

Oxford Cases in

Medicine and Surgery

Guiding you through diagnosis

Hugo Farne • Edward Norris-Cervetto • James Warbrick-Smith

Oxford Cases in Medicine and Surgery

This page intentionally left blank

Oxford Cases in **Medicine and Surgery**

Hugo Farne

Junior Doctor; St Mary's Hospital,
Paddington, London, UK

Edward Norris-Cervetto

Junior Doctor; Royal Berkshire Hospital,
Reading, UK

James Warbrick-Smith

Junior Doctor; Gloucestershire Royal Hospital, UK

OXFORD

UNIVERSITY PRESS

Great Clarendon Street, Oxford OX2 6DP

Oxford University Press is a department of the University of Oxford.
It furthers the University's objective of excellence in research, scholarship,
and education by publishing worldwide in

Oxford New York

Auckland Cape Town Dar es Salaam Hong Kong Karachi

Kuala Lumpur Madrid Melbourne Mexico City Nairobi

New Delhi Shanghai Taipei Toronto

With offices in

Argentina Austria Brazil Chile Czech Republic France Greece

Guatemala Hungary Italy Japan Poland Portugal Singapore

South Korea Switzerland Thailand Turkey Ukraine Vietnam

Oxford is a registered trade mark of Oxford University Press
in the UK and in certain other countries

Published in the United States

by Oxford University Press Inc., New York

© Oxford University Press, 2010

The moral rights of the author have been asserted

Crown copyright material is reproduced under Class Licence

Number C01P0000148 with the permission of OPSI

and the Queen's Printer for Scotland

Database right Oxford University Press (maker)

First published 2010

All rights reserved. No part of this publication may be reproduced,
stored in a retrieval system, or transmitted, in any form or by any means,
without the prior permission in writing of Oxford University Press,
or as expressly permitted by law, or under terms agreed with the appropriate
reprographics rights organization. Enquiries concerning reproduction
outside the scope of the above should be sent to the Rights Department,
Oxford University Press, at the address above

You must not circulate this book in any other binding or cover
and you must impose the same condition on any acquirer

British Library Cataloguing in Publication Data

Data available

Library of Congress Cataloging in Publication Data

Data available

Typeset by MPS Limited, A Macmillan Company

Printed in Italy

on acid-free paper by LEGO SpA-Lavis, TN

ISBN 978-0-19-956052-3

10 9 8 7 6 5 4 3 2 1

Oxford University Press makes no representation, express or implied, that the drug dosages in this book are correct. Readers must therefore always check the product information and clinical procedures with the most up to date published product information and data sheets provided by the manufacturers and the most recent codes of conduct and safety regulations. The authors and publishers do not accept responsibility or legal liability for any errors in the text or for the misuse or misapplication of material in this work.

Foreword

There is an abundance of excellent medical and surgical textbooks, written in both traditional and more novel formats. However, in a climate in which the content and mode of delivery of medical education remain in constant flux there remains a need for new resources that stimulate interest in the reader as well as providing the important and relevant facts. *Oxford Cases in Medicine and Surgery* fulfils this need. This book's uniqueness – and its educational value – stems from the way that the authors have approached the learning aspect from direct clinical symptoms, highlighting the most important differential diagnoses but also explaining how to differentiate them. This approach represents the book's real strength, mirroring as it does the integrated systems-based approach that is commonly used by many medical schools.

In my experience as a clinical teacher, course organiser, and examiner over the past decade, this is the first book that has attempted to bring together, and explain from a basic science concept, the reasons for the clinical picture or condition. This will help readers enormously, whether they are under-graduate or post-graduate medical, dental, or nursing students. It is an important book for those who wish to understand the reasons for clinical presentations and their differing management.

Mr Christopher LH Chan
Senior Lecturer/Honorary Consultant Surgeon
Barts and The London School of Medicine and Dentistry

This page intentionally left blank

Introduction

Why we wrote this book

The inspiration for this book comes from our time as medical students. The problem we found with existing textbooks was twofold.

Firstly, most books are organized by pathology. For example, they may have chapters on 'cardiology' that then discuss specific conditions, like 'myocardial infarction', in detail. But patients do not present with ready-made diagnoses like 'myocardial infarction'. They present with symptoms, such as 'chest pain', which could be a myocardial infarction – but could also be anything from reflux oesophagitis to aortic dissection.

