*$P<0.0001$; **$P<0.001$

No study in this analysis of nearly 150,000 patient outcomes demonstrated a significant outcome benefit from nonspecialization in surgery [4].

Colorectal surgery encompasses four distinct disease groups centered on four distinct anatomical sites: small bowel, colon, rectum, and anus – colorectal cancer, inflammatory bowel disease including diverticular disease, functional bowel disease, and proctology. Colorectal cancer remains primarily a cancer cured by surgical intervention. As such outcomes after colorectal cancer surgery offer a useful insight into the benefits of colorectal surgical specialization.

A consistent finding in colorectal cancer surgery is that specialization defined by case volume is associated with better patient outcome (Table 1.1). Specialist surgeons performing a high volume of colorectal cancer surgery consistently demonstrate better 5-year survival rates than nonspecialist surgeons and much lower rates of local recurrence than nonspecialist surgeons. In the surgery of rectal cancer, better outcomes produced by specialized colorectal surgeons result in both increased patient survival and the increased use of sphincter-saving surgery [9].

Another marker of specialization in colorectal surgery, also associated with better patient outcomes, is belonging to a specialist colorectal society. In a 4-year study of postoperative death after colectomy in New York State, members of the Colorectal Surgery Society achieved significantly better patient outcomes than nonmembers (Table 1.2) [10].

This impact of subspecialty practice based on the membership of a specialist association is also seen in Europe. The Wessex Colorectal Cancer Audit compared

Table 1.3 Surgical outcome measures for members of the Association of Coloproctology (ACPGBI) compared with a "general surgeon"

	Member ACPGBI	General surgeon	*P*
Anastomotic leak	44 of 1,674 (2.6)	95 of 2,026 (4.7)	0.001
Postoperative mortality	135 of 2,100 (6.4)	252 of 2,462 (10.2)	<0.001
Curative procedures	36 of 1,108 (3.2)	56 of 1,107 (5.1)	0.03
Palliative procedures	75 of 633 (11.8)	139 of 795 (17.5)	0.003

patient outcomes for colorectal cancer patients operated on by consultant members of the Association of Coloproctology of Great Britain and Ireland (ACPGBI) with the outcomes of patients managed by general surgeons [11]. Consultant members of ACPGBI had fewer anastomotic leaks and fewer postoperative deaths than "general surgeons." In addition, the specialists defined by ACPGBI membership completed more curative procedures and fewer palliative procedures than their general surgical counterparts [11] (Table 1.3).

Specialization defined as being an American Board of Colon and Rectal Surgery certified colorectal surgeon also improves patient outcomes by encouraging greater use of sphincter-preserving techniques in the management of rectal cancer [12]. Over a 3-year period, variables associated with rates of permanent colostomy formation after rectal cancer surgery have been examined in the USA – including certification of the surgeon by the American Board of Colon and Rectal Surgery. On multivariate analysis, of 19,912 proctectomies performed for rectal cancer, being a board-certified surgeon (OR = 0.70; CI = 0.51–0.96) was protective against permanent colostomy formation at the county level [12].

1.2 Colorectal Specialization: A Necessary Response to Reduced Training Hours

Colorectal surgery in common with other surgical specialties is a craft specialty in which time spent learning the appropriate technical skills is crucial to the delivery of a competent operating surgeon. Craft acquisition requires time – time spent in learning and practicing craft skills. Despite this self-evident truth, government legislation in both the USA and Europe has moved to reduce resident hours, with the consequence that surgical residents have significantly less time available to gain the craft skills of surgery. In the USA, these reductions in training hours have had a significant impact on the ability of senior trainees (surgeon chiefs) to acquire as many major cases before residency graduation as was the case in the past [13] (Fig. 1.2).

