
Atlas of Sectional Anatomy

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Atlas of

Sectional Anatomy

Head, Neck and Trunk

2nd, unchanged Edition, 1985



Basel · München · Paris · London · New York · New Delhi · Singapore · Tokyo · Sydney

National Library of Medicine, Cataloging in Publication

McGrath, Philomena

Atlas of sectional anatomy: head, neck,
and trunk / Philomena McGrath, Peter Mills. –
2nd, unchanged ed. –

Basel; New York, Karger, 1985.

Includes index.

I. Anatomy, Regional – atlases I. Mills, Peter

II. Title

ISBN 3–8055–4060–4

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P.O. Box, CH–4009 Basel (Switzerland)
Printed in Switzerland by
Graphische Anstalt Schüler AG, Biel
ISBN 3–8055–4060–4

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Preface

The rapid development of organ imaging in recent years has led to a renewed interest in sectional anatomy. This interest, initially demonstrated by radiologists, is now shared by medical practitioners in many fields, and a demand has developed for the inclusion of a sectional anatomy component in gross anatomy courses at both the post-graduate and undergraduate levels.

The Atlas of Sectional Anatomy, Head, Neck and Trunk, is based on material used in courses in sectional anatomy conducted in the Department of Anatomy, The University of Sydney, over the past 4 years. Ten series of sections are included in the atlas. In the main the planes of section are those currently in use in organ imaging. The remainder are included for their anatomical interest and in anticipation of further technological advances in this field. Identification of anatomical features is based on limited dissection of each section with reference to skeletal and prosected specimens as indicated. The notes, which accompany each photograph, were developed in response to comments and queries of students undertaking the course. In compiling the notes in the first instance use was made of a number of major textbooks. Minor variations in nomenclature and definition, however, proved confusing. It was therefore decided to use 'Gray's Anatomy', 36th Edition (1980) as the major reference source when preparing the notes for publication. Organ imaging was not carried out on the cadavers used for sectioning. 'Close-match' scans of many of the sections are available to the course participants. Such scans are not included in the atlas. In the authors' experience 'close-match' scans can be readily found in even small collections, and it is anticipated that the reader would have little difficulty in obtaining 'close-matches' to the photographs in the region of his particular interest.

The atlas aims to present sectional anatomy in such a form as to facilitate the understanding and consolidation of anatomical fact and concept. If this aim is achieved the atlas will have made a contribution to the subject of gross anatomy and to its clinical applications. It will also have contributed in a very basic manner to the appreciation of organ imaging as a diagnostic procedure.

Preparation of Sections

In the Department of Anatomy at the University of Sydney, cadavers are obtained through a donor system by which members of the community who wish to make such

a contribution to basic medical science, will their bodies to the department. The cadavers are embalmed with a solution of 13% formalin, 5% glycerine, 10% methyl alcohol, 1% sodium baborate, 1% phenol and 70% water infused by the gravitational method.

Embalmed cadavers of average stature and lacking obvious spinal deformity and significant operative scars were considered for sectioning. The death certificates were checked for relevant data and the selected cadavers were then kept in a cold room. After a minimum period of 6 months the part to be sectioned was cut from the cadaver, marked to indicate the proposed planes of section and photographed. The part was placed in a freezer (−15 °C) for 1 week. It was then sectioned with a band-saw. Each section was washed in tap water, photographed and placed in 3% formalin to await limited dissection. When dissection of each section was completed it was vacuum-packed in a polyvinyladine bag to facilitate its use by students.

Sections prepared in this way have proved to be portable, odourless and dry. They have been stored at room temperature and have required no particular care. To date the packaged sections have retained their colour and texture over a period of 4 years.

The advantages of the method of preparation of the sections are most apparent during the courses in sectional anatomy conducted in the department. A selection of sections appropriate to a particular group is set out for study. The packaging permits close scrutiny and a high degree of discriminating touch. Adjacent sections can be compared and reference to sections cut in different planes can be made with ease. The provision of an orientation diagram, a labelled photograph and a worksheet for each section has made it possible to conduct such courses when appropriate, with minimal supervision.

