Case Studies in Medical Imaging

This book is written as a system-based clinical–radiological review providing images from the latest available imaging modalities and covers all major diseases that are encountered in everyday clinical practice. A problem-orientated approach is used. Each chapter contains a collection of clinical cases each with a short clinical description and initial imaging followed by pertinent questions regarding the imaging findings (colour coded in red outline). The second part of each chapter contains the case diagnosis, a discussion of the role of imaging in the presenting problem, a recommended sequence for further imaging evaluation, and illustrative examples of the same disease using different imaging modalities for further investigation. Images of conditions in the differential diagnosis are also provided (colour coded in blue outline).

This book is written by experienced radiologists currently working in undergraduate and postgraduate medical education. The cases are a collection of their illustrative teaching material.

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Case Studies in Medical Imaging

Radiology for Students and Trainees

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Radiology (Medical Imaging) now plays a pivotal role in modern medical practice. Clinical decision making depends on timely and accurate interpretation of imaging studies particularly in acute situations. Its importance in daily clinical practice is reflected by the fact that almost no patient leaves the hospital without undergoing an imaging study. Many clinicians now need to interpret images themselves and the information provided is particularly useful for minimally invasive treatment. It is therefore essential that imaging take its rightful place in the Medical School Core Curriculum so that future doctors have the necessary knowledge and skills to provide high quality medical care to the community they serve.

Radiology is a ‘visual’ science and is best taught and learnt viewing images rather than text alone. These images can be used to demonstrate anatomy, physiology, pathology (in cross-section, real time, 3D, multi-planar and virtual reality) and are a powerful tool when combined with relevant clinical information. Its applications cover every aspect of medicine and across all specialties making radiology the key to prompt diagnosis and management. Future doctors must therefore be familiar with all aspects of Radiology (diagnostic and interventional). It is with this in mind that ‘Case Studies in Medical Imaging: Radiology for Students and Trainees’ is written.

Radiology is constantly being revolutionized by rapidly advancing technology. There is a wealth of encyclopedic radiology textbooks (some of which have been used in the preparation for this book) available in the market for residents undergoing specialist training. However, they may be too exhaustive for medical students and trainees to squeeze into their already overwhelmed curriculum. There exist student textbooks on radiology but they are didactic and tend to focus on text rather than images.

In this book, knowledge is conveyed predominantly through case studies using images and supplemented with brief text in a question and answer format. The core knowledge in Radiology that a medical graduate ‘must know’ is covered in these cases. This book does not discuss the physical principles of the various imaging modalities, as these have been adequately covered in other ‘textbooks’, but focuses on imaging information for common cases medical student and young residents must be familiar with.

In the preparation of this book two other books have been extensively referred to. These are Wolfgang Dahnhert: Radiology Review Manual and Chapman S, Nakielny R: Aids to Radiological Differential Diagnosis. They have distilled the basic facts regarding imaging and clinical information and have become essential reading material for most radiology residents and trainees. The facts stated in these books are clear, indisputable and have themselves been obtained with the help of many other reputable radiology texts. This is a legacy that is passed on from teachers, colleagues, collaborators which continues to benefit medical education.

All the authors and co-editors in this book are teachers in academic departments and have a wealth of teaching experience. They are strongly committed to medical teaching and their efforts are appreciated by students and colleagues alike. They have put to paper knowledge and skills acquired over many years of teaching with the aim of improving Radiology teaching in the Medical Curriculum.
I owe a large debt of gratitude to colleagues and staff in The Department of Diagnostic Radiology & Organ Imaging, The Chinese University of Hong Kong, without whose help none of this would have been possible. They have shared their knowledge, images, time, patience and expertise and for this I remain grateful. I would also like to thank Professor Ravi Ramakantan, Head of Department, Radiology Department, Seth G.S Medical College, K.E.M Hospital, Mumbai, India for his support and contributing teaching material from his department (where I originally trained!). His efforts are much appreciated.

On a personal note, for me, this book is for my late father, Dr T.S Ahuja, who taught Histology and Anatomy to medical students (including myself) in their preclinical years at The Seth G.S Medical College, K.E.M Hospital, Mumbai, India. He is still fondly remembered by all his students for his hard work and dedication towards teaching. Finally, I remain forever grateful for the close help and support of my mother Mrs Laj Ahuja, wife Chu Wai Po and daughters Sanjali and Tiana (who have helped me maintain my sanity).

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