

# Psychosurgery at the Crossroads

A congressional commission supports its continued use, sparking new conflict over a basic question: What does psychosurgery do to a person?

BY JOEL GREENBERG

*"The fact that psychosurgery's effect on the brain is unknown doesn't make it a distinctive treatment in our society"*—Allan F. Mirsky, neuropsychologist, Boston University.

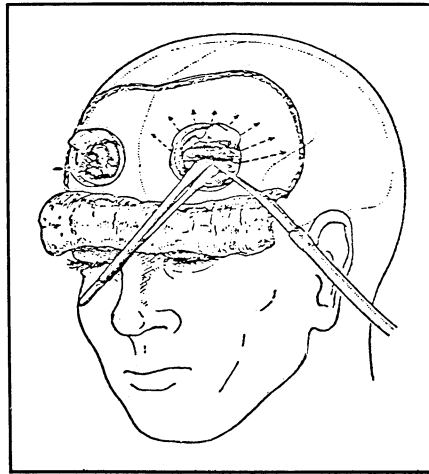
Egas Moniz had heard reports that cutting the brain's frontal lobe had a calming effect on monkeys and chimpanzees. So, in 1935, the Portuguese neuropsychiatrist began operating on the frontal lobes of his psychiatric patients. In a monograph, Moniz described generally favorable results on his first 20 patients, and he encouraged colleagues around the world to adopt similar procedures.

Less than a year later, neurologist Walter Freeman and neurosurgeon James Watts introduced lobotomies to the United States. By 1950, the team had operated on more than 1,000 patients, and Freeman estimated that by the time he retired shortly thereafter he had performed or supervised psychosurgical procedures on more than 3,500 individuals.

Today, even though more than 40,000 lobotomies and various updated forms of psychosurgery have been performed in the United States since World War II—and surgeons currently do more than 400 procedures a year in the United States—significantly little has been learned about how and why psychosurgery alters behavior. Indeed, there continues to be heated, at times bitter, disagreement over the surgery's effects, benefits and risks. Proponents contend the procedure works for severely disturbed persons who have tried just about every other form of therapy without success. Critics warn that the surgery is not only "irreversible," but that cutting into the brain carries far more ethical implications than operating on a kidney, intestine or heart, and should be

*Joel Greenberg is the new behavioral sciences editor of SCIENCE NEWS. He comes to the staff from the Miami Herald, where he has been a science writer for the past four years. Prior to that he was a reporter and science writer for the Hartford Courant. Greenberg is a graduate of Boston University and has an M.S. in mental health journalism from Kansas State University.*

*He succeeds Robert J. Trotter, who has left the full-time staff to write books but remains associated with SCIENCE NEWS as a contributing editor. A textbook he has co-authored, Children: Behavior and Development, 3rd edition, by Boyd R. McCandless and Robert J. Trotter, was published last month by Holt, Rinehart and Winston.*



*Orbital undercutting, an updated form of lobotomy where the frontal lobes are lifted to allow selective cutting of fibers beneath the orbital area.*

severely limited, if not banned.

It is against this backdrop that the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research has come out with proposals for the country's first set of formal guidelines governing the use of psychosurgery. The commission defines psychosurgery as "brain surgery on (1) normal brain tissue, or (2) diseased brain tissue of an individual, if the primary object of such surgery is to control, change or affect any behavioral or emotional disturbance of such individual."

The recommendations, released in mid-March, have already heightened the psychosurgery controversy to its most heated point since the beginning of the decade. It was then that the resurgence of psychosurgery reached its peak, after about 10 years when almost no such operations were performed because of feared side effects and the popularity of new, psychoactive drugs. In the mid- to late-1960s, however, surgeons began reporting that certain psychiatric symptoms could be alleviated with more refined and localized cutting techniques. Since then, psychosurgery has settled into a sort of intermediate ground—it is used more than infrequently, but not nearly as often or indiscriminately as in the postwar era.

But even many of its practitioners agree that they are dealing with a relatively radical and mysterious procedure that cries for some form of regulation, or at least direction. The commission, created in 1974 by legislation, contracted with

research teams at Boston University and the Massachusetts Institute of Technology to help determine the effectiveness and safety of psychosurgery. The two groups performed follow-up studies on more than 60 persons who had undergone at least one psychosurgical procedure, most during the past 10 years. In addition, University of Michigan psychologist Elliot Valenstein was contracted to perform a literature survey of the extent of psychosurgery in the United States in recent years.

On the basis of those studies—criticized by some as woefully incomplete but nonetheless probably the most comprehensive assessment of psychosurgery thus far—the commission recommended:

Psychosurgery should be performed only at an institution with an HEW-appointed review board, and only after that board has determined that the surgeon is competent; the surgery is appropriate; adequate pre- and postoperative evaluations will be performed; and the patient has given informed consent.

- If the patient is incapable of giving informed consent, it may be obtained from a guardian, if the patient does not object and a court in which the patient had legal representation has approved the operation.

