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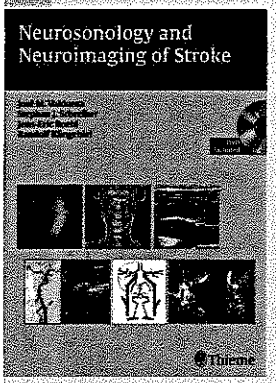

Neurosonology and Neuroimaging of Stroke.
J. M. Valdueza, S. J. Schreiber, J.-E. Roehl, R. Klingebiel
2008, 399 pages and 766 illustrations; DVD, Thieme Verlag

Vascular assessment in stroke diagnosis and therapy involves MR angiography (MRA), CT angiography (CTA), digital substraction angiography (DSA) and Doppler/Duplex sonography, all of which emphasize different aspects of vascular pathology. In their book, the neurologists Drs. Valdueza, Schreiber and Roehl and the neuroradiologist Dr. Klingebiel aim to combine these modalities for a comprehensive hemodynamic and morphological view on cerebrovascular disease with a focus on neurosonology.

The book is divided into two parts and starts with a nice chapter on the basic principles and physics. The authors simplify the basics with easy-to-understand graphics focusing on those really relevant for the user. The chapter on general anatomy has excellent 3D CTA reconstructions, images of transducer positioning and includes investigations of non-brain supplying arteries such as the superficial temporal artery relevant for screening i.e. giant cell arteritis. Frequent variations of the circle of Willis, which often cause problems interpreting blood flow velocities and difficulties identifying vessels, are well covered and illustrated. As this book has the focus on stroke diagnosis, an effort was made to cover the underlying vascular pathology always in comparison to CTA, MRA and DSA with discussion of frequent scenarious due to vascular variants. The first part ends with a chapter on neuroradiological techniques and the current algorithm in stroke diagnosis at the Berlin Charité hospital, which surprisingly does not include ultrasound as it referes to the neuroradiologist point of view only. The second part of the book is a collection of 30 extensive case reports of high quality with increasing difficulties and variants of the ultrasound finding. A template is used consisting of clinical case presentation, neuroradiological findings, questions for the ultrasound investigator and ends with an intensive discussion of the disease reiterating the most important ultrasound findings. In quite a lot of cases Duplex sonography is not the first neurovascular investigation and was performed secondary to CTA or MRA, which does not come as a surprise from a such high profile academic clinic. But it illustrates the necessity of Doppler/Duplex investigation even in comparison to high quality neuroradiology, giving important information about cerebral hemodynamics, vessel wall morphology and artefacts from MRA and imaging algorithms such as MRA maximum intensity projection (MIP).This is illustrated in a case of a floating thrombus in the internal carotid artery overlooked in MRA MIP reconstruction, then easily depicted in an impressive fashion by color Duplex ultrasound leading to detection in the MRA raw data review. Finally, a well-done DVD is added with short clips of normal Duplex anatomy, both arterial and venous circulation, and loops of most cases ultrasound investigations. Only minor points may dampen the enthusiastic and positive view of this book: ultrasound purists may miss the lack of conventional Doppler and TCD, which still adds to the quality of ultrasound investigations (i.e. continuos insonation of the basilar artery, ophthalmic collateral pathway depiction), missing velocity scales in the ultrasound picture and DVD clips (but Doppler pros can still 'hear' the stenosis!) and only few hints on the use of ultrasound contrast agents, which help in difficult conditions and may add to diagnostic confidence.

Summarizing, this book is really well done and an ideal introduction to neurosonography for neurologists and neurological residents who will have to weigh different neuroimaging procedures with clinical findings and therapy of their stroke patients. It is also suited for neuroradiologists who infrequently perform neurosonology and may consider Duplex sonography as an additional tool to MRA or CTA. Finally, this book is a joy for stroke neurologists who believe in ultrasound being a indespensable hands-on-view of the neurovascular status to diagnose and treat their patients.

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