

---

## Introduction

---

Once every year for the past ten years, a world renowned neurosurgeon has spent a week at the Toronto Western Hospital, University of Toronto, as the William S. Keith Visiting Professor of Neurosurgery. The professorship is named in honour of one of Canada's pioneer neurosurgeons, who established the neurosurgical services at the Hospital for Sick Children in 1933 and at Toronto Western Hospital in 1936. Bill Keith has actively participated in each of the annual visits, and at the age of 83 continues to share his remarkably keen and perceptive mind and clinical accumen. On two memorable occasions, he has determined the correct diagnosis in the annual clinicopathological conference after the visiting professor had been stumped!

Dr. Keith performed the first lumbar discotomy in Canada in 1936, and he pioneered the use of the lumboperitoneal shunt in the treatment of hydrocephalus. He has had an original, creative and innovative approach to surgical problems. However his interest and concern for his patients continued long after their operation. He has been known to bring cheer to patients by visiting them in their home, even in remote parts of Ontario. During one such visit on a dull, cold winter day, he cut firewood, lit a fire in the hearth and made tea, to bring much needed human contact and warmth to a disabled and lonely patient. Such a remarkable degree of caring and human kindness characterizes Bill Keith. It is with admiration and affection that this Symposium is dedicated to him.

The 1985 Visiting Professor was Patrick Derome, Head of the Neurosurgical Department at Hôpital Foch in Paris, and Associate Professor of Neurosurgery at the University of Paris West. Dr. Derome, a pupil of Professor Guiot, possesses remarkable technical skills which he has boldly and effectively used to deal with those extremely difficult tumours in the "no man's land" of the skull base that defeat the ordinary neurosurgeon. In a modest and matter-of-fact way, he describes radical excision of extensive skull base tumours, such as a chordoma involving the clivus and sphenoid body, via the subfrontal ("transbasal") approach, sometime combined with the transsphenoidal ("rhinoseptal") approach at the same sitting. He describes the startling view from the anterior cranial fossa of the midline skull base as far back as the foramen magnum and even the arch of the atlas. Post-operative x-rays show skull base reconstruction with bone grafts extending from the anterior cranial fossa to the tip of the clivus. Surgical morbidity and mortality are low. There are few neurosurgeons in the world who can perform such a technical tour-de-force. Dr. Derome presents his experience in removing 43 clivus chordomas with some remarkably good long term results. He also presents his approach in 102 other skull base tumours including fibrous dysplasias, meningiomas, chondromas and others. He has also removed over 2,000 pituitary tumours. Dr. Derome has been called "one of the world's most exciting and innovative technical surgeons." It is a remarkable man who combines such surgical virtuosity with genuine modesty and an extraordinarily warm personality.

In conjunction with Dr. Derome's presentations, a group of papers relating to tumours of the skull base was presented by members of the University of Toronto faculty. Professor Gordon Potts, Chairman of the University of Toronto Department of Radiology, presents a clear review of the basic principles of magnetic resonance imaging (MRI) and the application of MRI to some skull base lesions. Dr. James Sharpe of the Division of Neurology (Neuro-ophthalmology) reviews some practical clinical bedside tests that are valuable in the early diagnosis of optic nerve and chiasmal compression; these tests include visual acuity, colour perception, pupillary light reflex, relative afferent pupillary defect and visual fields. Sharpe describes the importance of examining the retinal nerve fibre layer (NFL) with the ophthalmoscope. Attrition of a segment of the NFL occurs before optic disc pallor is seen and is useful in the early diagnosis of optic nerve and chiasmal compression.

Dr. Fred Gentili has used intraoperative somatosensory and brainstem auditory evoked potential monitoring in 200 neurosurgical operations. He reviews the Toronto General Hospital experience with monitoring in skull base tumours. The technique provides an effective warning to

the surgeon of any excessive retraction or surgical manipulation. Neuroradiologists Karel Ter Brugge, Ming Chiu, and Pierre Lasjaunias from the Toronto Western Hospital present a meticulous display of super-selective angiography in skull base tumours, and describe the application of the information so obtained in embolizing tumour blood supply as an adjunct to surgery, or injecting cytotoxic drugs into the tumour for palliation.

Three Toronto neurosurgeons review their large personal experiences with tumours in the skull base region. Dr. Harold Hoffman has removed 29 craniopharyngiomas since 1976 with no deaths or major mortality. He describes his surgical technique and results. Dr. Charles Tator reviews 204 patients with cerebello-pontine angle lesions, of which 181 were acoustic neuromas, and he describes various operative approaches and their indications, especially the translabyrinthine approach. Tator has preserved facial nerve function in a high percentage of patients, and hearing in some patients with small tumours. Dr. Harley Smyth's experience with over 3,000 pituitary tumours has been characterized not only by meticulous surgical technique, but also by careful, detailed analysis and documentation of endocrine function and pathological findings. He describes the diversity of tumour cell types within each group of hypersecretory tumours, and discusses the surgical management and correction rate in each subgroup.

Three papers describe adjunctive treatments of tumours. Dr. David Payne, a radiation oncologist, reminds us that radiation is effective in controlling meningiomas, and states the role of radiation in other tumours in the skull base region. Dr. Mark Bernstein from the Division of Neurosurgery, in collaboration with his colleague Gutin from San Francisco, discusses interstitial radiation in the treatment of a variety of tumours. He outlines recent technical advances that have stimulated the current resurgence of interest in brachytherapy. The final paper is by Dr. Paul Muller of the Division of Neurosurgery, who is collaborating with Dr. Brian Wilson, a physicist from McMaster University in the study of photodynamic therapy in treating cerebral tumours. Application of a controlled dose of light either in a tumour cavity following surgery or by stereotaxy, destroys tumour cells that have been sensitized to light by a chemical photosensitizer, hematoporphyrin derivative. Although many technical hurdles are yet to be overcome, photochemotherapy can now be performed safely and with controlled dosages. To date Muller has only used it in treating cerebral gliomas; his preliminary results are very encouraging.

*Ross Fleming  
Division of Neurosurgery  
University of Toronto*