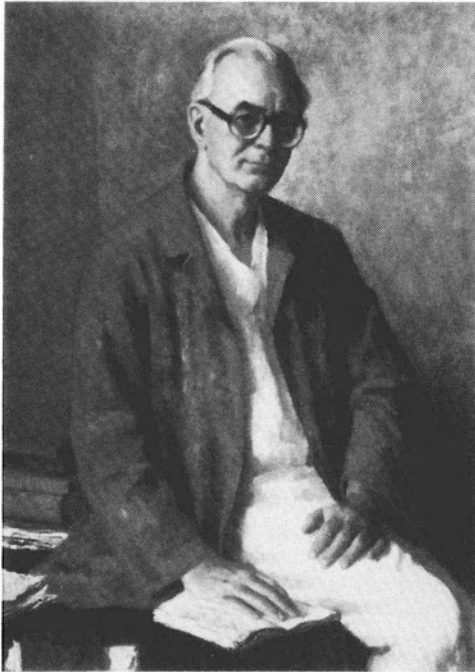


NEUROIMAGES

VOLUME 3, NUMÉRO 3 — AOÛT 1986
VOLUME 3, NUMBER 3 — AUGUST 1986



HÔPITAL NEUROLOGIQUE DE MONTRÉAL
MONTREAL NEUROLOGICAL INSTITUTE

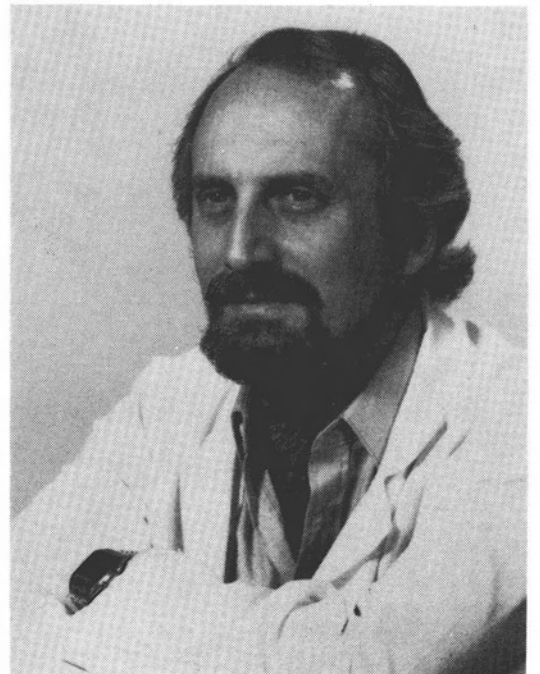


William Feindel

*In this issue of our
Bulletin are shown
Images to
commemorate the
visit to Montreal of
the International
Society of Magnetic
Resonance in Medicine*



*and the 25 years of
service of Romeo
Ethier at the Montreal
Neurological Hospital
and Institute.*



Roméo Ethier

Massive Embolization of Cardiac Myxoma

Suzanne Fontaine, M.D.

Case History

A previously healthy 40-year old woman suddenly complained of headache with vomiting, and medicated herself with aspirin. Several hours later, her husband found her unconscious and unresponsive, and she was brought to the hospital without delay.

Her physical examination on admission revealed her neck to be supple, while cranial nerve examination revealed unreactive but mid-size pupils. Other brainstem function appeared to be intact. There was no spontaneous motor movement. The general examination did not reveal evidence of petechiae or organomegaly. There was a soft ejection murmur heard at the apex.

Reevaluation a few hours later showed light fixed pupils at 4 mm. In the fundus of the right side, several occluded retinal arteries could be seen. With noxious stimuli, the patient decerebrated in both arms with brisk upper extremity reflexes, but was areflexic in the legs which were flaccid with no plantar response. In addition, examination revealed markedly depressed pulses in the lower extremities, as well as decreased temperature.

Provisional diagnosis was multiple emboli from a cardiac source. A CT scan performed at the admission was unremarkable (fig. 1).

