Viviane Tabar is a neurosurgeon with a broad range of interests in the clinic, the operating room, and the laboratory. Since joining the Department of Neurosurgery in 1998, she has cared for patients with benign tumors such as meningiomas and pituitary adenomas, those with aggressive malignant diseases such as glioblastomas and astrocytomas, and patients with brain metastases. She also conducts laboratory research focused on the study of human stem cells and their potential role for treating brain disorders.

We asked her about the new Pituitary and Skull Based Tumor Center she established at Memorial Sloan Kettering and her research goals.

What drove you to choose neurosurgery as a career?

The brain, because it is a very sophisticated organ. It defines who people are. There is a lot that remains to be discovered about the brain, so it provides a lifelong, continuously fascinating challenge.

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What are pituitary tumors, and how do they affect patients' lives?

Pituitary tumors are benign tumors of the pituitary gland, the master gland in the body.They occur in about one in five people. While most of them don't cause any problems, some of them cause hormonal imbalances such as gigantism. Other patients may experience voice changes, trouble sleeping, vision problems, headaches, and difficulties with menstruation or fertility. So even though these tumors are not life-threatening, they can impair quality of life. Most patients live a long time after they receive treatment. Because their life expectancy is long, their quality of life after treatment is paramount.

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Why did you decide to create the Pituitary and Skull Based Tumor Center, and what benefits does it offer to patients?

Patients with pituitary tumors have a wide variety of needs and usually have to see a team of professionals for evaluation and treatment, including an endocrinologist, an ophthalmologist, and a neurosurgeon. It could take months for patients to receive a recommendation for their care.

Through the Pituitary and Skull Based Tumor Center, Memorial Sloan Kettering has the manpower, technology, and expertise to offer all of these services in one convenient location. Patients can often see all of their doctors on the same day, which is especially helpful for patients coming from other states or countries. Patients come here because they know they're getting the excellent care for which Memorial Sloan Kettering is known. We've gone from treating three or four patients with pituitary tumors per year to about 200.

I like treating these patients because they widen my horizon as a physician. It's great to be able to offer them multidisciplinary care that is hard to find elsewhere and is the best way to manage their problem.

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What kinds of advances at Memorial Sloan Kettering are improving the care of patients with pituitary tumors?

An important advance has been the use of intraoperative MRI, which allows us access to live imaging during surgical removal of the tumor. This is critical, because when you remove the tumor, there is a significant shift in the topography of the brain: the gland's position changes and the relationship of residual tumor to the surrounding structures also changes. It also gives us the ability to look for very small amounts of residual tumor tissue while avoiding delicate structures nearby, such as the optic nerves and the carotid arteries. It's important to remove as much tumor as possible while preserving the gland itself, so that patients won't need a lifetime of hormone therapy. We are probably the only center in the United States doing pituitary surgery routinely in a high-field MRI suite.

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Can you tell us about your research on stem cells?

It was once thought that you were born with a certain number of brain cells, and those were the cells you would have for life — you would never grow new ones. But we now know that stem cells exist in the brain that mature into new nerve cells.

Recently, we've learned how to turn adult skin cells in the laboratory into embryonic stem cells. In my research, I am studying how to harness this technology to repair brain damage due to degenerative disease such as Parkinson's or Lou Gehrig's disease, or due to other insults such as radiation. These stem cells can be derived from each individual patient, and therefore cannot be rejected as foreign. They can also help us model disease in the lab in our search for new therapies.

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What do you see as your greatest challenges?

I want to do the best job I can as both a physician and a scientist. Malignant brain tumors remain very difficult to treat successfully. Five years from now, I'd like to be able to offer more effective treatments for my patients. I hope we hit an exponential phase in our research accomplishments. I feel sometimes we're close, but we're not there yet.

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How does the collaborative atmosphere at Memorial Sloan Kettering further your work?

This is a place teeming with smart people. I collaborate not only with other clinical members of the Brain Tumor Center, but also molecular biologists, stem cell biologists, developmental biologists, computational biologists, and others. Science is a collaborative endeavor. You can't do it alone, and the many talented people here provide the right combination to further our research.

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