Secondly, there are also textbooks based around cases rather than pathologies. Our experience is that these tend to skip over the diagnostic approach too quickly, in order to move on to a discussion of the underlying disease. Many give the reader so much information in the initial case presentation that the diagnosis is virtually made for you. For example, a *'62-year-old diabetic male with sudden onset, crushing chest pain; tachycardia on examination; ST elevation on his ECG, plus raised troponins'* has a myocardial infarction. But by giving so much information upfront, these books neglect to address what many students find most challenging – how do you decide what information to collect in order to make a diagnosis? Patients present with symptoms such as 'chest pain' and it is your job to elicit the key clues on history and examination, and to arrange the key investigations that will confirm that this is a myocardial infarction and rule out other diagnoses.

Knowing what to do when faced simply with 'confusion' or 'abdominal pain' can be daunting and tricky – we know, and that is what motivated us to write this book.

We hope this book will help you start thinking like a diagnostician from your first day on the wards. Thus, we hope you will be able to work out why your patient is short of breath or has abdominal pain in a way that is safe and efficient, and avoids you missing important diagnoses. Even with detailed knowledge of anatomy, physiology, biochemistry, pathology, history-taking, examination skills, and data interpretation, it can be difficult to integrate everything when faced with acutely ill patients on the wards. We benefited greatly from case-based seminars that taught us a hypothesis-driven, logical, step-by-step approach to diagnosis. Our hope is that this book emulates the teaching that we found so beneficial.

Finally, we wanted to write a workbook that students will enjoy using and where even the simplest concepts are clearly explained.

The need for a logical diagnostic approach

Looks like an elephant. Sounds like an elephant. Smells like an elephant. Probably an elephant. Experienced clinicians often use pattern recognition to guide diagnosis. As a student, you will begin to do this rapidly for conditions that you will encounter frequently – chances are that, by now, you easily recognized that the 62-year-old diabetic male mentioned above was having a myocardial infarction.

Pattern recognition is useful and efficient, and we have tried to illustrate stereotypical presentations of some diseases in our short cases.

Looks like a crocodile. Sounds like a crocodile. Smells like a crocodile... but is actually an alligator. Pattern recognition is a problem when a disease presents in a way that mimics another disease. For example, patients with oesophageal spasm may describe the same pain as those with an acute coronary syndrome. Such diagnostic puzzles are the stuff that hospital grand rounds and television shows are made of. But misdiagnosis due to (incorrect) pattern recognition can have disastrous consequences – you could inadvertently thrombolysed a patient you thought was having a myocardial infarction but actually had an aortic dissection. This is one reason why it is important to always follow a logical diagnostic approach.

Looks like an elephant. Sounds like a lion. Not sure what it smells like. Must be a...? You cannot recognize a pattern you have never seen before, an especially big problem for the inexperienced medical student starting their clinical placements. On other occasions, the symptoms may not fit any known pattern, and even experienced clinicians may struggle initially with the diagnosis. This is another reason for having a logical diagnostic approach.

A logical approach to diagnosis

Below is an outline of the diagnostic strategy we have used throughout this book. We recognize that, over time, everyone develops their own diagnostic strategy and that tutors may teach you differing approaches. This is simply one that has worked for us.

'50-year-old male with chest pain'. It is tempting to assume that he is having a myocardial infarction, like the 62-year-old diabetic male mentioned above. However,...

- **Step 1:** Think of all the things that could cause this presentation. Use anatomy, a surgical sieve (e.g. INVITED MD), etc. to come up with as long a list as possible.
- **Step 2:** Highlight from your list the most common causes. For example, acute coronary syndrome is a common cause of chest pain, viral costochondritis is not. Mark the ones that you *must* exclude because they are lethal. In the case of chest pain, Boerhaave's perforation of the oesophagus is important as, if untreated, it carries a 100% mortality.
- **Step 3:** Think of key clues in the patient history for each of the diagnoses. For example, patients with Boerhaave's perforation of the oesophagus invariably give a history of vomiting immediately before onset of the pain. Now take a history that deliberately tries to pick up these clues, rather than just going through a set of 'standard' questions which may miss things. Also consider the patient themselves (e.g. their age, occupation, etc.) and how this affects the relative likelihoods of your differential diagnoses. *Has the patient's history or epidemiological factors made any diagnoses more/less likely?*
- **Step 4:** Think of key clues on examination for your diagnoses. For example, patients with a pneumothorax will have an area of the chest that is hyper-expanded, hyper-resonant to percussion, with absent breath sounds. Perform a thorough examination looking for these clues. *Have your examination findings made any diagnoses more/less likely?*

