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Lessons to be learnt from the history of lobotomy

ESSAY

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Lobotomy was initially considered a breakthrough in the treatment of mental illness, and approximately 3,000 lobotomies were carried out in Norway in the period 1940–60. Today, the treatment is considered one of the greatest mistakes of modern medicine.

Gentle, clever your surgeon's hands
God marks for you many golden bands
They cut so sure they serve so well
They save our souls from Eternal Hell
An artist's hands, a musician's too
Give us beauty of color and tune so true
But yours are far the most beautiful to me
They saved my mind and set my spirit free

Lobotomy patient no. 68, c. 1942
The archives of James W. Watts III (1)

The history of lobotomy started at Yale, within the field of experimental neurology. When the up-and-coming physiologist John Farquhar Fulton (1899–1960) joined Yale's academic staff at the age of 30 in 1929, he was the institution's youngest professor. Under his leadership, Yale School of Medicine built up one of the world's most prominent research laboratories, the first in

the United States to conduct research on primates (1). Fulton was interested in the workings of the various parts of the nervous system and gradually came to focus on the frontal lobes of the brain.

The chimps Lucy and Becky were among the most famous primates to be studied. Both underwent a frontal lobectomy, i.e. removal of the frontal lobes. This was shown to cause the loss of some functions and it affected their performance in tests where they had to rely on their short-term memory. However, what was to attract more attention were their observed behaviour changes. It seemed as if the apes no longer cared about earlier mistakes made or felt frustration when they failed the tests they were set (1). In settings where the apes had previously become frustrated and aggressive, they now seemed indifferent to their own mistakes. In Fulton's own words: 'It was as though they had joined a happiness cult' (1). John Fulton presented his findings to the International Neurological Congress in London in 1935. One of the delegates attending the congress was the Portuguese neurologist António Caetano de Abreu Freire Egas Moniz (1874–1955). Moniz was a highly versatile man. He had been ambassador to Spain during World War I, represented Portugal at the Versailles Peace Conference and had served as his country's Foreign Secretary. He had also invented cerebral angiography and twice been nominated for the Nobel Prize for this invention. It was however another discovery that was to bring him fame.

Moniz returned home from the congress in London convinced that it would be possible to transfer the knowledge from the ape experiments to a treatment for humans. He quickly initiated a collaborative relationship with the neurosurgeon Almeida Lima, and over the next year, twenty patients were operated (1, 2). In the first series, alcohol was injected directly into the white matter of the frontal lobes, as a sclerosing medication. Moniz then swiftly developed a so-called leucotome, a long instrument with a steel strip for severing the connections to the frontal lobes. Moniz and Lima reported 'no deaths or serious complications' in the first series. The second series included 18 patients, all of whom suffered from schizophrenia. They reported that three of these patients were almost cured and that two became much better. They concluded that prefrontal leucotomy was a simple, failsafe operation that was useful in the treatment of some mental disorders (1, 2). They also wrote that it was particularly effective against depression and melancholy, and the procedure was named psychosurgery. In 1949, Moniz was awarded the Nobel Prize in physiology, or medicine, for his discovery of prefrontal leucotomy (lobotomy).

Proliferation of the treatment

Moniz was nominated for the Nobel Prize by the American neurologist Walter Jackson Freeman II (1895–1972). Freeman was one of the founders of the *American Board of Psychiatry and Neurology* and was the real pioneer who made lobotomy a widely recognised psychiatric treatment. Together with

neurosurgeon James W. Watts (1904–94), he developed the Freeman-Watts standard prefrontal lobotomy method and authored the standard work *Psychosurgery* (2).

Over a period of only two months in 1936, Freeman and Watts performed twenty lobotomies, and by 1942 they had lobotomised more than 200 patients and published the results. They reported that 63 % of their patients had improved while 24 % saw no change and 14 % became worse (1, 2). One of the early patients treated by Freeman and Watts was John F. Kennedy's sister, Rosemary Kennedy (1918–2005), who was lobotomised in 1941 at the age of 23. The operation was not successful. She required care for the rest of her life and could no longer walk or talk after the intervention. Several patients suffered such serious complications, but Freeman nevertheless remained convinced that lobotomy was a major medical advancement. However, he was less than pleased with the low number of patients that underwent surgery. Lobotomy required collaboration with a neurosurgeon and other personnel, and it was therefore only available at large university hospitals. Freeman's vision was to make lobotomy a far more prolific treatment (3).

