

NEUROIMAGE

VOLUME 17, NUMERO 4
NOVEMBRE 2001

NEURORADIOLOGY
MUHC-MNH

VOLUME 17, NUMBER 4
NOVEMBER 2001



IN THIS ISSUE ...

“A look at orbital pathology”

Drs Taylor and Chankowsky

“Unusual mature teratoma”

Drs Pokrupa, Guiot, and Fontaine

“News from the Neuro”

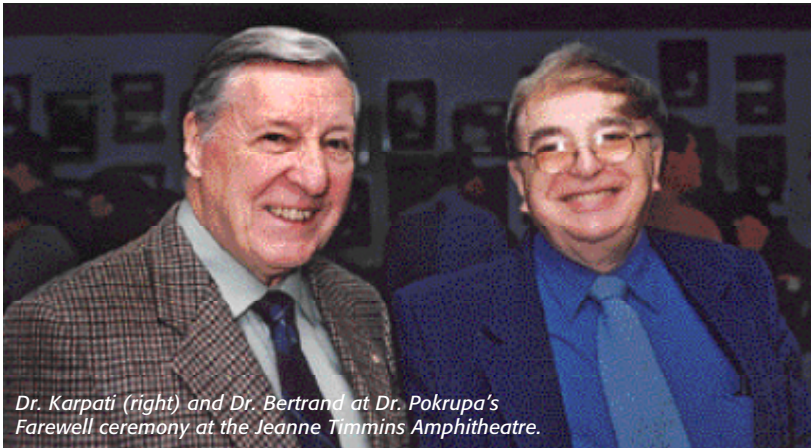
An honor to George Karpati

A new challenge for Ron Pokrupa

The statue “Nature” in the Neuro’s Hospital Foyer

AN HONOUR TO GEORGE KARPATI

BY DR JOHN ROBSON, PhD



Dr. Karpati (right) and Dr. Bertrand at Dr. Pokrupa's Farewell ceremony at the Jeanne Timmins Amphitheatre.

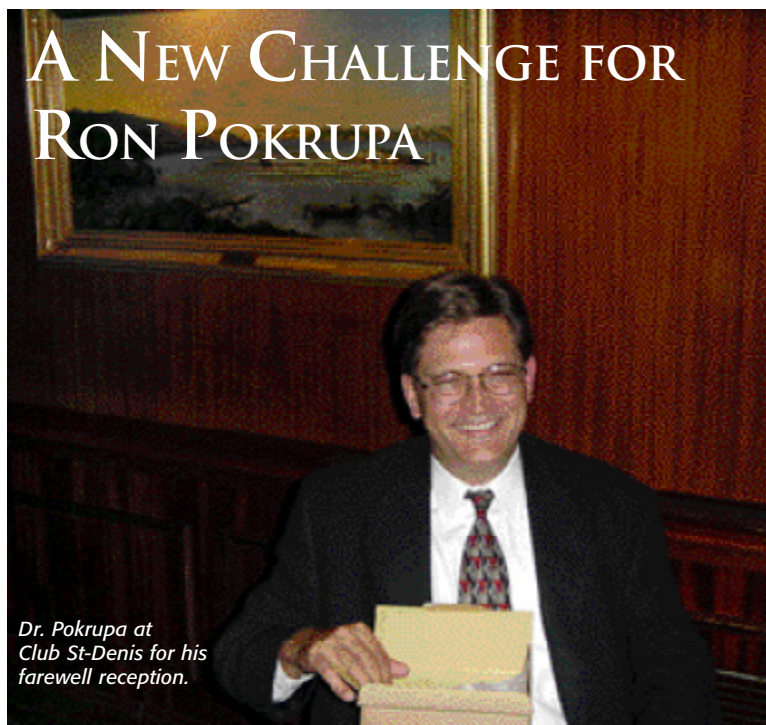
The Governor General of Canada, Adrienne Clarkson, recently announced 104 new appointments to the Order of Canada. The Order of Canada recognizes people who have made a difference to the country, from local citizens to national and international personalities.