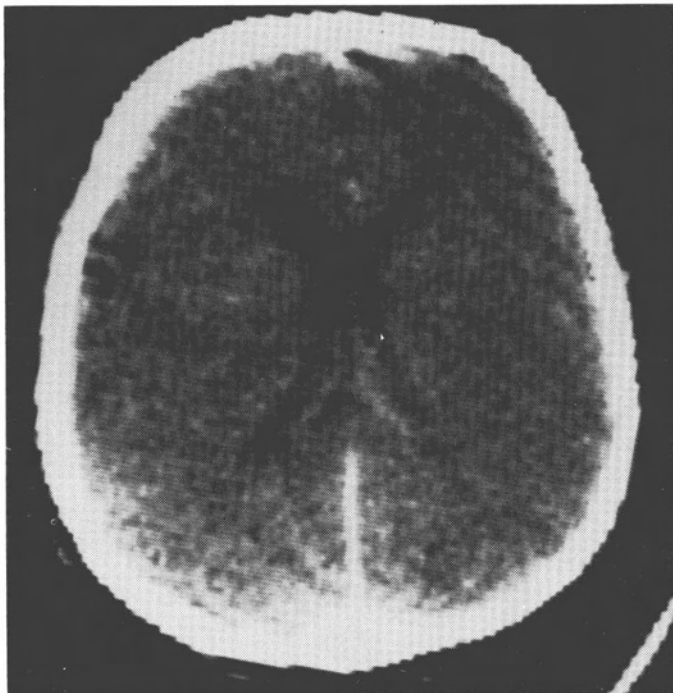
(continued on page 8)



◀ Fig. 1

▲ Fig. 2

Fig. 3 ▼



Images of a Papilloma of the 4th Ventricle

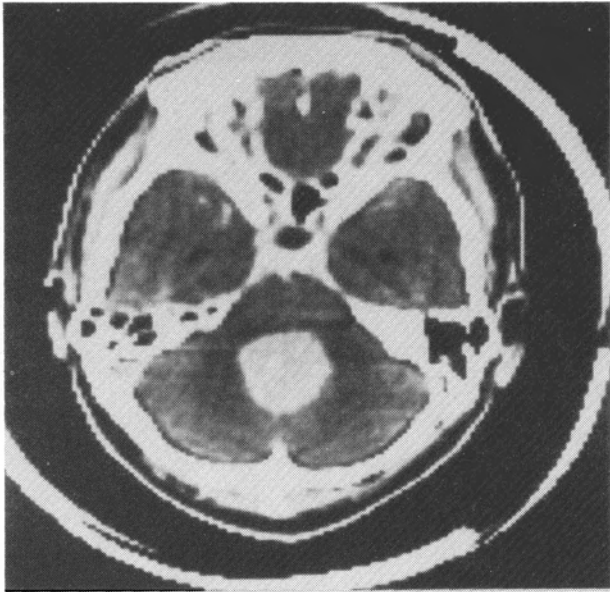


Fig. 1
Computed Tomography with Contrast (EMI 1010)
Large Tumour in the Region of the 4th Ventricle



Fig. 3
Magnetic Resonance (Sagittal View — Short TR)
Tumour Signal is Isointense within the
4th Ventricle.
Produced by a Gyroscan 1.5 T from PHILLIPS.

Fig. 2
Vertebral Arteriography (Lateral View —
Arterial Phase) Tumour Stain from 4th Ventricle
Branches of Pica

