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# ESSENTIAL SURGERY

PROBLEMS, DIAGNOSIS  
AND MANAGEMENT

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H. George Burkitt

Clive R.G. Quick

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*Drawings by*

Philip J. Deakin

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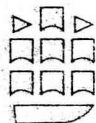
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## Preface

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With so many textbooks of surgery already available, our justification for producing another is that we have taken an entirely new approach to the subject.

This book is written primarily for clinical students. It provides an exposition of the whole field of general surgery and urology suitable for modern clinical courses. It is also a practical manual for junior hospital doctors, up to the level of surgical SHO or junior surgical resident. In addition, this book is designed to be a continuing reference text for doctors in other specialties, including general practice. We hope our book will appeal especially to readers who want to understand surgery rather than merely pass examinations.

There are several major differences between this book and standard surgical textbooks. First, we have tried to explain the pathophysiological basis of surgical diseases and of their management so as to bridge the gap between basic medical sciences and clinical problems. Second, we have adopted a problem-solving rather than a disease-orientated approach to diagnosis and treatment. We believe that understanding how diagnoses are made and why particular treatments are used is more effective and more memorable than rote learning. Third, we have included information about epidemicology, disease prevention and the provision of health care. Fourth, we have extensively used original illustrative material to emphasise important concepts, to avoid unnecessary text and to assist readers in their revision. This includes X-rays, photographs of clinical cases and pathological specimens, anatomical and operative diagrams, tables, flow charts and summaries of the text. Virtually all the clinical photographs and most of the X-rays have been taken from our own practice rather than from commercial libraries, and we have tried to choose typical rather than gross examples of disorders so the student can see how patients commonly present. Fifth, we have included outlines of common surgical operations to enable students and junior doctors to explain operations to patients, to participate intelligently in the operating department, to understand and prevent complications and to perform certain minor operations themselves. Finally, we have included a major section on accident surgery related to the general surgeon.

Surgical practice varies from unit to unit and teaching within each unit tends to reflect local methods. To explain these different but valid approaches to similar problems, we have tried to indicate the principles of how surgical disorders evolve, and the effects of different forms of intervention at various stages. Part I sets the scene by discussing the important pathophysiological processes in clinical terms, and by outlining the principles of cancer management. It also includes an introduction to investigative procedures and the basic

principles of operative surgery. These general descriptions are expanded for individual disorders in later chapters.

Junior doctors often find it very difficult to interpret a patient's symptoms and signs to make the correct diagnosis and choose the best treatment option. Abdominal pain, for example, is particularly difficult to sort out. Chapter 6 covers interpretation of non-acute abdominal symptoms, including general aspects of history taking, investigation, diagnosis and management. Chapter 7 deals with clinical aspects of the acute abdomen and acute gastrointestinal haemorrhage, and is based on the pathological processes which produce the physical signs. Chapters 8–31 comprise a systematic and detailed review of surgical disorders. Within this section, Chapters 8–18 cover gastroenterological conditions whilst urological disorders are tackled in Chapters 20–25. Other topics such as breast disease and paediatric surgical disorders are covered in single chapters. The chapter on head and neck problems includes a concise account of dental conditions with which doctors should be familiar.

An important area of concern for the student and junior surgical doctor is the multiplicity of management decisions that must be made. These decisions are faced from moment to moment during assessment, as well as during preoperative and postoperative care. For example, 'Is the patient fit for anaesthesia?', 'Will blood transfusion be necessary?', 'What intravenous fluids are required?', and 'Why is this postoperative patient febrile?' are common surgical questions that must be answered. Throughout the book, we have attempted to view the practical management of patients through the eyes of the trainee. In addition, the whole of Part IV is devoted to specific management problems, and includes chapters on medical problems in surgical patients, complications of surgery, preoperative assessment, postoperative problems, and fluid and nutritional problems.

Teaching surgeons are often unaware of the medical and social aspects of patient care. Yet these are often of vital concern to both doctors in training and their patients. Furthermore, only a small proportion of 'surgical conditions' such as abdominal pain, urinary tract infection or minor injuries ever reach a surgical specialist. Most are managed best outside hospital. Since many doctors will not ultimately work in hospitals, we have tried to relate the community aspects of surgical problems to aetiology, disease prevention, primary care or provision of services.

