

# Psychosurgery: Cruelty or Care?

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Most Nobel prize winners are rightly revered as legends in science, but one man, Egas Moniz, is on the list for a rather surprising reason. He received the prize in 1949 for his ground-breaking work on the lobotomy. The fall from grace of this procedure has been so dramatic that some are now campaigning for his prize to be rescinded (1).

A lobotomy is an operation which 'lesions' (kills) groups of nerve cells in the brain to change behaviour. Moniz first performed the operation in 1936. In the early lobotomies, part of the skull was removed, or two holes were drilled, to access the brain. Later, the well-known 'ice pick lobotomy' was pioneered by Walter Freeman, who used a thin probe inserted into the roof of the eye socket to make the lesions (2). The net result was an overall blunting of emotions, calming many otherwise violent patients. Lobotomies were originally given to patients with schizophrenia, but it was soon discovered that they were more successful in the treatment of depression, anxiety and obsessive-compulsive disorder.

To the Nobel committee of the time, the benefits of the surgery were clear: it was better than any of the alternatives. Treatment for psychiatric disorders was rudimentary, commitment to a mental hospital was almost a life sentence, and the control of violent patients was limited to physical

restraint or heavy sedation with barbiturates. Infectious diseases such as TB had a high mortality rate in these institutions, so any treatment which could discharge patients back into the community was clearly very welcome. Around 40% of patients recovered or showing a great improvement after psychosurgery, according to psychiatrists (3), which was better than other therapies such as electroconvulsive

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## Popular culture has portrayed lobotomy as a vicious and punitive treatment

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therapy or talking therapies, available at the time.

Why, then, did the lobotomy fall out of favour so dramatically? The introduction of the first psychoactive drugs was key. Between 1949 and 1958, drugs were introduced to treat depression, bipolar disorder, manic depression and schizophrenia (4): disorders for which, previously, lobotomy may have been the only hope for remission. What is more, the drugs were reversible, and had none of the side-effects



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or operative risks of the procedure.

The work of Walter Freeman must also carry some blame. During the 1940s and 50s, Freeman, with his partner James Watts, performed over 2500 lobotomies on patients with a wide variety of mental disorders (5). Moniz originally felt it should only be used on severely disabled patients (6), whereas some of Freeman's patients may not have been ill at all. Howard Dully was the youngest patient to receive this procedure, at 12 years old, and in his recently published memoirs he claims that his stepmother had it done to 'get rid' of him (7). Other patients were treated for 'severe headaches' (8). Although Freeman undoubtedly helped some of his patients, he was, in the end, trying to press the operation on unwilling patients and medical professionals.

This profligate and indiscriminate use of the procedure led to much of the demonisation of psychosurgery in the 1960s and 1970s. Since then, popular culture has portrayed lobotomy as a vicious and punitive treatment and its depiction in literature such as 'One Flew over the Cuckoo's Nest', and Tennessee Williams' 'Suddenly Last Summer', added to negative reports in the media which had been appearing since the mid-1950s, helped turn public opinion against the procedure (10). Disconnection of the temporal lobes frequently made patients uninhibited, childlike and unable to plan ahead. In severe cases it caused apathy, and the operative mortality was up to 3% (11). Not surprisingly, lobotomy fell out of favour and soon classic lobotomies were hardly performed at all.

The procedures were refined, however, and continued to be offered to a small minority of patients. Two main advances helped modernise the operations. Brain imaging, such as PET and fMRI scans, allowed scientists to create accurate functional maps of the brain, identifying parts involved with emotion and mental illness.

The second advance was development of stereotactic surgery. In this precise operating technique, the patient's head is held steady by two small screws in their skull, while

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### Seventeen of these procedures are performed each year in the UK

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brain imaging and robotic equipment is used to create lesions no larger than a grain of rice in small areas (12). This targeting has led to the development of different procedures for different illnesses, and nowadays four areas of the frontal lobes are targeted.

Around 17 of these procedures are performed each year in the UK (13), under the new name of 'Neurosurgery for Mental Disorders' (NMD). Only two hospitals offer it and the indications are very strict: the patients must have tried every other treatment alternative and have suffered for at least 5 years (12). However, they have only enjoyed modest (and debated) success and there are reports of long-term damage to memory and personality changes (14). MIND, the main charity representing people with mental illness in the UK, does not support the operations under any circumstances (13).

Criticisms of the lesioning techniques used in NMD include that it is irreversible, and that it cannot be adjusted without opening the skull again. Recent technology, however, has provided a new option: 'deep brain stimulation'. In

this technique, hair-thin electrodes are inserted into the brain, where they can constantly excite the surrounding tissue. The technology was originally developed for use in Parkinson's disease, where it produced excellent reduction of symptoms (15). Recent trials have turned this technology to the frontal cortex again, to treat people with severe treatment-resistant depression, who met the strict criteria for NMD. Early trials have shown promising results with almost all

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### Robotic equipment is used to create lesions no larger than a grain of rice

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patients showing a remission, sustained at six months, and none of the cognitive side effects of lesioning procedures (16,17). For these patients, whose suffering is unimaginable, the treatment offers real hope of life without a chronic illness (18).

The technology is still in the trial phase, so it has attracted little media attention, but the doctors and scientists involved need to tread carefully to avoid the accusations levelled at them in response to traditional lobotomies. There is a great danger that without transparency, independent ethical controls and a sympathetic media, these procedures may be unfairly dismissed when they could offer hope to many.

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