

Book reviews

Imaging of the spine and spinal cord

C Manelfe (editor), 890 pages, Raven Press, New York, 1992.

ISBN 0-88167-863-5

This book covers aspects on spinal imaging using different modalities with recommendations for imaging techniques for various clinical problems. This is a great advantage compared to radiological textbooks dealing exclusively with computed tomography (CT) or magnetic resonance imaging (MRI) of the spine. 60 well-known neuroradiologists, neurosurgeons, anatomists, and orthopedic surgeons, mainly from France and U.S.A., have contributed to the text. Despite the large number of authors, there are relatively few overlapping sections, and frequent references to other chapters are provided throughout the text.

Each of the 24 chapters is preceded by a useful list of headings and subheadings. In the first chapter, normal anatomy of the spine is illustrated by CT and MR images in different planes compared with black-and-white photographs of the corresponding cryomicrotome sections. On every page, a brief text provides valuable comments on anatomic details. The following chapters cover development of the spine and spinal cord, functional anatomy, CT and MR techniques and imaging protocols. In the chapter on MRI, gradient echo imaging is only dealt with briefly, whereas diffusion-perfusion imaging is described in 4 pages. However, the latter technique has, so far, mainly applications for brain imaging, while gradient echo imaging has a widespread use for imaging of the spine. The fast spin echo technique (which has recently become available and is very useful for imaging of the spine) and echo planar imaging (which is developing as a very promising fast-imaging technique) are not mentioned in this chapter. This reflects the rapid development of MRI, and makes it difficult to be completely up-to-date in a textbook.

Contrast media, osteoporosis and bone densitometry, structure and mineralization of the vertebral bone, and the lumbar intervertebral disc and facet joints are reviewed in separate chapters. Disc herniation, spinal stenosis and spondylolisthesis are dealt with in 2 chapters. I do not agree with the recommendation to use CT with intravenous contrast injection for the diagnosis of cervical disc herniation in patients with radiculopathy—MRI or myelography followed by CT are the methods of choice in Scandinavia.

Modic's classification of degenerative changes in

the vertebral endplates on MRI is described in detail both in the chapter on disc herniations and in the chapter on the structure of vertebral bone, which is unnecessary. The chapter on normal variants and pitfalls is very informative, and can be recommended to everybody working with spinal imaging. Spinal trauma, vertebral tumors, infections, intraspinal and intramedullary pathology, and vascular lesions are the subjects of very well written systematic chapters covering all aspects of these topics. They are followed by a chapter on intraoperative ultrasound with multiple illustrations comparing preoperative MRI with intraoperative ultrasonography. The chapter on congenital malformations has many photographs of anatomic specimens and of children with different malformations. This chapter (No. 19) could with advantage have been located adjacent to chapter 2, dealing with the development of the spine and the spinal cord.

3 chapters reviewing the cervico-occipital junction, syringomyelia and the sacrum, respectively, contain several sections overlapping with previous chapters. They give, however, good overviews of the topics. At the end of the book, the postoperative spine and interventional radiology are dealt with. The section on the failed back surgery syndrome might preferably have been placed in connection with the chapter on disc herniation. Interventions such as punctures (with useful illustrations of recommended puncture paths), biopsies, drainages, chemonucleolysis, percutaneous nucleotomy and percutaneous vertebroplasty are described.

The abundant illustrations are of high quality throughout the book with state-of-the art CT and MR images with the exception for a few suboptimal MR images. Numerous references are found at the end of each chapter and an extensive subject index is provided at the end of the book.

This book is warmly recommended to all radiologists working with spinal imaging and it could also be useful for orthopedic surgeons and neurosurgeons.

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Magnetic resonance imaging of the knee—second edition

Jerrold H Mink, Murray A Reicher, John V Crues III, Andrew L Deutsch (editors), 2nd ed, 488 pages, Raven Press, New York, 1992

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When clinical history and physical examination of the knee fail to diagnose internal derangement, arthroscopy has replaced arthrography for diagnosis. Arthroscopy is considered accurate, and surgery can be performed in the same seance. Besides being expensive, arthroscopy is, however, invasive, and thus associated with risks and potential morbidity. MRI has now been shown to be more accurate than arthroscopy in posterior horn lesions, but less sensitive in small tears, which are often insignificant. The accuracy of MRI is highly dependent on the equipment used and the experience of the radiologist. When comparing the two modalities, the experience of the arthroscopist is also crucial.

The authors of this textbook are extremely experienced in musculoskeletal MRI. Several members of the group participated in a textbook on MRI of the foot and ankle, also published by Raven Press in 1992 and reviewed in *Acta Orthop Scand* 1993; 64: 235. Some chapters are almost identical in the two books, namely the chapters on *Technical considerations*, *Biological effects and safety*, and *Muscle injuries*.

The disposition of this book is similar to the one on foot and ankle MRI. After a survey on technical considerations and safety aspects, there is a chapter on normal anatomy of the knee joint. A few cryosections in coronal, sagittal and axial planes are compared with corresponding MRI sections. These are followed by serial multiecho MRI sections in sagittal and axial planes. No such serial multiecho sections are printed in the coronal plane, which is a pity.

The following chapters cover the menisci, the cruciate and collateral ligaments, the extensor mechanism and the patellofemoral joint. Relevant anatomy, clinical considerations, and pathology are described in great detail and with numerous illustrations.

There is also a chapter on the postoperative knee with a valuable description of clinical and anatomical considerations after meniscectomy and anterior cru-

ciate ligament repair. The MR images after these surgical interventions are well illustrated.

MRI of osseous and cartilaginous trauma, as well as osteochondritis dissecans and osteonecrosis are well presented in a special chapter. A surprising detail is that the value of STIR sequence to demonstrate bone bruises or other posttraumatic changes is not emphasized as much as in the previous book. However, the value of STIR sequence is well described in the chapter on disorders of the patella.

A large group of knee disorders is collected in a chapter called *The spectrum of knee joint disorders*. The conditions described are arthrosis, osteochondral fractures and loose bodies, osteochondroses, rheumatoid arthritis, and tumors and tumor-like conditions. Some of these conditions have been described in previous chapters.

The information in *Pitfalls in interpretation* is a repetition of what has already been said, and this chapter seems unnecessary, considering the full coverage in other chapters.

In the last chapter the cost-effectiveness of MRI is discussed. It is concluded that using patient outcome as the gold standard, MRI is cost-effective in patients with knee complaints consistent with internal derangement. MRI can replace arthroscopy, and the results of MR imaging can be used as a guide for the management of knee pain.

The illustrations are, with few exceptions, of very high quality. Each chapter has a long reference list, and the index is extensive. This book is highly recommended for all radiologists interested in musculoskeletal MRI. Not only does it cover the radiological aspects, but it is also clinically oriented and gives a valuable and necessary clinical background.

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