In the UK, similar pressures have forced a reexamination of the way in which general surgery is certified. Firstly, the European Working Time Directive (EWTD) and Junior Doctors' New Deal both act to shorten the time available for training, to

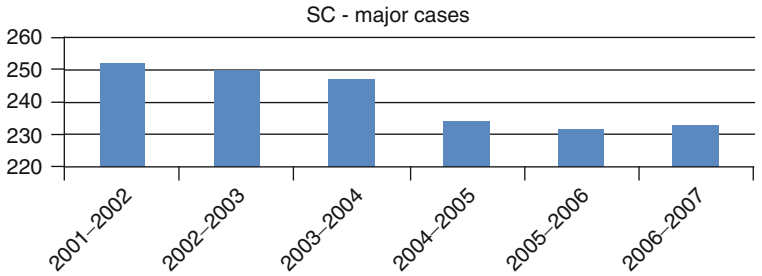

Fig. 1.2 Surgeon chief (SC) data: The mean total major operations reported by graduating surgical residents in the role of SC declined notably, from 252 in 2001–2002 to 231 in 2006–2007, representing an 8.3% decrease (Based on Kairys et al. [13])

the extent that it is no longer possible to train to a standard of competence across the whole spectrum of general surgery. Trainees who moved to a full-shift on-call system for 48-h compliance in August 2009 will have lost approximately 25% of their previous elective training time. Secondly, the requirements of the NHS are changing, partly through patient demand for more specialist expertise and partly through the need and desire to focus expertise in particular subspecialty areas in order to improve outcomes.

If reduced training hours means less time to gain surgical experience, then redesign of surgical training is required with earlier more focused specialization that excludes extraneous experience [14]. There is little to be gained in a disease-based surgical practice, for a colorectal surgeon to spend limited training opportunities in the pursuit of endocrine and breast surgery, for example. Among the many arguments for early specialization, there is the need to match training as best as possible to eventual practice, eliminate irrelevant and redundant training experiences, and attract prospective trainees to meet workforce demands [14].

1.3 Colorectal Specialization: Definition and Recognition

Patient benefits that accrue from colorectal surgical specialization and the exigencies of modern surgical resident training both point in the same direction, specialization in colorectal surgical training. But for this specialized training to be successful, we need to articulate:

- A definition of the knowledge and skill base that defines the specialty of colorectal surgery
- A certification/examination process that confirms the surgeon's command of that knowledge and skill base and a certification that is accessible to interested patients

1.4 North America and Canada

The American Board of Colon and Rectal Surgery provides the current gold standard by which we can define and recognize the specialist colorectal surgeon. Derived from the American Board of Proctology, first established in 1934, the American Board of Colon and Rectal Surgery is one of the 24 medical specialty boards that make up the American Board of Medical Specialties (ABMS). It is noteworthy that the boards were founded by their respective specialties to "protect the public by assessing and certifying doctors who meet specific educational, training, and professional requirements." A board-certified colon and rectal surgeon has to:

- Successfully complete at least a 5-year ACGME-approved training program in general surgery
- Complete additional 1 year in an ACGME-approved colon and rectal surgery residency
- Passed both the written (qualifying) and oral (certifying) examinations given by the American Board of Colon and Rectal Surgery [15]

As well as testing the knowledge base of the colorectal surgical candidates, the Board also defines technical standards related to the performance of colorectal surgery. One of the standards of the American Board of Colon and Rectal Surgery uses in credentialing a surgeon is case numbers in a range of colorectal procedures. While it is recognized that minimum case numbers do not absolutely equate with technical competence, nevertheless, case numbers are a reflection of the clinical experience during training (Table 1.4).

1.5 United Kingdom and Europe

By contrast, the progress of recognizing and certifying colorectal specialization in the UK and Europe continues to be "work in progress."

The Association of Coloproctology of Great Britain and Ireland (ACPGBI) established a national training unit recognition process in the late 1990s. The UK National Training Authorities have agreed that trainees in colon and rectal surgery will spend a minimum of 2 out of 5 years training in general surgery in approved colon and rectal surgical units. The ACPGBI has developed and formally adopted a syllabus adapted from the ASCRS curriculum – now in its second version [17].

