

GRAY'S

Surgical Anatomy



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Gray's Surgical Anatomy

FIRST EDITION

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Foreword

“To study the phenomena of disease without books is to sail an uncharted sea...”

SIR WILLIAM OSLER (1849–1919)

Gray's Surgical Anatomy 1st edition, written by surgeons in collaboration with an anatomist of world renown, is unique in its concept and content; it is an historical landmark. The editors have assembled an international group of authoritative contributors who have employed several innovative concepts to present the material.

It serves as a textbook of regional anatomy, a dissection manual and as an atlas of operative procedures. This book will be important for medical students and surgeons of all levels of experience.

There are nine sections, each introduced by an overview of the region described in the chapters. The 86 chapters are well focused and follow a common template that describes core procedures, surface and surgical anatomy, surgical approaches, tips and anatomical hazards. The discussion is succinct and clear. Tables are used with great effect and properly located within the text. Line drawings are complete and beautifully executed. Pertinent radiographic images are provided. Intraoperative photographs are of the highest quality and properly illustrative. Living anatomy observed at operation is different from cadaver dissections. The authors point out use of normal anatomic landmarks that are important in procedures and the relationships of structures to one another. At the end of each chapter, Key References are provided as well as self-assessment questions and clinical cases that illustrate the use of anatomical knowledge for resolution. This novel and productive approach improves the relevance and practicality of the information.

Chapters describing anatomy of lumbar puncture, epidural analgesia, peripheral nerve blocks, echocardiographic anatomy of the heart and endoscopic anatomy of the gastrointestinal tract are outstanding additions not found elsewhere.

From a surgeon's perspective, this a most valuable resource. Every surgeon,

regardless of specialty or level of experience, should use this book. It will be read and reread to the betterment of surgical patients. This book sets a new standard and ensures smooth sailing in the ever-changing surgical seas.

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Preface



In the preface to the first edition of his seminal anatomical text, Henry Gray wrote ‘This work is intended to furnish the Student and Practitioner with an accurate view of the Anatomy of the Human Body, and more especially the application of this science to Practical Surgery’. We share that objective. Human anatomy has not changed since Gray's words were written in 1858, but our understanding of anatomy and its application to surgery has changed dramatically.

Anatomy is usually first encountered during medical school, historically in dissecting rooms and lecture halls, and increasingly, through interactive computerized applications. Anatomy teaching does not currently rely on cadaveric dissection to the extent that it did in the past, but rather places greater reliance on three dimensional models or simulations, videos, cross sectional imaging and many other novel teaching adjuncts. Some medical schools no longer utilize cadaveric dissections. Regardless of how anatomy is taught, subsequently applying that critical foundational knowledge to surgical practice is essential to ensure the best possible patient outcomes.

The surgeon must not only appreciate the intricacies of '*in situ* normal anatomy', but also the anatomical differences that are encountered during surgery, '*operative anatomy*'. These observed differences primarily occur as a consequence of changes in the specific locations of anatomical structures that occur during surgery, unique magnified remote intraoperative anatomical views and surgical exposures, as well as distortion of normal anatomy by the underlying pathology that is being treated.

An inadequate understanding of detailed surgical anatomy during even common straightforward procedures, for example when operating within the posterior triangle of the neck or on the surface of the hand, may result in iatrogenic damage to superficial structures resulting in potentially permanent morbidity. In this book we have combined both '*normal*' and '*operative*' anatomy in order to provide an expert perspective on very specific regions of interest and to meet the unique contemporary anatomical learning needs of the surgeon.

Surgery is evolving at an extremely rapid rate. The impact of technology, enabling minimal access procedures and robotic operations, has revolutionized patients' journeys, with shorter hospital stays, smaller or absent scars and improved postoperative outcomes. Robotic surgery aids surgical access in ways that were not believed to be possible as little as 15 years ago: will some open surgical procedures, for example radical prostatectomy, still be performed in the years to come?

In this book we have brought together a group of experts to provide a unique contemporary anatomical guide for all surgical sub-specialties. The book has been subdivided into seven sections. For ease of reading, each chapter has a common template that includes: key anatomical relationships, hazards and top tips, self-assessment questions, and case histories. Anatomical and surgical videos are also provided online, along with additional material not included in the print version of the book.

Human factors, safer team working in ways to minimize error in our daily practice have also become so important that we have included a chapter to raise awareness, and to also encourage surgeons to look after themselves, in order to best serve their patients.

Firstly, we would like to thank all the contributing authors and our section editors, Kumar Abhinav, Neel Anand, Ben Challacombe, Patricia Collins, David Richens, Alistair Ross, R Shane Tubbs and Peter Whitfield who brought a wealth of scholarship and surgical and anatomical expertise to their roles as Section or Specialist Editors. We thank them for their

dedication and enthusiastic support in selecting and interacting with the authors in their Sections, and for helping us to meet deadlines, despite the ever-increasing demands on their time from clinical practice, hospital managers and other academic commitments.

We also thank the editorial team at Elsevier, under the leadership of Jeremy Bowes, for their guidance, professionalism, good humour and unfailing support over the last three years. In particular, we thank Joanne Scott, Wendy Lee and Joanna Souch for being available by telephone or e-mail to offer advice. We would also like to thank Richard Tibbitts and his medical illustration team at Elsevier who created many fantastic new figures for this book.

In this first edition we recognize that there will be areas that we have omitted that warrant further attention. We would be delighted to hear from our readers with suggestions for additional material that they would like to be included in future publication.

Finally, we acknowledge the influential and legendary work of Henry Gray and his fellow anatomist and illustrator, Henry Vandyke Carter, to whom anatomists and surgeons worldwide will forever owe a debt of gratitude.

Primum non nocere

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