

In the Middle of Brain Surgery, Patients Wake Up and Begin Talking

September 11 2009

Kim Delvaux was undergoing surgery to remove a brain tumor when doctors at Loyola University Hospital woke her up. Dr. Vikram Prabhu talked to her about her favorite topics -- NASCAR and her kids.

"I can remember two distinct conversations," said Delvaux, who lives in Downers Grove. "My friends can't believe it, but it's true."

While she was awake, Prabhu gently probed brain tissue surrounding the tumor. If this affected Delvaux's ability to speak or move, Prabhu would avoid those areas when he later removed the tumor. "We call these areas 'No Fly Zones,'" he said.

The technique allows the surgeon to map out sites that are essential for speech and motor skills. Surgeons have been doing various forms of brain mapping for decades. But advances in preoperative imaging, anesthesia and surgical tools and techniques have significantly improved outcomes. Consequently, surgeons are able to remove tumors in close proximity to critical parts of the brain, and patients are experiencing fewer cognitive and motor deficits, Prabhu said.

"Evidence in the medical literature supports the safety and efficacy of brain mapping," Prabhu said. Prabhu is a neurosurgical oncologist and associate professor in the Department of [Neurological Surgery](#), Loyola University Chicago Stritch School of Medicine.

Some patients remember little or nothing. Others remember fragments.

Theresa Shepherd of Plainfield remembers Prabhu saying: "Terry, I need you to talk." Carla Jones of Gary has just a vague memory. "I can remember Dr. Prabhu speaking to me, but it's a little blurry," she said.

Prabhu does brain mapping on especially difficult cases in which tumors are located close to critical brain structures. He has done about 35 cases since he began a brain mapping program at Loyola in 2004. The team includes anesthesiologists, neuropsychologists, radiologists, residents, nurses and biomedical technicians.

During the first part of the operation, while the surgeon is cutting an opening in the skull, the patient is in a state of heavy sedation close to general anesthesia. Once the surgeon reaches the brain, the anesthesiologist wakes the patient up. The patient does not need anesthesia during this part of the operation -- which lasts about one hour -- because there are no pain receptors in the brain, said Dr. W. Scott Jellish, chairman of the Department of Anesthesiology.

Jellish added that the use of newer, short-acting anesthetics enables the anesthesiologist to wake the patient in just five or six minutes.

The surgeon gently probes brain tissue surrounding the tumor. Monitoring equipment can detect the slightest muscle movements in the face, arms and legs. If a probe causes, for example, a leg muscle to twitch, the surgeon knows not to cut in that part of the brain.

Similarly, the surgeon will monitor speech effects when [brain tissue](#) is probed. A neuropsychologist assists in the monitoring. The patient will be asked, for example, to say the alphabet, count backwards from 10 or identify photos of common objects.

The neuropsychologist also chats with the patient to determine if speech is slowed when the brain is probed. Patients talk about jobs, families,

movies, baseball -- whatever interests them. Most are remarkably coherent. "It's not unusual for patients to even crack a joke," said Margaret Primeau, Ph.D., chief of psychology.

Despite improvements and meticulous attention to detail, brain-mapping surgery is not risk-free. Between 10 percent and 15 percent of patients may experience problems such as weakness in an arm or leg or difficulty speaking or understanding speech. At times, these deficits can be permanent.

Delvaux, 45, has a small problem with depth perception on her right side, but has otherwise made a full recovery.

Researchers have found that brain mapping surgery is well tolerated. A study of 21 patients published in *Techniques in Neurosurgery* found that a month after surgery, every patient was "entirely comfortable" with the experience, despite a few difficulties. One patient was briefly terrified when her speech was temporarily disturbed and another worried about a temporary seizure. Two were disappointed they couldn't remember the operation better. And one was "blown away by the idea of being awake during brain surgery," researchers from Brigham and Women's Hospital in Boston reported.

[Brain mapping](#) allows the patient to move on to the next phase of treatment, which in some instances includes chemotherapy and radiation therapy, Prabhu said.

Provided by Loyola University

Citation: In the Middle of Brain Surgery, Patients Wake Up and Begin Talking (2009, September 11) retrieved 25 April 2024 from <https://medicalxpress.com/news/2009-09-middle-brain-surgery->

[patients.html](#)

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.