We cannot pretend that surgery can be taught entirely by a problem-orientated method; at various stages in our text, descriptions of individual diseases have had to be included. Nevertheless, we believe that the benefits of our approach will be apparent and any disadvantages largely overcome by extensive cross-references. We hope readers will enjoy our fresh approach and be stimulated to a greater enjoyment and understanding of the practice of surgery.

H.G.B.  
C.R.G.Q.  
D.G.

Cambridge, 1990

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## Acknowledgements

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The authors have been honoured by the assistance of many colleagues who provided illustrative material and checked the accuracy of specialist topics. We hope we have done justice to their contributions!

Special thanks are due to Dr Graham Hurst, consultant radiologist at Hinchingbrooke Hospital, Huntingdon, who was responsible for providing the large number of superb radiographs in the book as well as the radiological information in Chapter 2. He was greatly helped in this endeavour by Dr Catherine Hubbard, consultant radiologist at Hinchingbrooke Hospital, and also by many of his radiological colleagues elsewhere who provided valuable radiographs. These include Dr A. Freeman, Dr E.P. Wraight (consultant in nuclear medicine), Professor T. Sherwood, Dr D. Appleton, Dr C. Flower, Dr N. Ashford, Dr R. Coulden, Dr T.D. Hawkins and Dr A.K. Dixon (all of Addenbrooke's Hospital, Cambridge), Dr A. Chalmers (The General Infirmary, Leeds) and Dr L.J. Clark (Queen's Medical Centre, Nottingham).

Dr Alan Stevens, consultant pathologist at the University of Nottingham, reviewed the whole text and gave valuable advice and ideas on pathophysiology. Dr Michael Williams (consultant radiotherapist, Addenbrooke's and Hinchingbrooke Hospitals) provided valuable material for Chapter 4 and reviewed the non-surgical treatment of cancer throughout the book. Dr Paul Wheeler of Cambridge provided and photographed the histopathological specimens as well as contributing some fine clinical photographs. Other colleagues who provided clinical illustrations include Mr David Matthews (consultant dental surgeon, Princess Royal R.A.F. Hospital, Ely), Mr W.G. Everett (consultant surgeon, Addenbrooke's Hospital), Dr D. Carr-Locke (consultant gastroenterologist, Leicester Royal Infirmary), Mr M. Owen-Smith (consultant surgeon, Hinchingbrooke Hospital) and Mr Campbell Calder (dental surgeon, Cambridge). To them all, we are greatly indebted.

Black and white photographs of surgical equipment and reproductions of all radiographs and clinical slides were meticulously and painstakingly prepared for publication by Mr Leonard Beard, director of the department of medical photography at Hinchingbrooke Hospital.

Invaluable epidemiological data about cancer in the East Anglian Region was provided by Dr Kingsley Pillars, director of the regional cancer registry in Cambridge, to whom we are grateful.

Many specialist colleagues reviewed our work in their areas of interest and were generous in their criticisms. Any errors that remain are our responsibility, not theirs. Particular thanks go to Mr Andrew Higgins (consultant surgeon and urologist, Hinchingbrooke Hospital), Drs Bill Newsom and Rod Warren (consultant microbiologists, Hinchingbrooke and Addenbrooke's

Hospitals), Dr Howard Smith (consultant anaesthetist, Hinchingsbrooke Hospital), Dr Kate Hoggarth (consultant haematologist, Hinchingsbrooke Hospital), Dr Michael Williams (consultant radiotherapist, Hinchingsbrooke and Addenbrooke's Hospitals), Mr W.G. Everett (consultant surgeon, Addenbrooke's Hospital), Dr Barbara Young (medical registrar), Dr Trevor Wheatley (senior medical registrar), Dr R.J. Dickinson (consultant gastroenterologist, Hinchingsbrooke Hospital) and Mr Paul Calvert (consultant orthopaedic and trauma surgeon, St George's Hospital, London). Many other friends, colleagues, junior staff and students willingly contributed time and ideas during the formative stages. To them all, we give our grateful thanks.

As the project neared completion, Dr Jane Hailey, initially as a medical student and later whilst surgical house officer (intern) to C.R.G.Q., spent countless hours reviewing the whole text in meticulous detail, simplifying the language and turning obscurity into clarity. We owe her a great debt of gratitude for this vital work and wish her well in her future writing endeavours.