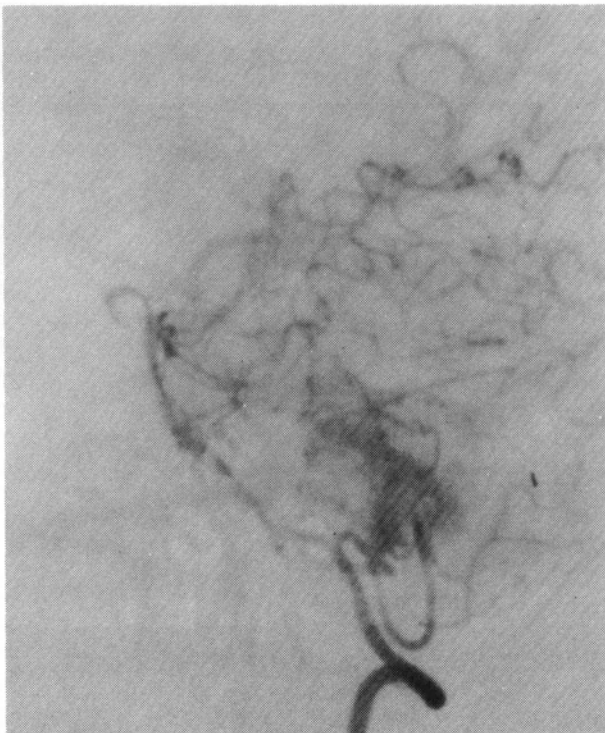
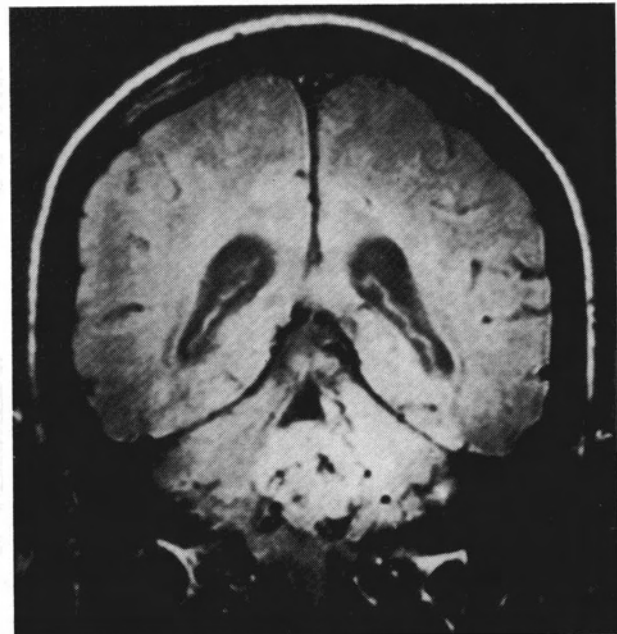


Fig. 4
Magnetic Resonance (Coronal View — Long TR)
Tumour Signal is Hyperintense with Numerous
Vessels Appearing Hypointense within it.
Produced by a Gyroscan 1.5 T from PHILLIPS.



A XVII Century Brain Imaging Centre

William Feindel
M.D., FRCS(C), D.PHIL

This engraving, by an unknown French artist of the XVII century, forms the centerpiece for an exhibit on the history and art of brain imaging, which our local organization is designing for the fifth annual meeting, in Montreal this August, of the Society of Magnetic Resonance in Medicine. Reproduced here by permission of the Philadelphia Museum of Art, from the Smith Kline and French Laboratories Collection, the illustration foretells the modern treatment of mental disorders by drugs.

A wry humor pervades the elaborate detail and the depiction of the two stages of therapy. As Carl Zigrosser, who compiled the catalogue of the Collection, wrote, "the picture may be a satire on medical theories fashionable in the XVII century, or it may be merely a Humorous exaggeration of the absurd. Similar versions are to be found among Dutch and German engravings of the period."

We see in the picture some of the characteristic elements of a XVII century apothecary's shop. The title reads in translation, "The Physician curing Fantasy — purging* as well the folly by drugs." It shows the physician in this bulky cloak, pouring from a flask labelled "sagesse", into a funnel in the patients' mouth. The patient, sitting on a commode, ejects three homunculi with jesters' caps and bells.

The shelves are ranked with apothecary's jars labelled to identify their contents as sense, virtue, reason, finesse, intelligence, remembrance, and so on. The patient's prescription is tacked to the drug cabinet. We see an alchemist's alembic, a fine example of a large mortar and pestle unusually figured, and in the left foreground a smoking brazier.