The general surgery certification examination in the UK is organized by the Joint Committee on Intercollegiate Examinations (JCIE) which in turn is responsible to the Presidents, and through them the Councils of the four Surgical Royal Colleges of Great Britain and Ireland, for the supervision of standards, policies, regulations, and professional conduct of the Intercollegiate Specialty Examinations – Specialty Fellowship (FRCS) in line with the statutory requirements of the GMC Postgraduate Board. Within the general surgery examination, if the candidate declares a colorectal subspecialty interest, the clinical component has cases relevant to colorectal surgery,

Table 1.4 ABCRS procedures and minimums used for colorectal surgeon certification [15, 16] and several proposed European standards

	ABCRS approved procedures and recommended minimums in 12 months	European Standards in Coloproctology Project minimum total logbook summary
Anorectal procedures		
Excisional hemorrhoidectomy (total)	20	30
Conventional	10	–
PPH	[a]	–
Fistulotomy	15	30
Endorectal advancement flap	3	–
Sphincteroplasty	3	–
Internal sphincterotomy	3	–
	5	
Abdominal procedures		
Strictureplasty	3	–
Segmental colectomy (include ileocolic resection)	50	40
Laparoscopic resections	50	–
Low anterior resection (total)	[a]	30
Straight anastomosis	[a]	
With colon pouch or coloplasty	3	–
Abdominoperineal resection	6	–
Transanal excision (total)	10	10

[a]Tracked but no specific numbers required

and one of the three oral examinations will address topics in the specialty. If the candidate is successful in passing colorectal surgery as a subspecialty, this information is currently not reflected in the GMC register – which merely records general surgery as the certificate of completion of training. In essence, the UK system in 2011 allows teaching and examination in ACPGBI syllabus but has no standardization of case numbers at completion of training and no mechanism by which the public can access the surgeon who has satisfactorily credentialed with a subspecialty interest.

Similarly, in Europe, many countries still formally recognize only general surgery as a specialty – although Germany, Denmark, Finland, and Norway have a formal subspecialty in gastrointestinal surgery. This is despite the establishment of the Division of Coloproctology within the Section of Surgery of the UEMS and in the face of the increasing separation of work performed by breast, vascular, and upper and lower gastrointestinal surgeons. The European Board of Surgical Qualification (EBSQ) in coloproctology is recognized by the European Union but not by the regulatory surgical authorities of the member countries. The examination has eligibility criteria and a written and oral examination. However, within Europe, there are no minimum standards for training, no training unit recognition process, and no minimum time requirements for training in coloproctology [18]. In order to address these issues, the Division of Coloproctology of the Section of Surgery (UEMS) continues

to work to adopt a curriculum (the ACPGBI syllabus satisfies this requirement), define training units, define qualification criteria in terms of operative experience, and a qualification examination structure for the diploma of EBSQ (Coloproctology). In addition, the Division seeks the further development of certification in coloproctology in individual states represented in the Division of Coloproctology.

Colorectal surgery encompasses many professional challenges – both in the development of knowledge and the introduction of new treatments and surgical techniques. Indeed, this book is devoted to trying to impart aspects of both. But probably as important today is the advocacy of interests of the patient requiring colorectal surgery, within health care systems and professional oligarchies that do not always put good patient outcomes first and above all else. The evidence base for colorectal surgery specialization is lucid, manifest, and compelling. The professional willingness and ability to deliver this specialization is patently part of colorectal practice across the world. Colorectal surgeons have to convince relevant national credentialing authorities to recognize and publically register colorectal surgical expertise for the sake of our patients.

> The fundamental goal in globalization for our specialty is the objective of sharing knowledge. The desire to treat the patient with the most current, effective, and proven method is the central theme that fosters globalization among our worldwide colleagues [19].

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Chapter 2
Hemorrhoids

J. Graham Williams

2.1 Introduction

Hemorrhoids form an important part of the workload of a coloproctologist. Symptoms of hemorrhoidal disease are common and are underreported. Furthermore, symptoms of other more serious colorectal conditions can be misinterpreted by the patient and their doctor as those of hemorrhoidal disease, leading to delays in diagnosis.