Step 1: What could it be?	Step 2: What is most likely? What must I exclude (*)?	Step 3: Key clues on history?	Step 4: Key clues on examination?	Step 5: Key clues on basic investigations?	Step 6: Patient improving with management?
<p>Acute coronary syndrome Pneumothorax Aortic dissection Boerhaave's perforation Peptic ulcer disease Stable angina Musculoskeletal Oesophagitis (e.g. due to reflux) Oesophageal spasm Pulmonary embolism Pleurisy (secondary to infection) Anxiety Myopericarditis Aortic aneurysm Coronary spasm Cholecystitis Pancreatitis</p>	<p>Acute coronary syndrome* Pneumothorax* Aortic dissection* Boerhaave's perforation* Peptic ulcer disease Stable angina* Musculoskeletal Oesophagitis Oesophageal spasm Pulmonary embolism* Pleurisy Anxiety Myopericarditis Aortic aneurysm Coronary spasm Cholecystitis Pancreatitis</p>	<p>Acute coronary syndrome* Pneumothorax* Aortic dissection* Boerhaave's perforation* Peptic ulcer disease Stable angina* Musculoskeletal Oesophagitis Oesophageal spasm Pulmonary embolism* Pleurisy Anxiety Myopericarditis Aortic aneurysm Coronary spasm Cholecystitis Pancreatitis</p>	<p>Acute coronary syndrome* Pneumothorax* Aortic dissection* Boerhaave's perforation* Peptic ulcer disease Stable angina* Musculoskeletal Oesophagitis Oesophageal spasm Pulmonary embolism* Pleurisy Anxiety Myopericarditis Aortic aneurysm Coronary spasm Cholecystitis Pancreatitis</p>	<p>Acute coronary syndrome* Pneumothorax* Aortic dissection* Boerhaave's perforation* Peptic ulcer disease Stable angina* Musculoskeletal Oesophagitis Oesophageal spasm Pulmonary embolism* Pleurisy Anxiety Myopericarditis Aortic aneurysm Coronary spasm Cholecystitis Pancreatitis</p>	<p>Acute coronary syndrome* Pneumothorax* Aortic dissection* Boerhaave's perforation* Peptic ulcer disease Stable angina* Musculoskeletal Oesophagitis Oesophageal spasm Pulmonary embolism* Pleurisy Anxiety Myopericarditis Aortic aneurysm Coronary spasm Cholecystitis Pancreatitis</p>
<p>50-year-old male with chest pain</p>	<p>50-year-old male with chest pain</p>	<p>50-year-old male with sharp, left-sided chest pain, came on suddenly whilst watching TV. Smoker with known COPD. No risk factors for venous thrombosis.</p>	<p>Upper left zone of chest is hyper-resonant with reduced air entry and reduced vocal resonance. Chest not tender to palpation. No signs of DVT in calves.</p>	<p>Chest radiograph shows air in pleural space on left, with lung collapsing away from the upper left apex.</p>	<p>Patient improves after insertion of a chest drain for pneumothorax. Chest pain resolves completely.</p>

- ♦ **Step 5:** Don't order a set of 'standard' investigations. Think about those investigations that will help confirm or dismiss each diagnosis. Also include those that are relevant for management. Thus urea and electrolytes are necessary if a patient is put nil by mouth and on intravenous fluids, or started on drugs that are renally excreted or potentially nephrotoxic. Try to prioritize investigations into those that are more readily available (e.g. an MRI head scan is not a viable option for everyone who presents with a fall). Also think about which investigations are safe for this patient – is radiation exposure necessary, is the woman pregnant, do they have contraindications to MRI? *Then ask yourself, have your investigation results made any diagnoses more/less likely?*
- ♦ **Step 6:** Always try to confirm your diagnosis. *Is the patient getting better with your management for your proposed diagnosis? If not, why not?*

What this book *is* about

✓**Common acute presentations:** We cover 29 of the most common patient presentations in acute general medicine (internal medicine for our American readers) and general surgery. These reflect both the general medical and surgical syllabus at UK medical schools and those presentations that you are most likely to encounter during clinical attachments.

✓**Diagnostic strategy:** This book is primarily a diagnostic manual. It should equip the student with a framework for thinking about the most common general medical and surgical presentations.

✓**Pattern recognition:** The cases are loosely based on real clinical scenarios, although any likeness to a particular patient or individual is unintended. Some cases represent stereotypical presentations of diseases, from which the student may begin to pick up pattern recognition skills. Others illustrate more unusual presentations, and are designed to keep readers on their toes and remind them to keep an open mind at all times.