A striking feature of the engraving is the central machine, with its uncanny resemblance to a modern brain scanning instrument. The attendant, costumed in the style of the period, with stiletto tucked in his belt, and bearded like his physician partner, has placed the patient's head and shoulders into a large hemispheric furnace made of brick. The patient is alive and reactive as indicated by his up-raised right hand. Through the top opening of this early "hot" scanner emerges a Pandora's collection of objects that include winged jesters, one of whom is armed with sword and dagger, a full-fledged woman dancing with a monkey, a man reining whippets chasing a large bumblebee,

Le Medecin guarissant Phantastie Purgeant auffi Par drogues la folie



17th Century anonymous engraving. The Physician Curing Fantasy. By permission, Philadelphia Museum of Art.

winged worms and insects, a galloping horse, two violas da Gamba, a music booklet, a Dutch-looking house, a tennis racket, a clock, two pairs of pantaloons, birds, and a ladder.

No question that this must have been drastic treatment; the oral replacement of behavioral qualities, purging of jesters and the cerebral expulsion of these fantastic objects.

Of note are two recent scientific reports, from John Hopkins (Baltimore) and the Karolinska Institute (Stockholm), that describe how positron emission tomography (PET) shows great promise of identifying the bio-chemical changes in the brain associated with psychiatric disorders, such as schizophrenia, by imaging radio-labelled dopamine analogues. In the future, modern high technology imaging research may lead as well to the therapeutic approach, by specific drugs related to neuro-transmitter and neuroreceptor molecule, so vividly engraved by this anonymous artist.

The illustration is appropriate for this issue of Neuro-Imaging, which recognizes the 25 years of distinguished service to the institute and hospital by our Chief of Neuro-Radiology, Dr. Roméo Ethier. (His resemblance to the debonair figure in the central foreground will perhaps not escape his friends and colleagues.) The radiological leader of our neuro team that introduced CAT scanning to Canada in 1973, Dr. Ethier now heads the diagnostic group that is producing such exciting results from our advanced magnetic resonance system developed in co-operation with Philips. This instrument is capable also of spectroscopy, by which minute to minute samplings of the chemical actions of the brain can be monitored. Our new Brain Imaging Centre that integrates for the first time, MRI, MRS, EEG, CT, and computerized angiography may help to bring into the realm of reality, the XVII century notion of curing many brain disorders with highly selective drugs.

*The purge was used as a treatment from the time of the XII century and was mentioned by such great physicians as Harvey, Willis, and Sydenham. William Caxton described (1483), how mustard "purgeth and maketh clene the brayne", but the word purge was not mentioned in the French before 1690.

Roméo Ethier

Neuro Image profite de la présente parution pour rendre hommage au Dr Roméo Ethier, Directeur du Département de radiologie de l'Hôpital Neurologique de Montréal.

C'est au début des années 60 que Roméo Ethier s'est joint à feu Donald L. McRae, auquel il a succédé en 1967, lorsque ce dernier a choisi de poursuivre sa carrière au Sunnybrook Hospital de l'Université de Toronto.

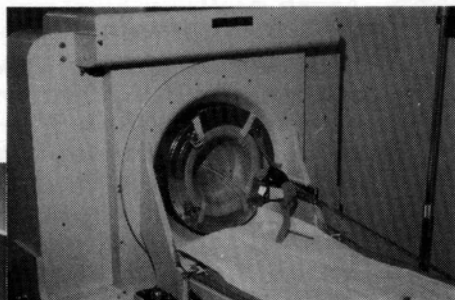
Pendant ses 25 ans de service, il a toujours mystifié ses collègues par l'excellence de sa vue stéréoscopique et la précision de ses diagnostics, art dont il demeure un des rares défenseurs*. Sa personnalité et sa fougue lui ont permis de toujours porter bien haut le flambeau du Neuro et de McGill.

Tous ses collègues, amis et disciples en ont été marqués.

EMI 1005

We acquired the EMI 1005 in September 1973. It was updated a first time in October 1974 and a second time in June 1977. (EMI 1010).

From July 1977 to July 1986, it has performed 50000 examinations which is an average of approximately 5500 examinations a year. It is still in operation and backs up the scanning services of our EMI 5005 and new Technicare HPS 1440. Although not fast and not high resolution, it still performs well and helps through the daily scanning routine.



