Susceptibility Weighted Imaging in MRI. Basic Concepts and Clinical Applications

Description: This book presents the first in-depth reference to discuss Susceptibility Weighted Imaging for students and professionals.

Within the pages of this book, the reader will find comprehensive coverage of the major concepts that underlie the origins of susceptibility weighted imaging (SWI) in magnetic resonance imaging (MRI) and its wide range of applications. This book provides readers a thorough understanding of the technique now commonly called SWI, a major enhancement of traditional MRI with the power to produce high-resolution images that are exquisitely sensitive to blood products and iron. Since its inception, SWI has become a powerful tool for investigating a number of important clinical aspects of neuro-imaging, especially the diagnosis and pathophysiology of traumatic brain injury, the detection of acute hemorrhagic stroke, and the detection of microbleeds in dementia.

Edited by the originators of SWI, this groundbreaking text is the definitive resource on this critically important technology. Featuring contributions from the top leaders in the science and clinical use of the modality, the book:

- Introduces the fundamentals of SWI
- Presents an even balance between the technical aspects and its clinical applications
- Explains how to image brain tumors, cerebral microbleeds, and hemorrhage as well as many other clinical applications
- Explains how to quantify iron content for diseases such as multiple sclerosis, Parkinson's disease, and other neurodegenerative diseases
- Introduces the use of SWI in visualizing the vessel wall
- Covers the use of SWI at ultra-high magnetic fields
- Introduces the important concept of susceptibility mapping as the next generation of SWI
- Includes over 100 high-quality images and tables

This reference also covers more advanced topics, from improved contrast in MRI of the midbrain using SWI to functional susceptibility weighted MRI, automated vein segmentation and lesion detection, rapid acquisition methods, and more.

Suitable for all levels of experience, Susceptibility Weighted Imaging in MRI is the ideal source for neuroradiologists, radiologists, imaging and medical physicists, cardiologists, oncologists, biochemists, and students who want authoritative information on the basic elements and practical applications of this exciting new medical imaging technique.

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