✓**Basic management:** For completeness, we include a discussion of the basic management for many of the diseases featured in the cases. Points on management cover the core knowledge expected of a medical student but are necessarily brief. We have tried to highlight areas of contention, and to refer to landmark trials and guidelines where relevant. Some of this is covered under our 'viva questions'.

What this book is *not* about

✗**Every possible diagnosis:** It is not logistically possible to condense the entirety of the medical and surgical syllabus into a book of this style – indeed such an attempt would run counter to the aims of this book. Our aim is to cover the most *common* presentations, and in so doing we also cover the most common diagnoses. We are fully aware that many diagnoses are not covered. But our hope is that we have provided a framework that will enable the reader to exclude the more common conditions, and be able to deal intelligently with clinical conundrums. The reader should be equipped to recognize the salient features of the case in question, and know when to ask for specialist help.

A case-based book which attempted to cover all possible diagnoses which may be encountered would not only be so long as to be unwieldy, but would also run the risk of suggesting that pattern recognition is a surrogate for a rational diagnostic strategy.

XBasic sciences and clinical skills: This book does not aim to teach disease pathology or how to take a history, examine a patient, and how to interpret basic investigations (biochemistry, haematology, radiology). However, we believe that this book can be fruitfully read alongside books and teaching about basic science and clinical skills.

XSpecialities: It should also be noted that the cases covered reflect only a selection, albeit a broad one, of the diseases and presentations that a medical student needs to cover. The bulk of the omissions relate to the specialities (e.g. obstetrics and gynaecology, paediatrics, ear, nose, and throat, ophthalmology, etc.) and general practice (family medicine).

XEpidemiology: This book does not contain detailed epidemiological data on the exact likelihood of diagnoses, because such data are rarely available and hardly memorable. Instead, we consider diagnoses to be either 'common', 'occasional', or 'very rare'. This is based on data, where available, or the cumulative experience of our senior reviewers (all of them consultants of many years' standing).

XDetailed management: This book does not focus on drug doses, surgical techniques, or other details of management, because these can already be found in other textbooks.

How to use this book

A workbook, not a reference text: This is intended to be an exercise text where you 'learn by doing'. Try to cover up the answers and work through the text (without cheating!) to get the most out of it.

Find a presentation: We have structured this book by presenting complaint, rather than pathology, because patients present with 'chest pain' rather than 'aortic dissection'. For ease of reference there is also an index by disease. Each chapter can be read individually, so the student can read those that relate to the presentation they last encountered or that was most recently discussed. Every chapter contains a core case, short cases, and viva questions, in that order.

Core case: Each core case is a clinical problem that walks you through the diagnostic approach. The information the clerking doctor might receive is provided in an initial box, followed by a question. The answer follows, with another section with clinical information and another question, and so on.

Short cases: The short case 'vignettes' are designed to highlight some of the other conditions that can present in a similar manner (indeed, with the same symptom). They will help develop your 'pattern recognition' of some diseases, but also remind you that pathologies can masquerade as one another, hence the need for a logical approach.

Viva questions: These questions are designed to test aspects of anatomy, pharmacology, physiology, etc. related to the cases. We hope they will prepare

the reader for the inevitable quizzing that occurs on teaching ward rounds or in theatres/operating rooms.

Graphical features: Questions are on a red background. Font sizes in a differential diagnosis illustrate how likely a diagnosis **is** (or isn't). Important points are in **red** or **bold** text.

Acknowledgements

Miss P. J. Clarke, Dr J. Dwight, Mr A. Handa, Dr T. Lancaster, and Dr T. Littlewood: thank you for sharing your invaluable clinical and educational experience with us, and for tirelessly reviewing all of the chapters over the past 2 years.

Dr P. Dennis and Dr T. Lancaster: thank you for your case-based seminars, which inspired this book. We hope to have captured the essence of what you taught us as medical students.

Dr C. Conlon, Professor T. Hope, Dr N. Meston, Mr R. Mihai, Dr A. Slater, Professor C. Tapper, Dr W. Thevathasan, Dr C. M. Norris, and Dr T. Walker: thank you for specialist advice when we were out of our depth.

Dr R. Graham and Dr J. Teh: thank you for helping us obtain elusive images.

Miss C. Connelly, Miss H. Edmundson, and the staff from OUP: thank you for believing in our project, encouraging us, and mentoring us as first time authors.

Emily: thank you for being so patient and discreet.

Rachel: thank you for cooking your boys endless amounts of brain food.

