Happy and Prosperous Year 2001

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Words of thanks and gratitude...
To those who have supported me over the years

But more specifically for the most recent issues of this bulletin:

My associates, Drs Donatella Tampieri and Roland Brassard, for their immediate support and generosity,

My fellows, Dr Sunithi Mani and Alexandre Bastos for their present contribution, Dr Eric Roger, Massimo Caulo, Jeffrey Jirsch and Suzanne Fontaine for previous issues,

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Dr Donald Baxter, for maintaining MNI support,

To all of you across the world receiving Neuro Image, for acknowledging it and responding to it in so many ways,

Words to wish you well and prosperous in 2001 …

Best regards
Respetos
Saudações
O Genki De

Saluti affettuosì
ti

Amicalement

Afectuosamente

Herzliche Grüße

Cordialmente

Saudações
Amicalement
Afectuosamente

Berlex Canada Inc.
The sella is a seat for many a lesion. In this short summary, we would like to highlight the lesions in the sella and suprasellar region that we have encountered in the past few months.

The most common lesion is an adenoma. Depending on the size, a lesion more than 10mm in diameter is a macroadenoma, and one smaller than that is a microadenoma. The most common microadenoma is a prolactinoma. 75% of all adenomas are hormonally active and 50% of all microadenomas are prolactinomas causing symptoms of amenorrhoea, galactorrhoea, and infertility.

Hypointense nodule, left side of gland, not enhancing with the rest of the gland – microadenoma

Large lesion with cystic areas, expanding sella and enhancing uniformly – macroadenoma

The epidermoid of the pituitary is a rare lesion. It is usually hypointense on T1W and hyperintense on T2W sequences. However as shown here it can have a hyperintense signal on T1W.

Rounded hyperintense lesion, not visualized separately from the gland.
**Rathke’s cleft cyst** and arachnoid cyst of the sella are rare lesions and are seen as incidental findings. The former is a remnant of the primitive stomodeum. The latter is formed due to maldevelopment of the meninges. They are usually hypointense on T1W, but can have a variable signal as in the following case, due to the difference in content.

Hyperintense on T1W & T2W involving the suprasellar cistern, pushing on the gland from above.

**Chordoma** is a destructive tumor which, while being benign, is still locally invasive. It appears hyperintense on T2, isointense on T1 and enhances with Gadolinium.

Hyperintense on T2W, enhancing with contrast, involving clivus and sella.

**Craniopharyngioma** arises from squamous cells along the Rathke’s cleft. It is a circumscribed cyst with a mural nodule. The usual signal on MRI is hyperintensity on T1 and hyperintensity on T2W.

Large lesion expanding the sella, not seen separately from gland, hyperintense on T1W and T2W... continued after Dr. William Feindel’s section
ABSTRACT

Background
For the 150th anniversary of William Osler’s birth and the 65th anniversary of the Montreal Neurological Institute, this report summarizes how deeply these two events influenced the development of neurology, neurosurgery and neurosciences in Canada and beyond.

Methods
Sources consulted included the Osler Archives, Wilder Penfield Archive, the McGill Archives and the Rockefeller Foundation Archives.

Results
1. William Osler, during the years 1872-1884 at McGill became Canada’s first neuropathologist; his exhibit at Ottawa in 1880 sampled the range of his material.
2. Of Osler’s 1400 publications, 250 related to neurology.
3. He knew Gowers, Jackson, Mitchell, Marie and Charcot, and through his support of Horsley and Cushing, promoted “medico-chirurgical neurology”.
4. In 1919, a request from Osler resulted in the Rockefeller Foundation granting $5,000,000 for Canada’s medical schools. McGill got $1,750,000.
5. McGill’s excellent decade of re-organization spurred by Rockefeller funds set the stage for another grant in 1932 of $1,232,652 to establish the Montreal Neurological Institute.
6. Over the past 65 years the “Neuro” became recognized worldwide, particularly for the surgery of epilepsy, neuroimaging and molecular neurobiology. The new Brain Tumor Research Centre expands this field begun at McGill by Osler in 1872-1884.

