

EVERYBODY'S NIGHTMARE

BRAIN TUMOR: the very words bring us face to face with our worst fears. But new treatments and surgical techniques offer some hope—or, at least, more time.

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PHOTOGRAPH BY EILEEN TRAVELL

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ARRY IVES REMEMBERS LOSING consciousness on a plane en route from East Germany—where he had just witnessed the dismantling of the Berlin Wall—to his home in suburban Boston, and awakening to learn that his 38-year-old

brain had been invaded by a tumor. That was nine years ago. At the time, though the international sales executive landed in the OR of one of the nation's top brain tumor centers, doctors declared his tumor benign but with early features of malignancy—and inoperable. Removing the mass, which was located perilously close to his brain's speech and motor centers, would have left Ives unable to walk or talk. Radiation slowed the growth rate of the tumor—until two years ago, when tests revealed that it not only had grown, but had become more aggressive.

This time around, using navigational technology rivaling that used to track satellites through space, Ives' surgeon, Peter Black, M.D., neurosurgeon-in-chief at Brigham and Women's Hospital in Boston, was able to remove the entire astrocytoma (see "Brain Tumors, Technically Speaking") without damaging the vital brain tissue surrounding it. Ives, who remained awake while Dr. Black cut into his skull (his nerves dulled only by a local anesthetic and a mild sedative), answered questions as the surgeon stimulated different parts of his brain, helping Dr. Black identify and steer around areas of brain tissue necessary for cognitive function. During the surgery, Dr. Black discovered a second, smaller tumor, embedded deep in Ives' brain tissue and inaccessible by scalpel. Ten days later Dr. Black zapped this new intruder with multiple highly focused, intense beams of radiation, in a procedure known as Linac radiosurgery; this time, he destroyed the tumor without even opening his patient's skull. Ironically, though Ives, now 46,

has no guarantee that the tumor won't return to haunt him, he says he feels lucky, because it recurred at a time when advances in the treatment of such a mass make it possible for surgeons to attack it successfully.

Brain tumors are on the rise, and no one knows why. Although primary malignant brain tumors account for only 1.3 percent of all cancers—making them as common as ovarian cancer—in 1996 brain tumors were diagnosed in more than 100,000 Americans, nearly double the number of tumors diagnosed just a decade ago. Of these, about 34,000 were primary tumors (benign and malignant masses arising in the brain) and the rest were cancers that spread to the brain from other sites in the body. While the increase is certainly due, in part, to dramatic advances in doctors' ability to diagnose the tumors, the data suggest that something more is at work. Some have tried to cast blame on such icons of modern existence as cellular phones and the artificial sweetener aspartame, but research has been inconclusive, and critics argue that neither "evil" has been around long enough to account for the increased incidence today. Others point out that advances in all branches of oncology are enabling people to survive other cancers long enough to experience metastases to the brain. Ten to 15 percent of cancer patients, in fact, eventually develop brain masses. Still, that doesn't explain why primary tumors are becoming more prevalent.

Fortunately, nearly half of all brain tumors are benign and potentially curable. But the term "benign" can be somewhat misleading, and less comforting, when used to describe a brain mass, because even a benign tumor can be deadly (see "Brain Tumors, Technically Speaking"). Most experts prefer to describe brain tumors as "low-grade" (typically, slow-growing tumors with clearly defined borders) or "high-grade" (aggressive tumors whose cells reproduce rapidly). What makes high-grade tumors so difficult to treat is that they grow so quickly (a glioblastoma can double in size