
The perioperative management of patients by anaesthetists is dependent on well-established pharmacological and physiological principles, but its foundations are based in neuroscience. The Neuroscientific Foundations of Anesthesiology explores the scientific principles of anaesthesia and provides insights not only into how anaesthetics work but also into how the brain functions.

The book is organized to reflect the fact that the clinical practice of anaesthesia targets virtually every component of the nervous system. It is primarily system-based with each section focusing on a different part of the nervous system. Within each section, an introductory chapter lays out the context for subsequent detailed discussion. Thus, Part II, which deals with the brain, opens with a chapter that provides an overview of the neural networks involved in the three-core components of anaesthesia—amnesia, hypnosis, and immobility—and which is followed by chapters discussing the cellular, molecular, and circuit level effects of anaesthetics. Two chapters explore the relevance of the thalamocortical system and mediotemporal lobe in anaesthesia-induced unconsciousness and memory modula- tion, respectively, and another examines structural and functional neuroimaging correlates, and the mechanisms that underlie acute and chronic pain transmission.

Part III deals with the spinal cord and covers spinal cord targets relevant to anaesthesia, the role of the spinal cord in anaesthesia-induced immobility, and the mechanisms of spinal anaesthesia. Part IV covers the peripheral nervous system, dealing with its anatomy and function, the neurobiology of incisional pain, and the sequelae of nerve injury. The role of modulation of the autonomic nervous system in perioperative outcomes, and also relevant pharmacology, is reviewed in Part V. Part VI deals with the neuromuscular junction, with chapters reviewing its anatomy and function, the pharmacology of neuromuscular blocking agents, and anaesthesia and disorders of the neuromuscular system. The latter is more of a ‘how to do it’ chapter than others in the book and some of its content therefore seemed a little out of place to me.

The last section departs from the system-based approach and deals with neural toxicity. The relevance of anaesthetic neurotoxicity, particularly at the extremes of age, is a major challenge for practicing anaesthetists, and these issues are comprehensively explored. Reviews of postoperative cognitive disorders and anaesthesia and neurodegeneration complete Part VII.

The Neuroscientific Foundations of Anesthesiology is eminently readable and, although the content is scientific in nature, it is always relevant to the practising clinician. High-quality colour figures complement the text, allowing complex issues to be explained clearly. The symbiosis between the clinical practice of anaesthesia and neuroscience is a unique feature of this book that is exemplified by the editors and authors who represent both clinical and basic science experts. They are to be congratulated on their efforts.

M. Smith
London, UK
E-mail: martin.smith@uclh.nhs.uk
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This book, from the Department of Anesthesia in Toronto, contains 11 chapters on transesophageal echocardiography in 235 pages of high-quality A5 paper. It is marketed as a handbook and as such fulfils this feature admirably. For easy reading, like holding a hand-held electronic device, the spine of the book consists of several rings that allow the pages to be turned backwards on themselves and a pen to be inserted for possible annotations.

Each chapter begins with a list of headings and page numbers to enable the reader to judge the educational objectives at a glance. The contents of each section are well structured, with concise but very detailed information. There are tables which have been appropriately annotated to facilitate learning. References are made to key documents such as those from the American Society of Echocardiography. The importance of understanding surgical procedures, efficient scanning, and good communication of precise echocardiographic findings to the surgeon is emphasized. In addition to standard topics such as image acquisition, ventricular function, valves, aorta, masses, and diastology, the book covers congenital heart disease, ventricular-assist devices, and heart transplantation. There is brief reference to transcatheter aortic valve implantation and to modalities such as speckle tracking and strain imaging.