One of this year's recipients is Dr. George Karpati. The citation released by the Governor General's describing Dr. Karpati's qualifications is below:

He is recognized internationally as one of the leading experts on the diagnosis and treatment of neuromuscular disorders. One of North America's outstanding neurologists, he is Director of the Neuromuscular Research Group at the Montreal Neurological Institute and Isaac Walton Killam Chair in

Neurology at McGill University. He has made numerous contributions in the area of muscular dystrophy and is the recipient of several prestigious awards, including the Distinguished Scientist Award from the Canadian Society of Clinical Investigation.

The MNI congratulates Dr. Karpati on this prestigious honour.



Dr. Pokrupa at Club St-Denis for his farewell reception.

Ron Pokrupa has recently accepted the position of Neurosurgeon-in-Chief at Queen's University in Kingston.

He came to the Neuro in 1983 to pursue a stroke fellowship and in 1984 was a Killam Scholar at the MNI before joining the Neurosurgical Staff the same year. From 1990 to 1999 he was Head of the Red Neurosurgical Service at the MNH and since 1999 was the Head of the Spinal Division of the MNH-MUHC Department of Neurosurgery. He has done an exceptional job as Chairman of the MNI-MNH Ethics Committee for several years.

Ron is a superb neurosurgeon with excellent operative skills, judgement and control. Although his predominant field of interest is spinal surgery, his overall expertise is diversified and includes vascular and pituitary surgery. His interpersonal relationships have also been outstanding and his colleagues have considered him to be frank, positive and constructive.

We are sad to see him leave McGill but we wish him the very best in his new functions.

André Olivier, M.D., Ph.D.
Neurosurgeon-in-Chief



Dr. Baxter presents Dr. Pokrupa with a parting gift at the Farewell ceremony in the Jeanne Timmins Amphitheatre.

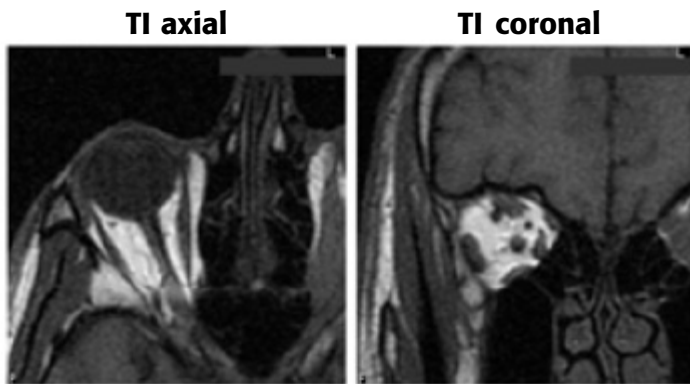
A LOOK AT ORBITAL PATHOLOGY

DRS. JANA TAYLOR AND JEFFREY CHANKOWSKY

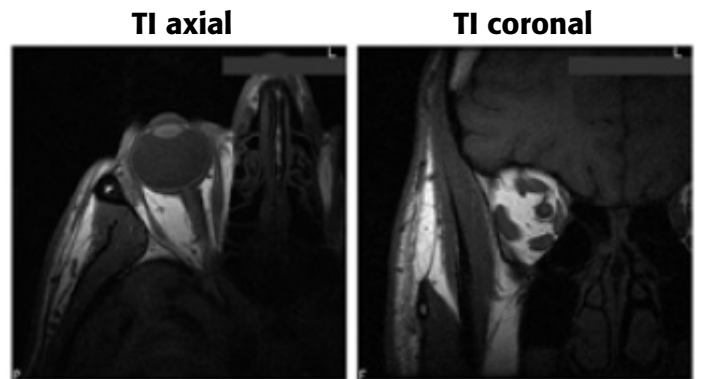
"A small hurt in the eye is a great one" – Old English proverb

Dedicated imaging of the orbits can provide a wealth of information on a wide variety of lesions seen in the eye and adjacent structures. CT, with or without intravenous contrast, can be used to image bone and soft tissues and is especially useful in the setting of trauma. Axial images are obtained with a slice thickness of 2 mm with coronal and sagittal reformats.

