ACCELERATING SCIENCE – ADVANCING MEDICINE

The Departments of Neurology and Neurosurgery at Mount Sinai have erased the boundaries between specialties—artificial lines that frustrate patients and physicians alike. Structured around clinical and research centers, the jointly run departments drive interdisciplinary expertise for hundreds of disorders of the brain, spine, and nervous system.

In everything we do, our mission is to provide patient-oriented disease-specific care to those with disorders of the nervous system, pioneer treatments and cures of the future, and train the next generation of academic neurosurgeons, neurologists, and researchers.

Many programs embody the success of our integrated approach. Our world-class Cerebrovascular and Endovascular Program, for example, integrates care across five specialties and just completed its 17th year of carotid endarterectomies without a single death or major stroke. The Endovascular Program performs more minimally invasive procedures for treatment of carotid disease in high-risk patients than any other neurovascular program in the region, with stroke rates in high-risk patients lower than all published multi-center trials to date.

Our collaborative approach has also resulted in improved brain tumor outcomes. During the past three years, the growth of Mount Sinai’s program has surpassed that of other programs in Manhattan.

Interdepartmental collaboration is also the hallmark of our new Center for Cognitive Health, which centralizes evaluation and care of dementia, post-traumatic deficits, and other neuropsychological disorders. It is the only regional center selected by the National Football League to perform cognitive evaluations and provide treatment to former professional players.

Our Pituitary and Neuroendocrine Program is one of the nation’s busiest, currently managing more than 3,000 patients and performing more than 150 annual pituitary tumor operations using endoscopic and microscopic techniques. Our excellent outcomes, scientific research, and novel management strategies are documented in numerous peer-reviewed publications.

MEDICAL MILESTONES

Parkinson and Movement Disorders Center

The Robert and John M. Bendheim Parkinson and Movement Disorders Center at Mount Sinai is one of the world’s leading multidisciplinary centers for the study of Parkinson’s disease and related disorders, serving as a forum for collaboration among internationally acclaimed neuroscientists.

The Center offers state-of-the-art clinical care, translational research, and basic science programs aimed at discovering the cause of and treatments for Parkinson’s disease, dystonia, and other movement disorders. It incorporates a renowned deep brain stimulation (DBS) program that is one of the nation’s largest for movement disorders. Ron L. Alterman, MD, Director of Functional and Restorative Neurosurgery and Professor of Neurosurgery, and Michele Tagliati, MD, Associate Professor of Neurology, have played a leading role in defining the proper indications for DBS surgery in dystonia. Together, they have developed stimulation protocols that enhance patient outcomes and prolong battery life.


MRI demonstrating proper positioning of DBS electrodes to treat Parkinson’s disease.
**RESEARCH FRONTIERS**

**From Bench to Bedside, and Back**

The Brain Institute—one of 14 translational science institutes at Mount Sinai—is an interdisciplinary hub for defining the mechanisms underlying brain and nervous system diseases and for translating those findings into preventive or restorative interventions. Ranked #4 nationally in National Institutes of Health funding, neuroscience research at Mount Sinai is bidirectional, integrating basic research and novel clinical observations among the Departments of Neurology, Neuroscience, and Neurosurgery. "The exciting collaborations among our three departments is a fabulous example of the ways in which we will seek to further develop basic and clinical neuroscience research, coupled tightly to clinical neuroscience treatment programs, to establish Mount Sinai as a premier center for research and treatment of nervous system diseases," says Eric J. Nestler, MD, PhD, Director of the Brain Institute, Chair of the Department of Neuroscience, and Nash Family Professor of Neuroscience.

**PHOTO ESSAY**

**Minimally Invasive Case Studies**

A 41-year-old female with visual loss underwent transnasal endoscope-assisted resection of a suprasellar meningioma.

LEFT: Preoperative coronal MRI showing suprasellar meningioma.
RIGHT: Postoperative MRI after transnasal resection.

A 46-year-old female presented with visual loss and neuroendocrine dysfunction caused by a large craniopharyngioma.

LEFT: Preoperative MRI showing a large craniopharyngioma with suprasellar extension and expansion into the third ventricle.
RIGHT: Postoperative MRI after transnasal endoscope-assisted resection.

**MEDICAL MILESTONES**

**Pituitary, Endocrine, and Skull-Base Program**

Mount Sinai’s Minimally Invasive Skull-Base Surgery and Pituitary-Neuroendocrine Programs unite specialists in endocrinology, neurosurgery, head and neck cancer, craniofacial surgery, and microvascular and reconstructive procedures. Multidisciplinary teams provide highly advanced medical and surgical treatments for lesions near the skull base, and for the comprehensive management of pituitary and neuro-endocrine disorders. Conditions treated include pituitary tumors, acoustic neuromas, meningiomas, adenoid cystic carcinomas, clival chordomas, craniopharyngiomas, encephaloceles/meningoceles, esthesioneuroblastomas, nasopharyngeal carcinomas, chondrosarcomas, petrous apex granulomas, and cerebrovascular lesions.

CLOCKWISE, FROM TOP LEFT: Eric M. Genden, MD, Professor and Chair of Otolaryngology; Satish Govindaraj, MD, Assistant Professor of Otolaryngology; Kalmon D. Post, MD, Professor of Neurosurgery and Chair Emeritus; Joshua B. Bederson, MD, Professor and Chair of Neurosurgery.