2.2 What Are Hemorrhoids and Piles?

The terms "hemorrhoids" and "piles" are often used interchangeably to indicate a condition of the anal canal, typical manifested by bleeding, swelling, and discomfort. The word "hemorrhoid" has a Greek derivation, roughly translated as "likely to discharge blood," whereas the word "pile" probably derives from the Latin for ball. There has been much speculation over the years as to the nature of "hemorrhoids." It is now generally accepted that "hemorrhoids" are a disorder of the anal cushions. This is based on a careful attempt to define hemorrhoids, made 30 years ago by WHF Thompson [1], who studied 95 cadaveric anorectal specimens and concluded that the anal mucosa is not a uniform layer but is thickened into three main cushions and that these more or less discrete cushions occur regularly in the left lateral, right

J.G. Williams, B.Sc., M.B.B.Ch., FRCS, M.Ch.
Department of Colorectal Surgery,
Royal Wolverhampton Hospitals NHS Trust,
New Cross Hospital,
Wednesfield Road, Wolverhampton,
West Midlands, WV10 0QP, UK
e-mail: graham.williams4@nhs.net

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anterior, and right posterior positions. The cushions are supported by smooth muscle stroma and elastic tissue and consist of a plexus of veins with direct arteriovenous communications, mainly between the terminal branches of the superior rectal and superior hemorrhoidal arteries. The veins consist of complex dilatations – so a mechanism exists to allow changes in the size of the cushions, which convert the anal lumen into a triradiate slit, assisting anal closure.

Why anal cushions become a source of symptoms is not entirely clear. A plausible explanation is that fragmentation of the connective tissue supporting the cushions leads to their descent. This occurs with age and the passage of hard stools, which produce shearing forces on the framework of the cushions. Straining produces an increase in venous pressure and engorgement. The prolapsed cushion has an impaired venous return, which results in dilation of the plexus and venous stasis. Inflammation occurs with erosion of the cushion's epithelium, resulting in bleeding. Hemorrhoids (piles) result from the pathological changes in prolapsed anal cushions. This mechanism was proposed as the theory of sliding anal lining and has superseded notions that piles were a form of varicose veins. Patients with symptomatic hemorrhoids have been shown to have elevated resting pressure in their anal canal. There has been some debate as to whether this is of etiological importance; effective treatment of hemorrhoids is not dependent on reducing anal sphincter pressure. The recorded resting pressure rise may be explained by increased tissue in the anal canal.

The theory is attractive and fits with a lot of what is known about hemorrhoidal disease. However, there remain problems with definition. When does the normal anal cushion complex become abnormal? Surgeons examining patients with colorectal conditions other than hemorrhoidal disease will encounter abnormalities of the anal cushions similar to those seen in patients with "hemorrhoidal" symptoms.

2.3 How Are Hemorrhoids Classified?

Traditionally, hemorrhoids are classified on their relationship to the dentate line as internal if the area involved originates proximal to the dentate line and external if the involved area originates distal to the dentate line. However, it is quite common for patients to present with a mixed picture, with involvements of internal and external elements. The distinction is somewhat arbitrary but does have relevance to treatment. Internal hemorrhoids involve the mucosa of the upper anal canal and lower rectum, which are devoid of somatic nerve endings, whereas the external element is richly innervated with somatic nerve endings, which limits treatment options in the outpatient clinic.

Internal hemorrhoids are further classified by degree (Box 2.1). The distinction between different degrees of hemorrhoid is subjective and, while useful for comparing the results of different treatment options, has less relevance when selecting the most appropriate treatment, where symptom patterns are important. It is for this reason that other classifications have been proposed that take this into account [1].

Box 2.1: Traditional Classification of Hemorrhoids

Grade	Description
First degree	Hemorrhoidal tissue protrudes into lumen but does not prolapse
Second degree	Hemorrhoidal tissue prolapses beyond anal canal but returns spontaneously
Third degree	Hemorrhoidal tissue protrudes outside anal canal and requires manual reduction
Fourth degree	Hemorrhoidal tissue is irreducible and constantly prolapsed

Box 2.2: Common Symptoms of Hemorrhoidal Disease

Symptom	Differential diagnosis
Rectal bleeding	Colitis, anal fissure, rectal prolapse, colorectal polyp, colorectal cancer
Anal mass	Abscess, anal skin tags, anal warts
Prolapse	Mucosal prolapse, full thickness prolapse, prolapsed rectal polyp
Anal pain/discomfort	Anal abscess/fistula, anal fissure, anal skin tags, anal warts, anal cancer, Crohn's disease
Anal irritation	Idiopathic pruritis ani, anal fissure, anal skin tags, anal warts, anal cancer, Crohn's disease
Anal soiling/leakage	Anal warts, anal fistula, anal incontinence