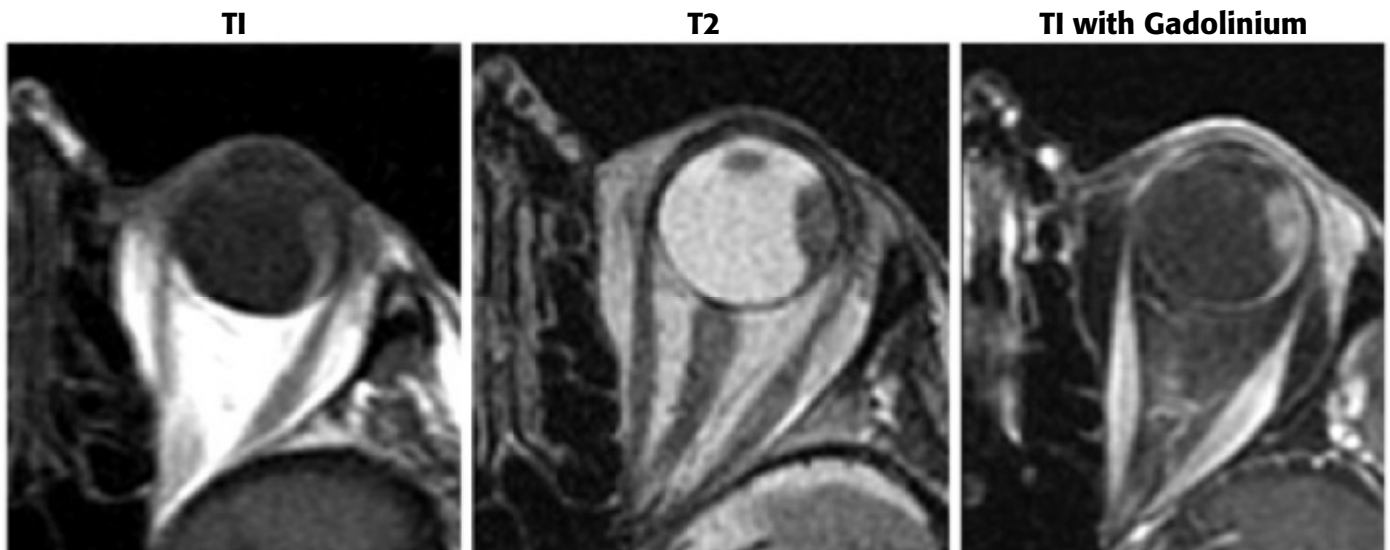
MRI is especially useful in cases of orbital mass lesions. It is routinely performed using a head coil with images acquired in the axial, sagittal and coronal planes, with T1, T2 and post-gadolinium fat saturated sequences. A study is currently underway at the MGH comparing the conventional head coil to the more sensitive surface coil, which increases spatial resolution.



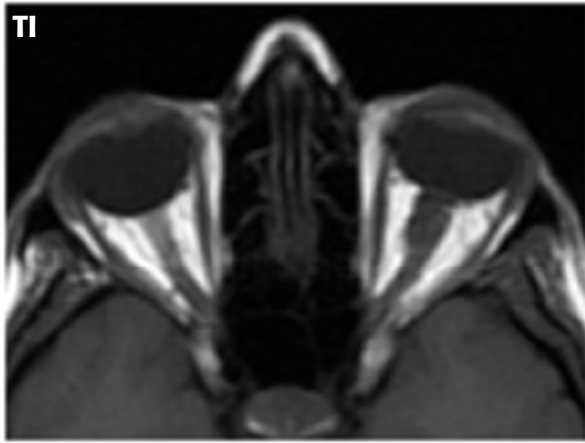
Conventional head coil images of the orbit.



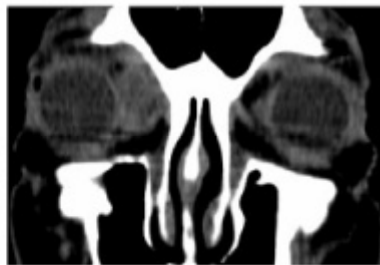
*Surface coil images of the orbit.
Note the increased SNR and spatial resolution.*



The most common primary ocular malignancy in adults is melanoma, arising from the pigmented choroidal layer of the eye. Exophytic mass lesion, hyperintense on T1, hypointense on T2, enhances with gadolinium.



Meningioma, arising from the meninges covering the optic nerve. Mass lesion surrounding the optic nerve, on occasion calcified and intensely enhancing. Linear bands of enhancement, the "tram track" sign, represent tumor encasing the optic nerve.