OSLER AND THE ROCKEFELLERS

It was Osler’s popular textbook of 1892, The Principles and Practice of Medicine, which instigated Frederick Gates to persuade John D. Rockefeller Sr. to direct his immense fortune to medical research. While at Johns Hopkins, Osler received an unexpected letter from Frederick Gates dated 4 of March 1902. The letter read in part:

“Some years ago, in carrying out a determination to become more intelligent as a layman on the subject of the current and common diseases, I purchased a copy of your Principles and Practice of Medicine, on the advice of a bright young medical friend. Happening to receive it just as I was to start on a vacation, I took the book with me and read it from beginning to end, with absorbing interest, and with a medical dictionary at my side. In reading it I was impressed especially with the vast numbers of diseases that are certainly or probably originated by bacteria …… and the vast possibilities for good lying in this field of research opened up before my imagination and fired my enthusiasm.

I, therefore, laid the matter before Mr. Rockefeller, and sought to impart to him my own interest, kindled by the reading of your book, in bacteriological research. His enthusiasm was easily kindled …… and the result was the Rockefeller Institute, of which you remember Dr. Welch is the Chairman, with an initial and tentative working fund of $200,000 with which to experiment ……, Mr. Rockefeller contributed a million dollars to the Harvard School [because of] the very superior work done at that institution …… Both of these gifts grew directly out of your book. It has occurred to me that possibly you might be gratified to know of an incidental and perhaps to you quite unexpected good which your valuable work has wrought.”

The story of the Montreal Neurological Institute of McGill University begins, strangely enough, on Jersey, one of England’s Channel Islands, in the summer of 1919. Sir William Osler, on holiday there, dashed off a hand-written note to John D. Rockefeller, Jr. in New York.

St. Brelades Bay, Jersey
Aug. 28/19

Dear Mr. Rockefeller

Do you think the Board would help the establishment at Montreal of up-to-date Medical & Surgical Clinics? The situation is this: – McGill has done well & the Medical School, for nearly 100 years, has been the leading one in the Dominion. The citizens have been most liberal & the school buildings compare favorably with the best in the United States. The two Hospitals are a.1.. but would need reorganization in certain particulars for the new clinics. I could have all details sent to you, if there is any possibility of the Board considering the suggestion. With kind regards,

Sincerely yours,
Wm Osler

Excuse paper, I am by the sea of this lovely island.

Correspondence from the acting principal of McGill, Frank Adams, and from Mr. Mackenzie King who had helped the Rockefellers in their labor problems, ended by John D. Rockefeller Sr. sponsoring 5 million dollars for Canadian Medical Schools. More than one million of this was assigned to McGill. The announcement was made a few days before Osler died on 29th December 1919, so unhappily he never heard of McGill’s good fortune.
The condition of the Rockefeller Foundation grant to McGill was to have it matched by $900,000 to put up buildings for physiology, pathology and psychiatry. The newly appointed Principal of McGill, General Sir Arthur Currie, had already succeeded in leading a widespread fund raising campaign for the University’s centennial of over $6 million dollars. Thus the Rockefeller - McGill agreement was quickly completed.

THE NEURO BENEFACTION

In 1928, Edward Archibald, who had been neurosurgeon at the Royal Victoria Hospital since 1905, invited Wilder Penfield to move from New York to Montreal to take over neurosurgery. The excellent track record of McGill’s developments set the stage for negotiations between the Rockefeller Foundation and McGill to establish The Montreal Neurological Institute. Currie and Martin strongly supported Wilder Penfield’s idea combining neurology, neurosurgery and neurological research in the same structure. After an initial refusal, a concerted effort resulted in a grant of $1,232,652 in 1932, to create a million dollar research endowment, with the remainder to cover half the cost of the new building.

The cornerstone was laid on October 6, 1933. The Institute was officially opened on September 27th, 1934.
Over the past 65 years the Montreal Neurological Institute, familiarly known as the “Neuro”, became recognized worldwide, particularly for the surgery of epilepsy, neuroimaging, neuropsychology, neuromuscular research, and molecular and genetic neurobiology. A street corner near McGill’s Medical School now uniquely commemorates these two famous doctors, Sir William Osler and Dr. Penfield who pioneered in the teaching, research, and treatment of neurological disorders at McGill.

Acknowledgements:
The author thanks the Department of Neurophotography, MNI for photography and graphic design and appreciates the support of the Wilder Penfield Archive Fund of the class of Medicine, 1945. © William Feindel, 2000
**Meningioma** of the sellar region can arise from the meninges at the suprasellar cistern. The following case is one of meningioma of the diaphragma sellae, where the pituitary gland is seen separately, pushed down by the meningioma.