2.4 How Common Are Hemorrhoids?

The short answer is very. Many people experience hemorrhoidal symptoms without seeking medical advice, and large quantities of over-the-counter hemorrhoid preparations are sold each year. In the USA, prevalence of hemorrhoids has been estimated at 4.4% of the population. Rectal bleeding (only one of a number of symptoms of hemorrhoidal disease – Box 2.2) is common. Of 4,006 respondents to a postal survey in Portsmouth, 18% reported rectal bleeding in the previous year [2]. Younger women (16–40 years) were significantly more likely to report rectal bleeding than young men (26% vs. 16%). While for 25%, this was their first episode of rectal bleeding – 63% had experienced rectal bleeding in the previous year. Of these people, 28% consulted their GP, and only 7% were referred for hospital treatment. If we extrapolated these findings, 145 in every 1,000 people could expect to see rectal

bleeding each year and in an average district general hospital catchment population of 250,000, this would be nearly 40,000 individuals per year, which would equate to about 2,800 referrals with bleeding.

2.5 Evaluation of the Patient

There should be two goals when evaluating the patient. Firstly to establish that hemorrhoidal disease is the cause of the patient's symptoms and secondly to establish the patient's expectation of the consultation. Many patients who have experienced minor anal bleeding are concerned as to the implication but are more than happy with an explanation that this has a simple cause (bleeding from the anal canal) and can be reassured and discharged without treatment. Indeed, investigating and treating all patients will overwhelm the limited resources of colorectal clinics.

2.6 How Do Hemorrhoids Present?

Hemorrhoids can present with a variety of symptoms, either in isolation or in combination (Box 2.2). These symptoms are not specific to hemorrhoidal disease, and there is a large differential diagnosis, which must be considered if more serious pathology is not to be missed. Many times, the diagnosis of hemorrhoidal disease as a cause of the patient's symptoms is arrived at after exclusion of other possible causes.

The most common presenting symptom of hemorrhoids is rectal bleeding, which is usually painless and associated with defecation. Typically, a patient will see blood on the toilet paper or splattering the lavatory bowl. Blood mixed with the stool suggests a more proximal source. Color of the blood merely indicates the site of origin in the large bowel, and bright red bleeding (associated with hemorrhoidal disease) can arise from any lesion within the sigmoid, rectum, and anal canal. Other symptoms will help guide the clinician as to the likely cause of the patient's symptoms. A history of anal discomfort, irritation, or swelling will point to a local anal cause, whereas a history of an associated change in bowel habit, especially to looser stools, suggests a colonic cause for the symptoms. Indeed, it is the combination of the pattern of symptoms and the patient's age which will guide the clinician as to the likelihood of other causes for the patient's symptoms (Table 2.1) and those patients that require more detailed evaluation [3].

In most cases, a diagnosis of hemorrhoidal disease is confirmed by simple clinical examination, including proctoscopy. The role of rigid sigmoidoscopy is more contentious. In many instances, the view is obscured by feces, but usually, sufficient view of the rectal mucosa is afforded to exclude proctitis as a cause of symptoms. Inspection of the anal margin at rest and with the patient straining will demonstrate the extent of external hemorrhoids; internal hemorrhoids are visible with a proctoscope and are

Table 2.1 Influence of a combination of symptoms on the likelihood of colorectal cancer being the diagnosis

Symptom pattern	+ve predictive value (%)	Odds ratio (95% CI)
Bleeding and CIBH	12.1	4.0 (3.3–4.8)
Bleeding without CIBH	2.5	0.3 (0.3–0.4)
Bleeding without perianal symptoms	12.5	3.5 (2.9–4.3)
Bleeding with perianal symptoms	2.5	0.3 (0.3–0.4)
Bleeding with CIBH but no perianal symptoms	19.7	5.7 (4.7–7.1)
Bleeding with CIBH and perianal symptoms	7.5	1.6 (1.3–2.0)
Bleeding without CIBH and without perianal symptoms	5.8	1.1 (0.8–1.5)
Bleeding without CIBH but with perianal symptoms	1.4	0.2 (0.1–0.6)