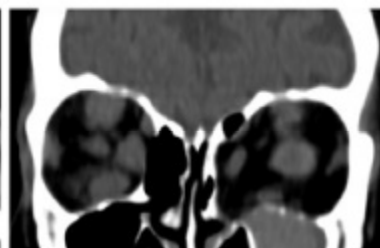
Lymphoma

Orbital lymphoma displacing the globe laterally and anteriorly.



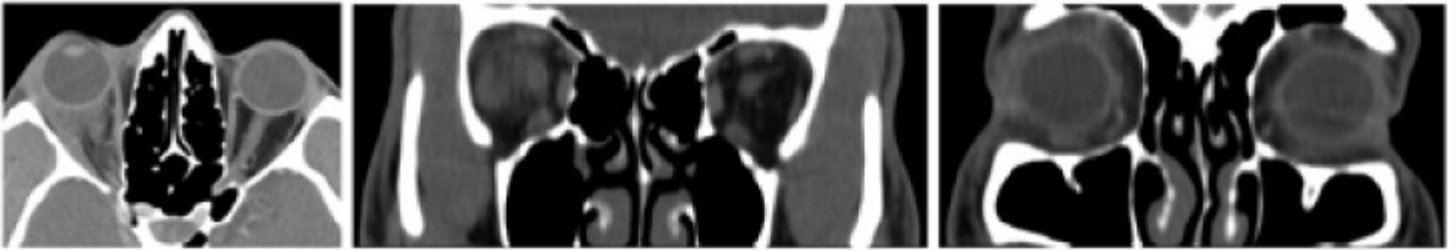
Orbital Cellulitis

Orbital cellulitis with soft tissue swelling seen anterior to the orbital septum, in addition to stranding of the retro-bulbar fat and proptosis of the globe. This post-septal penetration differentiates orbital from peri-orbital cellulitis.