This page intentionally left blank

Editorial advisors

Dr J Dwight MD FRCP

Consultant Cardiologist, Department of Cardiology, John Radcliffe Hospital, Oxford

Dr T Lancaster MRCP MRCGP

General Practitioner and Director of Clinical Studies, John Radcliffe Hospital, Oxford

Dr T Littlewood MD FRCP FRCPath

Consultant Haematologist, Department of Haematology, John Radcliffe Hospital, Oxford

Mr A Handa MBBS FRCS

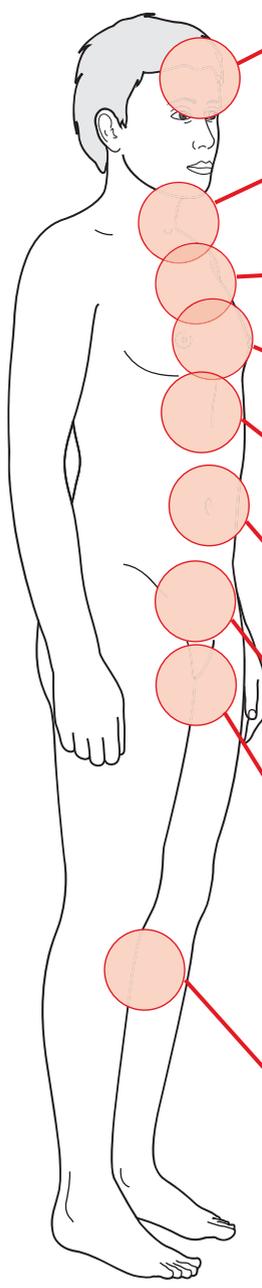
Clinical Tutor & Consultant Vascular Surgeon, Nuffield Dept of Surgery, John Radcliffe Hospital, Oxford

Miss P J Clarke MD FRCS

Consultant Breast & General Surgeon, John Radcliffe Hospital, Oxford

This page intentionally left blank

Contents



Abbreviations

1	Headache	1	1-3
2	Confusion	19	
3	Blackout	41	
14	Neck lump	61	4
5	Haematemesis	87	5-6
6	Dysphagia	107	
7	Cough	123	7-11
8	Haemoptysis	139	
9	Chest pain	159	
10	Shortness of breath	181	
11	Breast lump	211	
12	Epigastric pain	229	12-14
13	Nausea and vomiting	251	
14	Jaundice	269	
15	Right upper quadrant (RUQ) pain	291	15-18
16	Right iliac fossa (RIF) pain	307	
17	Left iliac fossa (LIF) pain	323	
18	Flank pain	337	
19	Constipation	353	19-21
20	Diarrhoea	373	
21	Rectal bleeding	395	
22	Poor urinary output	417	22-25
23	Polyuria	439	
24	Groin lump	451	
25	Scrotal mass	469	
26	Limb weakness	481	26-29
27	Acute joint pain	505	
28	Swollen calf	521	
29	Leg ulcer	535	

Index

This page intentionally left blank

List of abbreviations

AAA	abdominal aortic aneurysm
ABC	airways, breathing, and circulation
ABG	arterial blood gas
ABPI	ankle–brachial pressure index
ACA	anterior cerebral artery
ACE	angiotensin-converting enzyme
ACEi	angiotensin-converting enzyme inhibitor
ACTH	adrenocorticotrophic hormone
ADH	antidiuretic hormone
ADP	adenosine diphosphate
A&E	Accident and Emergency [Department]
AFP	alpha-fetoprotein
ALP	alkaline phosphatase
ALT	alanine aminotransferase
AMA	antimitochondrial antibodies
AMTS	Abbreviated Mental Test Score
ANA	antinuclear antibodies
APTT	activated partial thromboplastin time
ARBs	angiotensin II receptor blockers
ARDS	acute respiratory distress syndrome
ASIS	anterior superior iliac spine
ASMA	antismooth muscle antibodies
AST	aspartate aminotransferase
ATLS	advanced trauma life support
AV [node]	atrioventricular [node]
BCG	bacille Calmette–Guérin [vaccine against tuberculosis]
b.d.	twice a day [drug dosing]
BMI	body mass index
BNF	British National Formulary
BP	blood pressure
BPH	benign prostatic hyperplasia
bpm	beats per minute
BPPV	benign paroxysmal positional vertigo
BTS	British Thoracic Society
CABG	coronary artery bypass graft
cANCA	cytoplasmic-staining antineutrophil cytoplasmic antibodies
CBT	cognitive behavioural therapy
CCB	calcium-channel blocker
CCK	cholecystokinin
CCP	cyclic citrullinated peptide
CEA	carcinoembryonic antigen
CLO	columnar lined oesophagus
CMV	cytomegalovirus