The book makes good use of illustrations, with many echocardiographic images which have been edited carefully for size and clarity. To assist understanding of cardiac structures, there are comprehensive diagrams of the images, beautiful anatomical colour drawings, and intraoperative photographs. Images comparing normal anatomy with abnormal anatomy are included. Although the title of the book refers to two-dimensional echocardiography, there are three-dimensional images in relation to intraoperative practice such as mitral
Despite these many positive points, there are a few minor errors in relation to page numbers. The description of pulmonary vein flow in systole and diastole on page 215 is inconsistent with the diagram on page 214. On page 46, the deceleration profile in diastole in mitral stenosis may sometimes have two slopes: an initial steep slope followed by a prolonged shallow slope. Each slope is utilized for different reasons and perhaps this point could have been clarified. In Chapter 4, grading of some valvular lesions has been oversimplified from four to three categories and there was no direct mention of the Carpentier classification for mitral regurgitation.

In conclusion, this handbook contains a lot of helpful information of use to both the novice and established perioperative echocardiographers. It is attractive, very readable, portable, and likely to be carried ubiquitously. In addition, I envisage that examination candidates will use this book as an aide memoire in conjunction with a textbook. I would recommend this book without reservations, and congratulate the author.

A. Ng
Wolverhampton, UK
E-mail: ang@nhs.net
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This book is drawn from Dr Collier’s extensive 30 yr experience investigating failed or unusual epidural blocks. He advises us that epidurography is not used in current routine radiological practice and the vast majority of radiologists have little interest in it, and their reporting, even in published articles, ‘may be unreliable’. The book is thus aimed at (i) ‘encouraging colleagues to undertake their own radiographic studies’ and (ii) to provide ‘a reference work to assist in the interpretation of the radiographs obtained’. While these are laudable aims, having spoken to our own neuroradiologists, with whom I have an excellent working relationship, I suspect that even for the most keen anaesthetist, such routine epidurography may be difficult or impossible.

Chapter 1 sets out the argument for performing epidurography on the majority of patients with difficult epidurals or with epidurals which have behaved abnormally. In Chapter 2, the epidurography technique is described, which ‘even the most modestly equipped radiology department’ could undertake. The subsequent chapters describe the ‘radiological anatomy’ associated with: ‘The typical epidurogram’, ‘Complicated epidural blocks’, ‘The subdural and intradural spaces’, ‘Failed epidural blocks and misplaced catheters’, ‘Failed epidural blocks caused by an obstructive septum’, ‘Spinal deformity and epidural block’. The final chapter discusses ‘The role of epidurograms in the assessment of various types of epidural catheter’.

The chapters are set out in a similar manner, with short clinical case histories describing the behaviour of an epidural block followed by a detailed description of the accompanying epidurogram images. The epidurography images are of good quality, with the course of the epidural catheter clearly marked along with various coloured arrows to aid the reader in understanding what is described in the text.

Near the end of Chapter 2, one discovers that there are moving and/or three-dimensional (3D) images associated with some of the still images in the book and that these can be seen on websites that accompany the book. Only http://www.epidural.net.au is mentioned at this point. On this website, there are 49 images; of which, three are 3D rotating images. Some of the images can be magnified by clicking the image. At work, I was unable to display the three rotating images. There was no indication of the other web address. I later found this website address on the outside of the back cover (a specific link to the publisher’s website), but I was unable to access any images of any kind at work or at home due to an ‘HTTP 404, page not found, server application error’. Despite contacting the publisher about this, I had no response within a week so cannot comment on these images, some of which are said to be video recordings taken during and immediately after the injection of contrast. When accessing http://www.epidural.net.au from home, my internet security programme flashed up a warning that it was blocking suspicious code from running. In short, I had considerable difficulty accessing these images and getting them to run successfully. The web-based images on http://www.epidural.net.au do not follow the same ‘chapter’ sequence as the book. Consequently, if looking for a downloadable image related to something in the book, that image may or may not be present on the website, but there is no way of knowing short of searching through all the images individually.

Despite the web problems which will no doubt be corrected, this is an informative and fascinating book which can standalone without the web-based images. I would certainly recommend it for any department, and for anyone with a major interest in epidural anaesthesia.

I. F. Russell
Hull, UK
E-mail: i.f.russell@hull.ac.uk
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