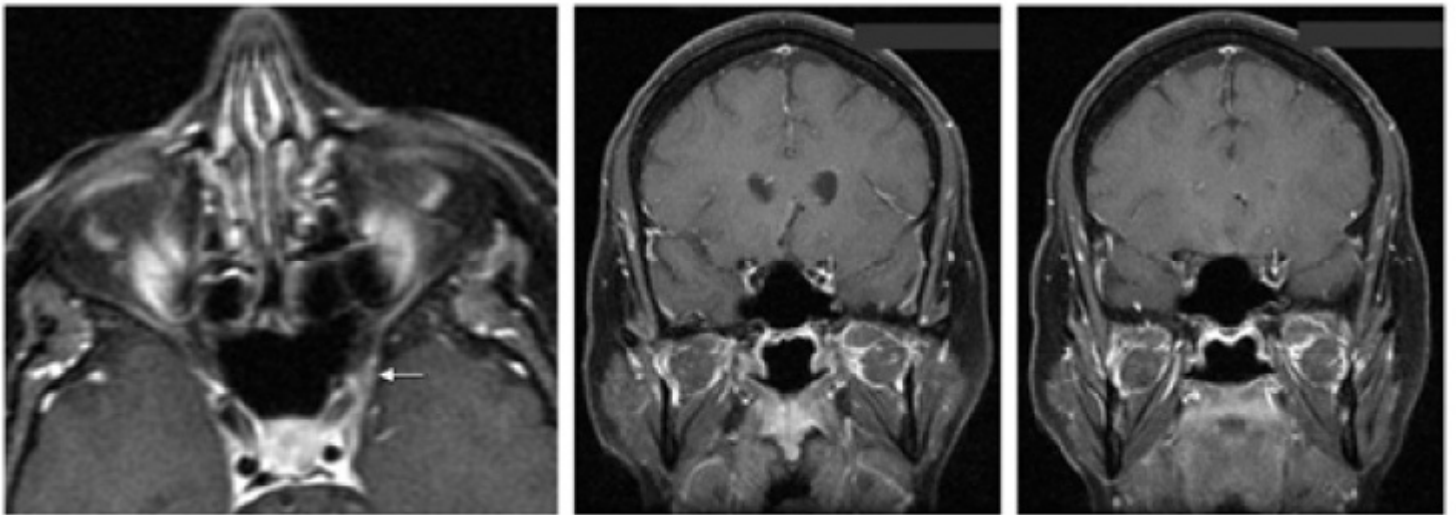


Grave's Ophthalmopathy

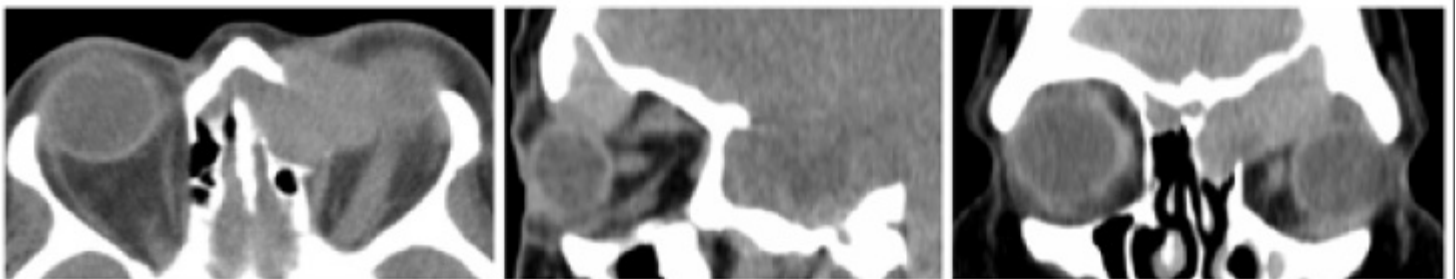
Graves ophthalmopathy causes infiltration of the extra-ocular muscles by glycoproteins and mucopolysaccharides. There is often relative sparing of the lateral rectus muscle. Tendinous insertions tend to be spared.



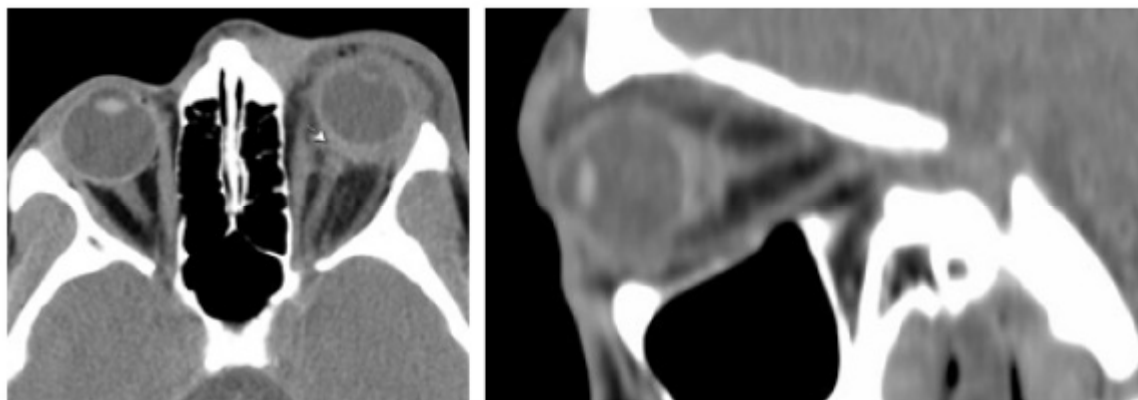
Orbital pseudotumor results in inflammation of the orbital soft tissues of unknown etiology and is often unilateral. Unlike thyroid ophthalmopathy, it involves the tendinous insertions of the extraocular muscles, and is usually painful.