EMI 1005



EMI 1010

Nouveau Scanner

André Cormier, R.T.

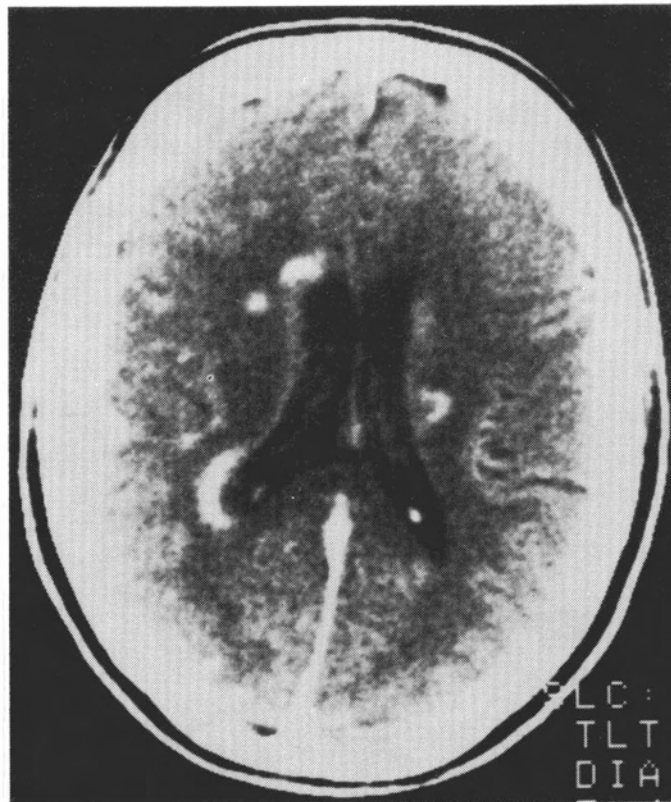


Fig. 1 Multiple Sclerosis

Après la première et la deuxième génération, nous voici avec une quatrième génération de scanner. L'Institut Neurologique de Montréal a fait l'acquisition en septembre 1985 d'un Technicare 1440 HPS, un scanner à haute résolution.

Le Technicare 1440 High Performance System, c'est un appareil de 1440 détecteurs Solid State et d'une définition de 22 paires/lignes. Il est accompagné d'une deuxième console complètement indépendante. L'épaisseur des coupes varie de 1 mm, 2 mm, 5 mm et 10 mm, avec des diamètres de scan de 13.5 cm, 20 cm, 25 cm et 40 cm. Quant au diamètre de l'ouverture, il est de 59 cm et le gantry permet des angulations de +20 et -20 degrés.

Suite à l'installation de l'appareil, nous avons connu des problèmes de communication entre certains logiciels. Il reste que le HPS 1440 est facile d'opération, rapide et la qualité de son image parle d'elle-même. (Fig. 1-2-3.)