*Enhancing lesion in the suprasellar region, seen separately from the gland.*

**Germinoma** is the 2nd most common tumour occurring in the anterior third ventricle. It has variable signal characteristics. The following case shows a hypointense lesion with cystic/necrotic areas, and the solid areas enhancing. The lesion extends into the sella and superiorly extends to the lateral ventricle.

*Hypointense lesion centered in the anterior third ventricle, extending into the sella inferiorly and enhancing heterogenously with Gadolinium.*

The **Empty sella** is a common condition, which is seen as an incidental finding. The pituitary gland is seen flattened against the sellar floor and the stalk is central. It has no clinical significance, except when linked to prominent optic sheaths and papilledema.

*Normal sized sella with the gland flattened against the floor*
The last case is one of a 40-year-old male, who was investigated for seizures, and the sella had an incidental finding. There were no symptoms of hormone imbalance or visual defects. Investigations confirmed that there was no hormonal imbalance. A CT scan of the pituitary region did not show any calcification.

_We would appreciate it if you could send in your suggestions on what this lesion could be. We will include them in our next issue._

Hypointense nodule in the center of the gland on T2W, hyperintense on T1W, not enhancing with gadolinium.

“A large part of our knowledge of the sellar pathology has come from “l’Ecole de Besançon”, directed by Jean-François Bonneville, and his associate Dr Françoise Cattin. We had the pleasure of having Françoise here with us in the department for a year in 1997. We would like to acknowledge their expertise and tell Françoise that we really miss her in Montreal.”

Denis Melanson
Functional magnetic resonance imaging has been widely used for pre-surgical evaluation of patients with lesions located near to language and sensorimotor cortex. Because fMRI requires the performance of active tasks, full cooperation of the patient is necessary for successful results. Alternatively, passive tasks may be utilized for obtaining activation of the sensorimotor area in non-cooperative patients.

Presurgical fMRI study was performed in a 32-year old female with tuberous sclerosis, epilepsy and severe cognitive impairment. The patient had frequent seizures originating from left central region, close to a tuber located in the hand area. Passive flexion and extension of the fingers of the right hand were performed in alternation with a rest condition. The functional map was co-registered into an anatomical data set.

The figures below illustrate the result, showing significant activation in the pre- and post-central gyri, along the margins of the central sulcus.

The passive task provided significant activation in the predicted brain area. This result is in accordance with previous studies that demonstrate similar overlapping activation between active and passive sensorimotor tasks.

Passive flexion and extension of the hand involves stimulation of tactile and proprioceptive receptors. Because Brodmann’s area 4 (primary motor) and areas 3, 1, and 2 (primary sensory) are richly interconnected, primary activation of sensory areas would elevate the rate of neuronal depolarization in the motor cortex.

This case report illustrates the feasibility of performing fMRI for mapping sensorimotor areas of patients with mental impairment.

(A) axial slice shows the cortical tuber (arrow), located adjacent to the somatotopic representation of the hand area (better demonstrated in B). (C) activation elicited by the task. (D) relationship between the tuber (dotted lines) and activation in the deeper part of the sensorimotor strip.
When Heidi Patriquin passed away in late November, we suffered the loss of a “grande dame” of our profession.

My first encounter with Heidi was when she trained at the Neuro in 1968-1969. I was in my early years of teaching neuroradiology. She was a great student, she stimulated her teacher, and she then surpassed him. We wrote a paper together, our first for both of us: Epidermoids of the 4th ventricle.

She went on to practice pediatric radiology, first at CHUS in Sherbrooke, and then at Ste-Justine in Montreal. She acquired a record of international repute.

Our roads crossed again within the ranks of our Canadian and Quebec radiology societies, where she played very active roles at all levels. The photograph herein was taken at a conjoined meeting of the two societies, when she introduced me, her successor, as president of the “Societe Canadienne-Francaise de Radiologie”.

Reflecting on the words she wrote last, which were circulated at her funeral, I thought she left this world as a grande dame, the same way she had lived, worked, and loved during all her life: “the disease has destroyed my body. It is time to rest. But the disease has not and cannot destroy the love I bear for you. Thanks be to God”

You can rest in peace Heidi and enjoy your reward: you have deserved it.

Denis Melanson  MD