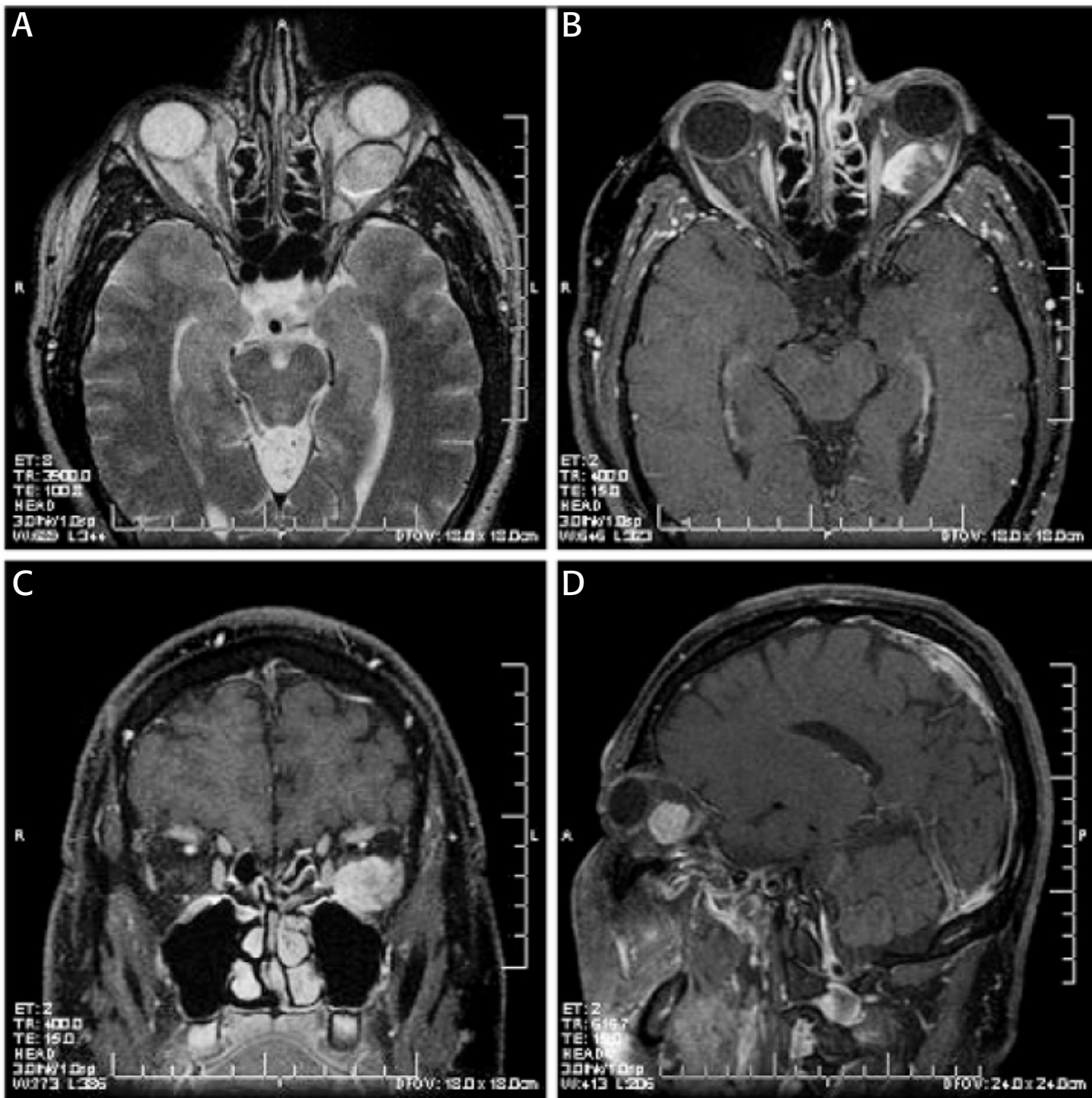
Tolosa-Hunt syndrome idiopathic inflammation of the orbital apex. Gadolinium contrast demonstrates increased enhancement along the left superior orbital fissure.



Mucoceles are cystic lesions occurring due to obstruction of the sinus ostium. Remodelling of the bony walls of the sinuses and orbits occurs, often resulting in proptosis. Usually hyperdense on CT and non-enhancing unless infected.



Optic nerve hematoma Post-traumatic hematoma of the optic nerve - hyperdensity on CT at the insertion of the optic nerve demonstrating acute hemorrhage. This finding results in acute monocular blindness and may require emergent surgical evacuation.