Finally, our greatest thanks go to our wives who put up with our seemingly endless preoccupation with 'the book' yet always offered their encouragement.

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## Publisher's note about the authors

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The authorship of this book is unusual in that only one of the authors was a consultant surgeon at the time of writing (C.R.G.Q.), while the other two were junior hospital doctors. We believe this has resulted in the radical new and refreshing approach used in this publication.

George Burkitt obtained qualifications in dental surgery and community medicine before studying clinical medicine as a mature student in Cambridge (England). This book was written while he was a senior house officer and represents the book he would like to have had during his training. He has a deep interest in medical education and is co-author of two other popular student texts by the same publisher. These are *Functional Histology* and *Basic Histopathology*, the former written whilst a preclinical medical student in Nottingham and the latter as a clinical student in Cambridge. He has now returned to Australia where he is a family practitioner in Newcastle, NSW.

Clive Quick also trained initially as a dental surgeon but is now a consultant general and vascular surgeon at the teaching hospitals associated with the Clinical School of the University of Cambridge. He has a strong interest in computers as tools of communication. As an associate lecturer in the University, he teaches and examines clinical students in surgery. He is also heavily involved in training junior surgeons which is how he came to know his two co-authors. He is also the organiser of the Cambridge FRCS course and the Cambridge Anastomosis Workshop.

Dennis Gatt is now a consultant general, thoracic and vascular surgeon in his home country of Malta, having become associated with his co-authors whilst undergoing postgraduate surgical training in the Cambridge area. He played a vital role in the conception and planning of the book and also produced the index.

The mechanics of how this book was written were also unconventional. Working from a detailed protocol, the book was written directly onto a word processor by the first two authors working together. Each point was discussed (often heatedly and at length) until it was agreed that the topic was explained as clearly and unambiguously as it could be. Editing and formatting were all performed 'on screen' and the whole book was later typeset direct from the computer disks.

The artist, Philip Deakin, first trained in physiology and later in medicine and is now a family doctor in Sheffield. He previously made the drawings for *Functional Histology*, mentioned earlier. For this book, he prepared the drawings from preliminary work by two of the authors, C.R.G.Q. and D.G., using his professional knowledge to achieve unusual accuracy whilst retaining an attractive simplicity and clarity of style.

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**PART I**  
**BASIC SURGICAL PRINCIPLES**

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# 1 PATHOPHYSIOLOGICAL PROCESSES OF SURGICAL IMPORTANCE

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## Introduction

Surgical diagnostic method is often taught by comparing a patient's symptoms and signs with standard sets which are known to characterise each disease. But while most disorders match their classical descriptions at certain stages in their evolution, this may not be so at the moment the patient presents for treatment. Perhaps more commonly, patients present before recognisable patterns have developed, or else at a late stage, the typical clinical picture having been missed or ignored on the way.

Yet again, the diagnostic process can be confused if all the symptoms and signs expected for a particular diagnosis are not present, or if symptoms and signs are present which seem inconsistent with the working diagnosis.

This chapter, and indeed the whole book, seeks to elucidate a more logical and reliable approach to diagnosis than simple pattern recognition, by attempting to explain symptoms and signs on the basis of the underlying pathophysiology and local anatomy. This chapter provides a review of the main mechanisms of 'surgical' disease against a background of the basic medical sciences.

**Fig. 1.1** Principal mechanisms of surgical disease

### Trauma

Anatomical abnormalities — congenital or acquired

Disorders of normal function

Inflammation — infection, chemical and immunological mechanisms

Ischaemia and infarction

Metabolic and hormonal disorders

Neoplasia — benign and malignant

Other abnormalities of growth

## PRINCIPAL MECHANISMS OF SURGICAL DISEASE

### 1. Trauma

Tissue trauma, literally injury, in its wider sense includes damage inflicted by any physical means, i.e. mechanical, thermal, chemical, electrical or radiation. Common usage, however, tends to imply blunt or penetrating mechanical injury as caused by accidents in industry or in the home, road traffic accidents, fights, firearms and other missiles. Damage varies according to the nature of the causative agent, and the surface injuries may give no indication of the extent of deep tissue damage as for example, head injuries and bullet wounds.