- Given the above conditions, psychosurgery may be performed on a voluntary patient at a mental institution, providing a national psychosurgery advisory board has determined that the specific procedure will be of demonstrable benefit to the patient. Similar conditions apply to prisoners and involuntary mental patients and children. Such operations may be performed as part of a research project if certain conditions, specified by the commission, are met.

- The secretary of HEW "is encouraged to conduct and support studies" to evaluate psychosurgery research. The secretary should impose strict sanctions to assure compliance with the recommendations. Congress should also take legislative action to assure compliance.

The proposals have sparked disagreement both within and outside of the commission. Dissenting commission member Patricia A. King says the recommendations fail to guarantee proper safeguards for voluntary patients by not requiring court review of their cases prior to surgery. She also agrees that outside critics may have some basis for labeling the commission's "encouragement" of HEW support a blanket endorsement of psychosurgery.

Longtime critics such as Washington, D.C., psychiatrist Peter Breggin have called the commission's report a "white-wash" and charged that its members were biased toward psychosurgery.

But possibly the most thoughtful and searching questions about the report deal with the studies used by the commission to reach its conclusions. Stephen Chorover, an MIT psychologist, perhaps the most articulate critic of psychosurgery, says the commission report "relies too heavily on two studies. The facts are tentative, questionable and incomplete. The commission has placed enormous emphasis . . . on a relatively small proportion of patients over a short period of time."

The MIT study, headed by Hans-Lukas Teuber (who died recently), examined 34 adult patients who had undergone surgical lesions in the brain's anterior cingulate region. (Psychosurgery has progressed from the gross severing of frontal lobes some 30 years ago to smaller, more localized cuts in various regions of the brain.) The patients had problems ranging from

score significantly higher (including IQ) than they did before their operations. Psychosurgery "does not seem to make patients detectably worse," concludes MIT's Suzanne Corkin. "There were no lasting additional deficits. However, this is not to say [that psychosurgery] is the ultimate treatment of mental disease." But the MIT results, she continues, "should lead to more direct and effective treatments."

The Boston University team, directed by neuropsychologists Allan F. Mirsky and Maressa H. Orzack, evaluated 27 patients of three surgeons, each of whom performed a different type of operation: orbital undercutting, where the fibers beneath the orbital portion of the prefrontal area are selectively cut; multiple target surgery, where lesions are made in one or more of the three limbic system areas; and ultrasonic irradiation, where the white matter below the cortex is irradiated.

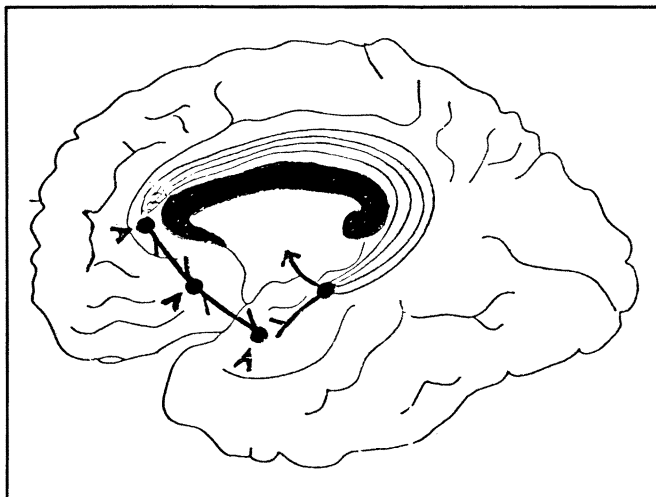
Mirsky reported that 14 of the 27 patients had "very favorable outcomes, were enthusiastic about surgery and would undergo the operation again under similar

ery appears to do the greatest good for persons who are severely depressed. The results also indicated that females tend to have more favorable results than males.

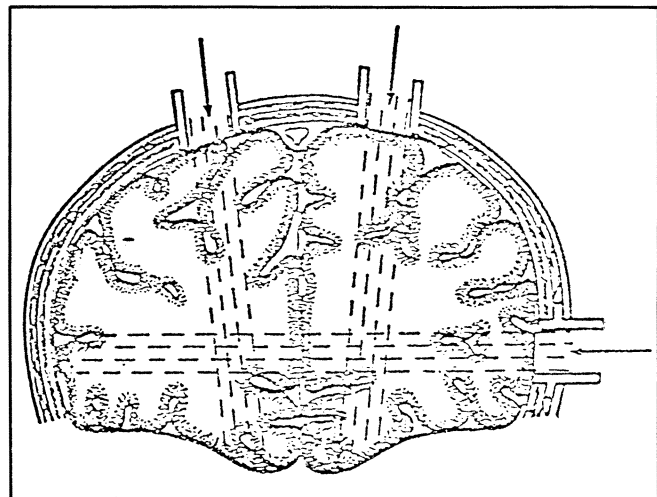
Chorover's criticisms center somewhat on the quality of the Boston and MIT work, but more so on the commission's transformation of the "tentative" findings into recommendations, and on the ethical right of doctors to perform a procedure about which very little is known, as compared with other forms of surgery.