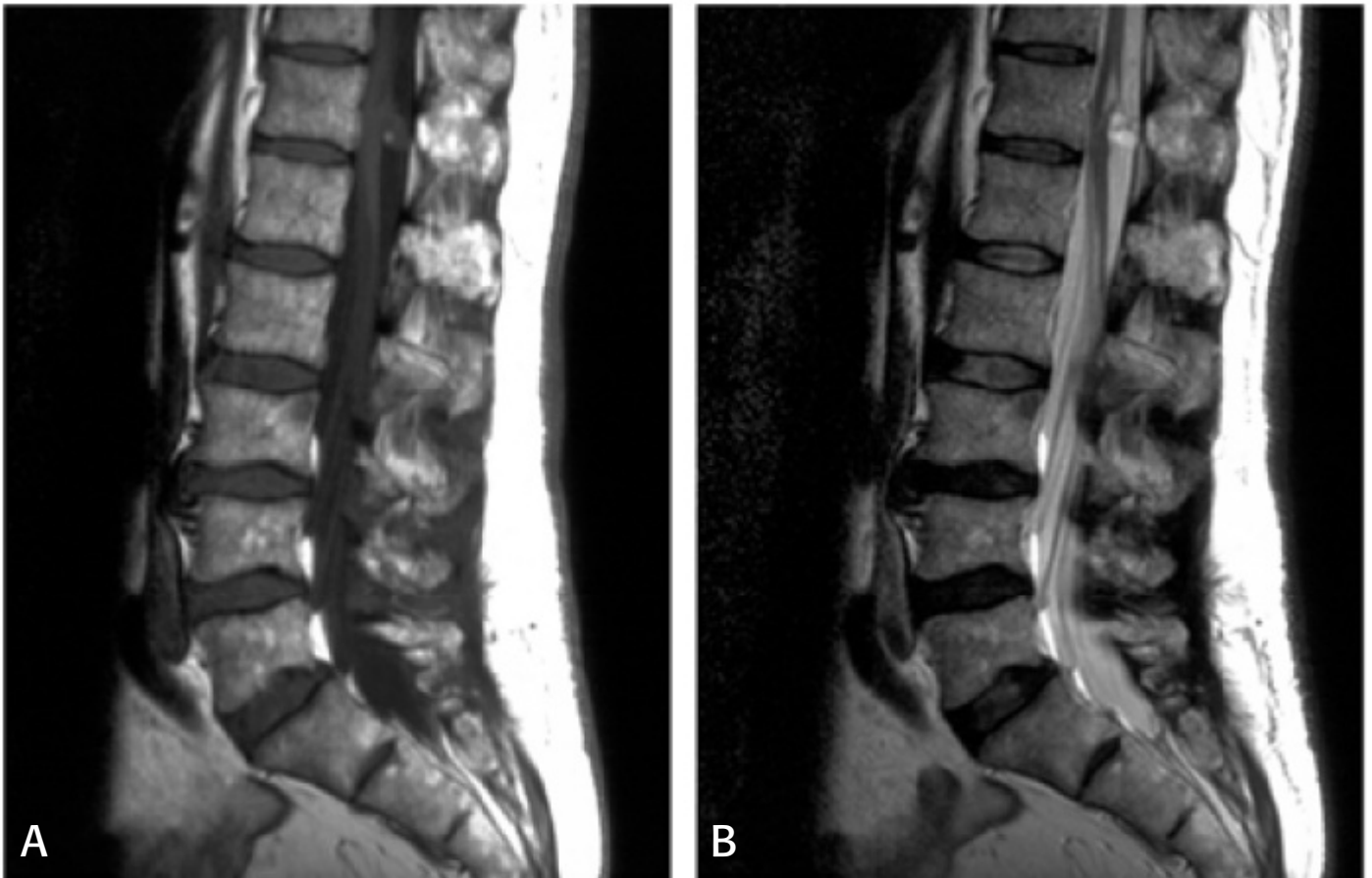
Cavernous hemangioma of the orbit, composed of dilated vascular channels with a fibrous capsule. Well-defined retrobulbar mass with high signal intensity on T2-weighted images (A) and characteristic pattern of progressive enhancement from periphery to centre with gadolinium contrast administration. (B, C, D) Note the chemical-shift artefact on the T2 sequence, indicating the presence of fatty tissue. (A)

UNUSUAL MATURE TERATOMA

DRS. RON POKRUPA, MARIE-CHRISTINE GUIOT, SUZANNE FONTAINE

This now 67 year old man had a severe electrical burn in a work injury in 1993. At that time 20,000 volts entered through his right arm and exited through his legs. The severe burns necessitated left above-knee and a right foot amputations and reconstructive surgery to the knee, genitals and the right hand. Subsequent to this, he experienced chronic back pain and constant phantom limb pain. Superimposed on his back pain were severe shock-like pains originating in the left back radiating down his phantom left leg. Strangely these sensations could almost be completely relieved by floating in water and lying flat. In addition, he noted urinary frequency and inability to obtain erections. Previously, he had been in robust good health although he had noticed a birthmark on his low back.