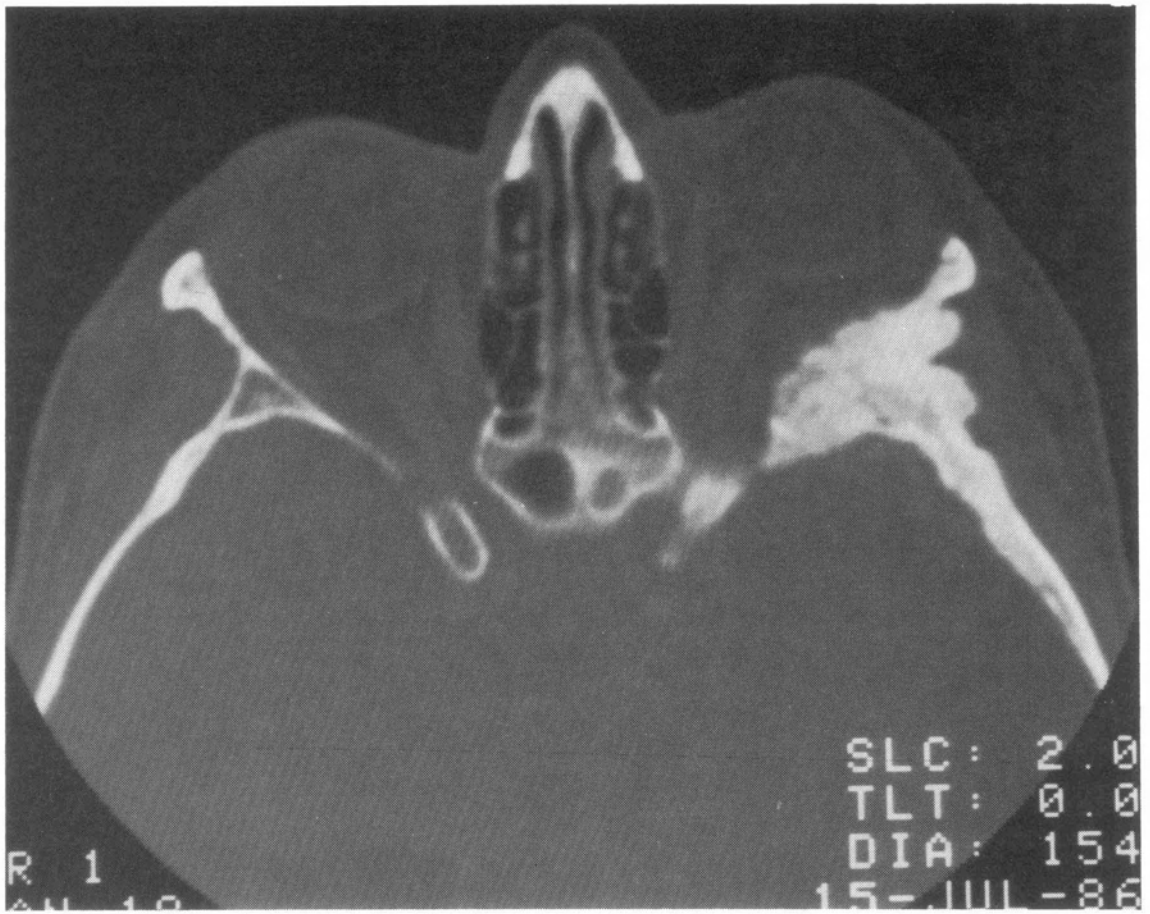


Fig. 2
Meningioma
en plaque
Greater Wing
of Sphenoid (Left)