Taken from Thompson et al. [3]
Note that the risk of cancer varies from 1.4% for a patient who presents with bleeding and perianal symptoms but who has not had a change in bowel habit (CIBH) to 19.7% for a patient who presents with bleeding and a change in bowel habit but without perianal symptoms

Table 2.2 Flexible sigmoidoscopy and common diagnoses by age [4]

Final diagnosis	Patients aged ≥45 years $n=1{,}033$	Patients aged <45 years $n=242$
Nothing abnormal detected	214 (20.7)	108 (44.6)
Hemorrhoids	301 (29.1)	89 (36.8)
Diverticular disease	218 (21.1)	9 (3.7)
Colitis	49 (4.7)	6 (2.5)
Polyps	171 (16.6)	19 (7.9)
Carcinoma	36 (3.5)	0
Other (melanosis coli, anal polyp, radiation proctitis, submucus lipoma, solitary rectal ulcer, anal fissure)	44 (4.3)	10 (4.1)

accentuated when the patient strains. Where the patient has pain which precludes adequate proctoscopy, examination under anesthetic should be considered to exclude other possible causes such as a fissure, abscess, or anal canal cancer.

Investigation of the colon is required where the symptom pattern suggests more proximal pathology (change in bowel habit, weight loss, abdominal symptoms) and where clinical findings are at odds with a diagnosis of hemorrhoidal disease alone (anemia, +ve stool occult blood, blood in the rectal lumen on sigmoidoscopy, abdominal mass or tenderness). The threshold for performing colonic investigations depends on the patient's age. Performing flexible sigmoidoscopy on all patients presenting with rectal bleeding is a poor use of resources. An audit of investigation of rectal bleeding by flexible sigmoidoscopy in Trafford General Hospital, Manchester [4], demonstrated a very low yield of significant rectal and colonic pathology in patients under 45 (Table 2.2). Interestingly, despite reporting rectal bleeding, 20% of over 45 s and 45% of under 45 s did not have an identifiable cause for bleeding, which is most likely to have arisen from normal anal cushions.

Routine use of anorectal physiology tests and endoanal ultrasound scanning is unnecessary. Patients who have symptoms of incontinence or soiling require such investigations, even though these symptoms are usually a consequence of the swollen hemorrhoidal tissue. These tests are especially indicated in patients with incontinence who are being considered for surgical treatment of their hemorrhoids as the findings may influence the surgical approach.

2.7 Treatment

Once it has been established that the patient's symptoms are caused by their hemorrhoids and that more significant potential causes have been excluded, a discussion is had with the patient about the treatment options, which should start with a "no treatment" option. For many patients, this is their preferred approach as their symptoms are intermittent, self-limiting, and of minimal inconvenience, and reassurance that they do not have a more serious problem was all they were seeking. A vast industry has developed around hemorrhoids, with topical ointments and a range of more invasive treatments being advocated, particularly on the Internet, where a Google search of "hemorrhoid treatment" will produce over one million results. Where the patient seeks resolution of their symptoms, many options are available, from simple conservative measures through to surgical excision of the hemorrhoids.

2.7.1 Conservative Treatment

As has been shown, hemorrhoidal symptoms are common, and patients presenting to their general practitioner will be given advice on conservative management of their symptoms. Commonly, patients will be advised not to strain at stool as straining is thought to be of etiological importance. This may or may not be good advice: it is certainly entrenched in many textbooks, but there is no evidence that this advice is associated with less bleeding and or prolapse. It does however worry patients, who now blame themselves for causing this problem by straining in the past. The second approach is to improve bowel function either by laxatives or increasing fiber content of the patient's diet. For this, there is more evidence of benefit. In a meta-analysis of the use of fiber for hemorrhoid symptoms, the pooled analysis for bleeding showed a 50% relative risk reduction in the active treatment arm-taking fiber (RR = 0.50, 95% CI 0.28–0.89) [5]. However, fiber does not reduce the symptoms of persistent prolapse.

There are many topical ointments and suppositories for treating hemorrhoidal symptoms available over the counter and by prescription. There is little or no scientific evidence that these are effective. Anusol™, one of the most popular topical