Indeed, Mirsky concedes that his findings show "no relationship" between the type or location of a specific operation and the resulting effect upon the patient. But, he adds, "the fact that psychosurgery's effect on the brain is unknown doesn't make it a distinctive treatment in our society." Many treatments, including various drug therapies, "are also unknown," he says. "But fortunately they benefit the patient."

Chorover, however, contends that "the real questions remain unanswered and unaddressed. We continue to deal with complex, interactive patterns of behavior



Multitarget procedure, where small surgical lesions are made in one or more of various brain areas.



Ultrasonic irradiation, where ultrasonic beams on each side are used to destroy areas of white matter in the prefrontal lobes.

pain to depression to obsessive-compulsive behavior to schizophrenia and other emotional problems. Ten of the subjects had experienced more than one psychosurgical operation, including four who had three cingulotomies.

Researchers at MIT said that five of the seven depressed patients reported full or partial relief, but the four obsessive-compulsives remained "quite unrelieved," and the 12 diagnosed with schizophrenia or other illnesses had mixed results. Nine of the 11 patients whose primary symptom was pain, experienced complete or nearly complete relief.

Behaviorally, psychosurgery produced "no significant effects," the researchers reported after administering 24 tests, including verbal, perceptual and IQ measures. After initially scoring lower on some tests within four months after surgery, most of the patients then rebounded to

circumstances." The remainder of the patients—who, like the MIT subjects, ran the gamut of psychiatric problems—had results ranging from moderate improvement to worsening of their condition. A battery of psychological, neurological, verbal and nonverbal tests yielded no significant differences between those patients and control groups that had not received psychosurgery, Mirsky reported.

Like the MIT group, the Boston researchers found similar improvements in IQ and certain other tests more than four months after surgery. However, an exception was that operated patients had more difficulty than control subjects in shifting from one category to another in the Wisconsin Card Sorting Task—a finding that reflects frontal lobe dysfunction, according to the researchers. Consistent with isolated, previous findings, the Boston study reported that psychosur-

as if we don't know we're liable to make a terrible mistake if we try to localize [such] problems [in the brain].

"The fact that people have problems does not mean it is legitimate to alter their behavior," he says. "I suggest that the [commission's] regulations impede . . . and sidestep the real problems. They substitute procedural guidelines for real solutions." Breggin goes even further, suggesting that such intrusion into the brain constitutes "mutilation" of the sort which is generally prohibited by law.

Both men have voiced deep concern that psychosurgery will be misused as a social or political tool, conveniently employed to subdue the "abnormal" behavior of institutionalized persons, blacks, women or other minorities. (Valenstein's research notes that women comprise 56 percent of all psychosurgery patients, but

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### . . . Psychosurgery

that other minorities constitute a minute percentage.) Says Chorover: "So long as inequalities of power exist between those who define problems and those who have problems, the power of science and technology may continue to be used . . . in definitions of mental illness."

In a recent head-to-head debate with Chorover at the Eastern Psychological Association meeting in Boston, Mirsky pointed out that psychosurgery presently accounts for only 0.005 percent of all treatment for psychiatric illness. It was also noted that the procedure is done at twice the U.S. rate in Great Britain, and three times the American rate in Australia. The neuropsychologist also addressed several other criticisms of psychosurgery:

- The procedure *is* irreversible, but so are various types of long-term drug treatment.

- Psychosurgery is "never" performed without trying other therapies first. "We find patients who do not benefit from psychotherapy," Mirsky says. "And we see drug treatments that do not work and produce side effects."

- Psychosurgery may be undesirable under some circumstances, but it is not used nearly as often as electroshock therapy, which, Mirsky notes, often produces "bad side effects and prolonged hospitalization." In the MIT study, the 26 patients who had received electric-shock therapy prior to surgery generally were inferior to the remaining 8 subjects on verbal and nonverbal tests. Some of those patients had received more than 100 shock treatments in their lifetimes, according to the MIT report.

Mirsky further points out that if those in the Boston University study who experienced moderate improvement were added to those who were very much improved, the success rate would be 78 percent. Chorover believes such claims are shaky at best, primarily because of the relatively small sample size and the comparatively little knowledge available about psychosurgery as a tool. According to Valenstein's research, just four surgeons are responsible for 48 percent of the procedures performed in this country. About half of the remaining operations are done by surgeons who perform psychosurgery only about once a year, Valenstein says.

Chorover and others view such statistics as warning flags that psychosurgery is still controlled and understood (as well as it can be) by a relatively few professionals. Such observations have led National Institute of Mental Health Director Bertram S. Brown to favor psychosurgery as experimental, to be conducted only within the context of research, and subject to all the review provisions and procedures available for the protection of human subjects.

Concludes Chorover: "Can these types of problems be dealt with by regulations? The activities of psychosurgery must be viewed within their social context." □

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