Book review

Czervionke, L.F., Haughton, V.M.: Pocket Atlas of Spinal MRI. New York: Raven Press 1989. 95 pages, US\$13.95.

This atlas is a pocket-sized, practical guide to the interpretation of spinal magnetic resonance images. The authors have carefully selected the most representative and clinically relevant images, primarily from routine practice, to aid in identifying spinal anatomy on MR images and in distinguishing normal anatomic structures from artifacts.

The atlas contains 77 high-quality MR images of the cervical, thoracic, thoracolumbar, lumbar, and sacral regions of the spine, obtained in sagittal, axial, and coronal planes. Both T1- and T2-weighted spin echo (SE) and gradient echo (GE) images are included. The goal of this atlas is to review the MR appearance of normal spine anatomy. The research for this book included a survey of current literature, the authors' personal experience with MR imaging, and correlative anatomic/MR studies in cadavers.

Because of their inherent spatial resolution and signal-to-noise ratio, the T1-weighted SE images provide efficient visualization of the spinal cord, vertebrae, and subarachnoid space with relatively short acquisition times. The majority of images are T1-weighted SE images with a TR of 600 ms, TE of 20 ms, two excitations, and a 256×256 matrix. Images designated as T1-weighted GE images were obtained with a 90° flip angle, 500 ms TR, and 10 ms TE.

The T2-weighted images are particularly valuable for demonstrating the gray and white matter of the spinal cord and spinal cord edema or degeneration. They are also useful for examining the neural foramina and intervertebral discs. The T2-weighted GE images are especially valuable for differentiating the intervertebral disc from adjacent bone and distinguishing between bone and cerebrospinal fluid (CSF). T2-weighted SE images were obtained with a TR of 2500 ms, TE of 80 ms, two excitations, 256×256 matrix,

and peripheral gating. Figures designated as T2-weighted GE images (or, more precisely, TW* weighted images) were obtained with a TR of 750 ms, TE of 10 or 20 ms, 256×256 matrix, and 30° flip angle. In some cases, gradient moment nulling (flow compensation) and peripheral pulse gating techniques were used to minimize CSF pulsation artifacts and accentuate the signal intensity of blood vessels.

All images were obtained with commercial equipment and, except in a few cadaver images, in routine clinical practice. The cervical spine images were obtained with a 1.5-Tesla MR scanner (Signa, G.E. Medical Systems, Milwaukee, Wisconsin) and a 3-in. butterfly coil (Medical Advances, Milwaukee, Wis). Thoracic, lumbar, and sacral images were obtained with a 0.5-Tesla MR scanner (MR Max, G.E. Medical Systems) and with standard G.E. surface coils. The use of surface coils limits the field of view for MR imaging of the spine; therefore, cervical, thoracic, lumbar, sacral, and thoracolumbar regions are illustrated separately. The few images obtained in cadavers are identified by footnotes.

This pocket atlas would be a valuable reference for radiologists, neurologists, neurosurgeons, and orthopedic surgeons. Trainees in these subspecialty areas, as well as students of human anatomy, would also find the book useful. Advantages of the book include its portable size, high quality of printed images, and detailed labeling of structures. Its only major drawback is the exclusion of pathology inherent in the scope initially chosen by its authors. The book would be a valuable addition to any departmental or biomedical library and would serve as a handy reference in MR reading areas. In summary, the authors have more than achieved their goal of developing a portable, practical, and effective guide for identifying normal anatomy and interpreting MR images of the spine.

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