Orientation Data

Data relevant to the orientation of the sections are presented as an introduction to each series. Data relevant to a particular section are repeated on the page facing the print of that section.

The plane of section is given. In the sagittal series, in accordance with sonar scanning practice, the section through the median plane is labelled L + 0 cm; those sections to the right of the median plane are labelled L + x cm and those to the left, L − x cm. The sagittal series are Series

V – Head and Neck, Series VIII – Neck and Thorax, Series IX – Abdomen and Pelvis (Male) and Series X – Abdomen and Pelvis (Female).

The widths of sections are variable. Sections through the head and neck, Series I–V are in the main, narrower than those through the trunk, Series VI–X. In Series VI, Horizontal – Neck, Thorax, Abdomen and Pelvis (Female), the width of a particular section reflects to some extent, the anatomical and clinical importance of that level of section. Due to technical factors, a certain degree of skew is present in all sections. While such skew was not planned it proved of value in Series VI and in Series VII, Horizontal – Pelvis (Male).

The aspect presented in a particular series is that from which scans are viewed in current organ imaging. However, in Series V, Sagittal – Head and Neck, as a preferred aspect has not yet been established, the sections are presented in the anatomical position and are viewed from the right.

In addition to the above data, orientation diagrams have been prepared for each series to assist the reader in relating the sections to the skin surface and skeletal framework of the patient. The material on which the diagrams are based includes photographs, drawings and radiographs of either the original or similar specimens. As in most instances the latter have been used, due allowance must be made for the range of normal variation. The reader is therefore advised to regard the diagrams as approximate, but useful, guides to the orientation of the sections.

Abbreviations

Abbreviations used in the labels and vocabulary are

- a. artery – arteria
- m. muscle – musculus
- n. nerve – nervus
- v. vein – vena
- () specifies the preceding term (in the latin section of the vocabulary: expression not in accordance to Nomina Anatomica)
- [] specifies synonyms
- Vertebrae are indicated by the letters C (cervical – cervicalis), T (thoracic – thoracicus), L (lumbar – lumbalis), S (sacral – sacralis).

Orientation of the sections is indicated by R. (right – dexter) and L. (left – sinister) where necessary.

Acknowledgements

The photographic work used in the atlas was carried out by Mr. *Clive Jeffery* of the photographic section of the Department of Anatomy of The University of Sydney. The range of tissue textures in each section, and the presence of clear spaces in some, made it particularly difficult to obtain optimal lighting. The quality of the photographs in the atlas is evidence of his success in overcoming the problem, and the authors are most appreciative of his technical expertise.

The authors wish to make particular acknowledgement of the invaluable contribution made by our senior and highly esteemed colleague, Dr. *M. Arnold*, who has served as consultant on anatomical fact and nomenclature. Dr. *Arnold* also proved to be an unfailing source of encouragement on the many occasions when it was sorely needed.

Sincere thanks are due to Prof. Dr. *W. Lierse*, Department of Anatomy, University of Hamburg, as the compiler of the Latin section of the vocabulary. Prof. *Lierse's* contribution to the atlas is very much appreciated.

The authors wish to thank Mr. *G. Williams* for his continued interest and helpful suggestions relative to the photography of the sections, Mr. *R. Oldham* for his help with the orientation diagrams, and Miss *B. Mangano* for her general assistance. Our thanks are also due to members of the secretarial staff, Mrs. *J. Putnam* and Mrs. *G. Voutos* for the many hours spent typing the manuscript.

It is with pleasure that the authors acknowledge the expert assistance and unlimited patience of the publishers. In particular they wish to thank Dr. *T. Karger* for his enthusiastic support for the atlas over the past 18 months of preparation for publication.

Sydney, December 1, 1983

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Peter Mills

To John, Ann, John, Mark, Matthew, Luke, Simon, Kate and Justin
To Barbara, Hamish and Rebecca