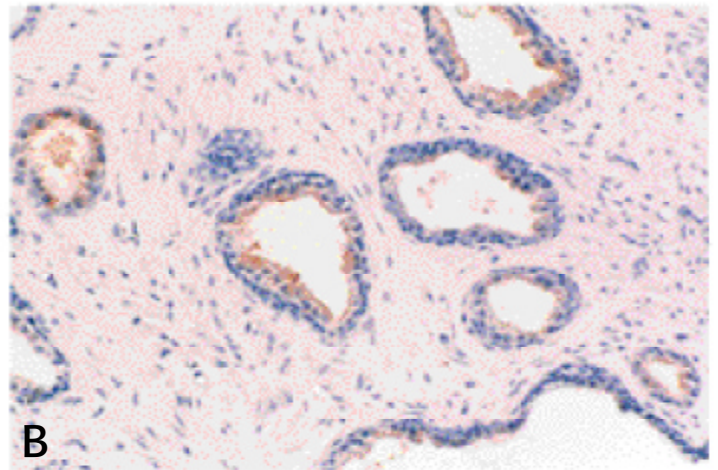
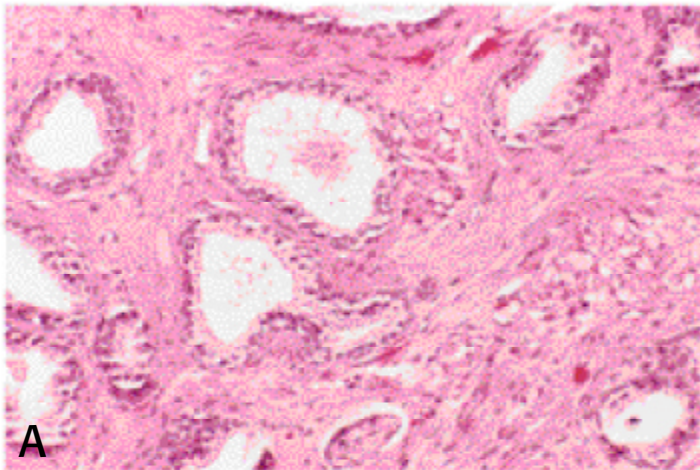
His examination showed in 1996 evidence of his previous amputations and burns. Neurologic examination was difficult because of these. An MRI scan showed intradural lesion extending out from the spinal cord at the T12 level of uncertain significance. This lesion was followed over the next four years. His pain became less and less tolerable requiring the use of Dilaudid and numerous Tylenols. Because of this intractable pain he underwent exploration of the spinal cord lesion the 11th of May, 2001. At operation there was a lobulated whitish yellow, dorsally exophytic, 1.5 cm diameter tumor. It originated in the spinal cord but grew into the subarachnoid spaces and abutted on, but was not adherent to the dorsal dura; the dura appeared to be thinner in consistency than elsewhere. The tumor itself was centrally cystic and there was a small syrinx in the cord. The dorsal columns of the spinal cord appeared to spread around the tumor and were displaced by it. Grossly total resection of the exophytic portions of the tumor was obtained.



Intradural lesion dorsal to conus, mixed signals on T1 and T2, apparently exophytic, with a small syrinx in the cord.



Lesion enhances with contrast, but not homogeneously.



*A) Hematoxylin and eosin stain showing normal prostatic glands with hyperplastic stroma.
B) PSA (prostatic specific antigen) immunohistochemistry is positive.*

In the early post-operative period, there were transient episodes of back and leg pain. In the ensuing weeks, he experienced dramatic reduction of the previous pain, there remained only a minor phantom limb discomfort in the left leg. For the first time in several years, he was able to sleep through the night and no longer required analgesia.

THIS NEWSLETTER IS SPONSORED BY



NEURIKON and BERLEX CANADA INC.

Volume 17 – number 4 – Bibliothèque nationale, ISSN 1180-0844 National Library of Canada,
Production – Denis Melanson – Neurikon Inc.

Layout, Graphic Design, and some Photography by the Department of NeuroPhotography at the Montreal Neurological Hospital (10-2001)