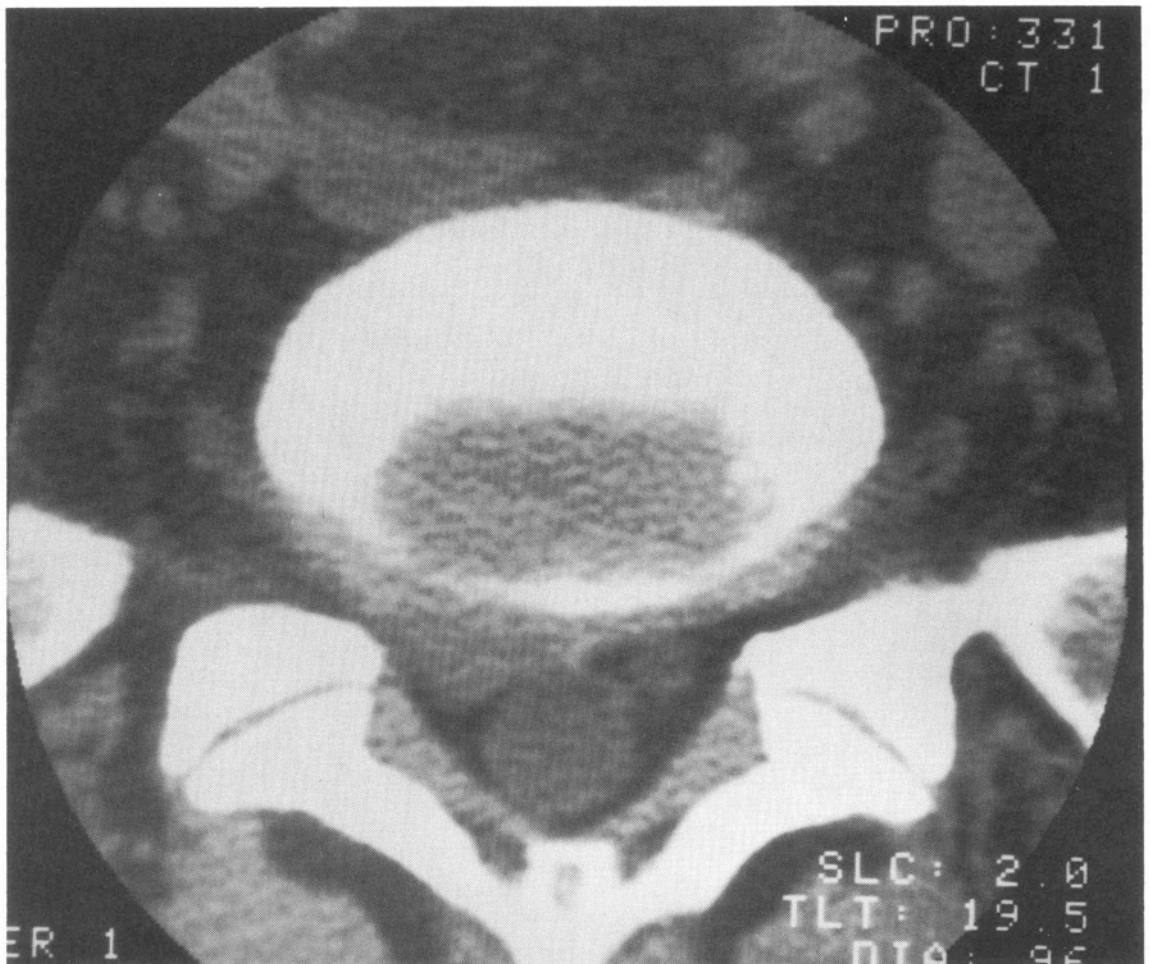


Fig. 3
Disk Herniation
L5-S1 (Right)

(continued from page 2)

The patient underwent emergency angiography which revealed a total occlusion of both internal carotid arteries at their origin (fig. 2). Abdominal angiogram showed complete occlusion of the abdominal aorta below the origin of renal arteries (fig. 3).

The patient continued to deteriorate and, within 24 hours of admission, had no evidence of cerebral or brainstem function.

Autopsy revealed massive embolization of a left atrial myxoma to the abdominal aorta and both internal carotid arteries.

Discussion

Myxomas comprise the most common primary tumors of the heart and constitute half of all cardi-

ac tumors. They may originate in any chamber of the heart, but 75% are found in the left atrium. Myxomas may occur at any age, but are rare in children and are most commonly found in patients between 30 and 60 years of age. Such tumors are three times more frequent in women than in men.

The characteristic manifestations of cardiac myxomas are of three types: those resulting from local mechanical interference; those caused by the release of emboli; and systemic symptoms presumably caused by the release of toxins from the tumor into the circulation.

Systemic emboli, frequently multiple, have been reported to occur in 40-50% of patients with left atrial myxoma. Post-embolic CNS deficit is frequently the first sign in such cases. Movement of myxomatous emboli to the brain followed by invasion of the arterial walls may give rise to localized aneurysm.

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Les collègues et amis qui ont connu Donald L. McRae peuvent, en faisant un don, témoigner de leur reconnaissance pour son influence et son enseignement dans le domaine de la Neuroradiologie.

Les sommes recueillies serviront à la promotion de l'enseignement en Neuroradiologie, au développement de nouvelles techniques et à l'organisation des conférences McRae consacrées à l'imagerie Neurologique.

Envoyez votre don à l'adresse suivante :

Montreal Neurological Institute 3801 University, Montréal, Québec, Canada H3A 2B4

NEUROIMAGE

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