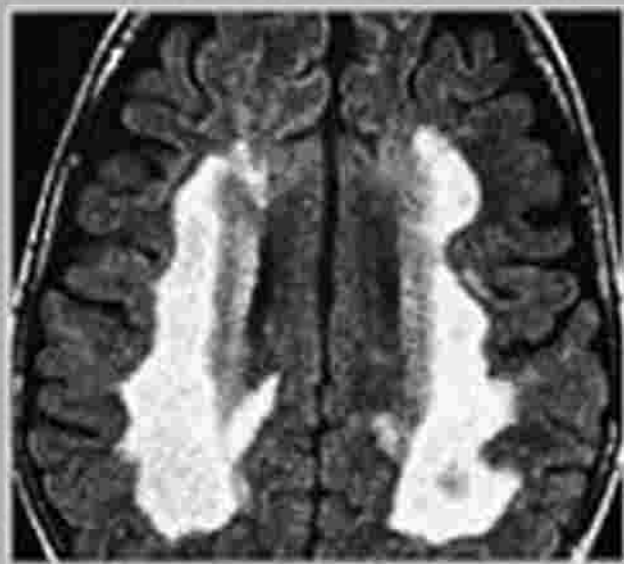
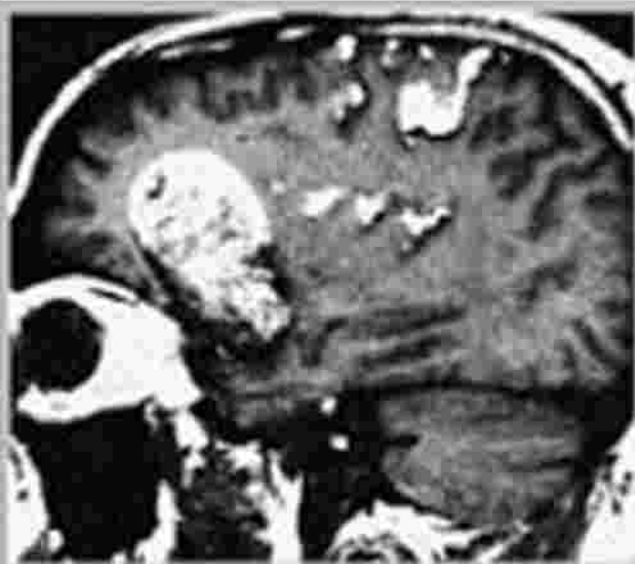


TEACHING ATLAS *of* BRAIN IMAGING

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Teaching Atlas of Brain Imaging

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We dedicate this book to T. Hans Newton, M.D. In addition to his numerous other contributions to the field of neuroradiology, Dr. Newton initiated UCSF Neuroradiology Grand Rounds at which many of these cases were presented.

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PREFACE

For many years, the UCSF Neuroradiology Section has presented the “Unknown Case Conference” on Thursday afternoons. Fellows and residents present unknown cases for members of the audience to discuss and to generate a differential diagnosis and a specific diagnosis.

Over time we have accumulated an extensive teaching file based on these and many other interesting cases that covers a broad spectrum of disease entities that affect the brain, its coverings and the cranial nerves. Broad categories include neoplasm, infection, dural and leptomeningeal processes, white matter disease, trauma, congenital malformations, and phakomatoses, among others. Some cases are relatively straightforward; others are a bit more challenging.

We feel this book will provide a useful review to the senior resident studying for radiology boards as well as to the neuroradiology fellow or practitioner preparing for the CAQ exam. We also hope that practicing general radiologists and neuroradiologists will enjoy testing themselves on these cases and benefiting from the “Pearls and Pitfalls” section included for each case. This book can be read cover-to-cover by those desiring a case-based review of numerous brain pathologies that can be diagnosed with CT and MR. Alternatively, the book can be used in “review-mode” by those who desire to test themselves in neuroradiology by looking at the images for each case and comparing their differential diagnosis and diagnosis with ours.

Each case is supported by a brief discussion of etiology, pathology, imaging findings, treatment and prognosis, all in concise bulleted format for easy reference. Discussions are based on up-to-date reviews of current literature, and a few suggested readings are listed for each case. In many cases, additional images (“margin cases”) are provided to illustrate entities one might consider in the differential diagnosis or to illustrate additional manifestations of a given disease entity.

It should be noted that the Cranial Nerves section has a slightly different format from that of the other sections in the book. Each nerve is introduced with a review of its function and anatomy. Certain pathologies that affect the intracranial and skull base segments of each cranial nerve are then illustrated and discussed briefly. Extracranial pathologies are covered in another volume (*Teaching Atlas of Head and Neck Imaging*), to be published soon by Thieme.

In developing this book we realized that there were many more cases with excellent teaching points than we could possibly include in this atlas. To avoid creating a huge and expensive tome, we decided to make some additional cases available on the Thieme web site. This site can of course be accessed free of charge, and more information about this can be found in the table of contents.

We have tried to keep our comments to the point and hope that our readers will benefit from what we consider to be the major teaching points concerning a broad spectrum of disorders of brain parenchyma, meninges, and cranial nerves in both adults and children.

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A. James Barkovich, M.D.

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COMMONLY USED ABBREVIATIONS

MR/CT Terminology

CECT	contrast-enhanced CT scan
FLAIR	fluid-attenuated inversion recovery
FSE	fast spin-echo
MPGR	multiplanar gradient-echo
NECT	non-enhanced CT scan
PD-WI	proton density-weighted image
SPGR	spoiled gradient-recalled acquisition in the steady state
T1-W1	T1-weighted image
T2-W1	T2-weighted image

Anatomic Terminology

ACA	anterior cerebral artery
acomm	anterior communicating artery
AICA	anterior inferior cerebellar artery
CPA	cerebellopontine angle
ECA	external carotid artery
IAC	internal auditory canal
ICA	internal carotid artery
MCA	middle cerebral artery
PCA	posterior cerebral artery
pcomm	posterior communicating artery
PICA	posterior inferior cerebellar artery
SCA	superior cerebellar artery

Other Abbreviations

ADEM	acute disseminated encephalomyelitis
AIDS	acquired immunodeficiency syndrome
AVM	arteriovenous malformation
CMV	cytomegalovirus
GBM	glioblastoma multiforme
HIV	human immunodeficiency virus
HSV	herpes simplex virus
MS	multiple sclerosis
PML	progressive multifocal leukoencephalopathy
TB	tuberculosis

Section I

Neoplasm

A. Supratentorial

Case 1

Clinical Presentation

A 25-year-old man presents with a generalized tonic-clonic seizure. He reports having had an increasing number of headaches over the past 6 months.