According to his own account, what we today associate with lobotomy is based on an idea that came to him while cutting ice for his drink with an ice pick. The technique was named transorbital lobotomy. The objective was to sever the connection between the prefrontal cortex and the thalamus by using a thin surgical instrument – an orbitoclast – to cut through the thin layer of bone above the eye socket. A small hammer was used to drive the instrument into the brain (Figure 1). According to Freeman, the operation could be performed without general anaesthetic, and no surgical expertise was required. Strictly speaking, it was not even necessary to use a qualified doctor. He personally performed the first transorbital lobotomy on a patient in 1946 (1). Watts was highly sceptical of this method and ended their partnership in 1947 (1, 3).

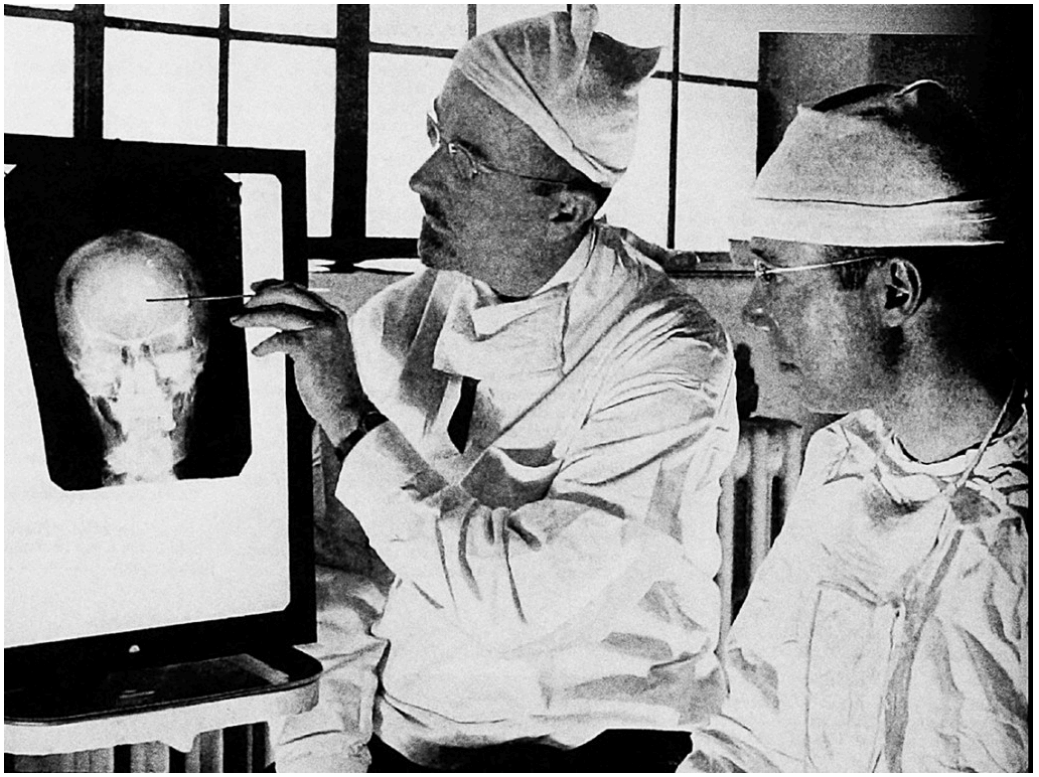

Figure 1 Dr Walter Freeman II (left), and Dr James W. Watts study an X-ray before an operation (2). Photo: Public domain

> *«Despite a mortality rate of 14 %, Freeman performed 3,439 lobotomies in the course of his life»*

With the introduction of transorbital lobotomy came an upsurge in the uptake of this type of treatment. In 1949 alone, more than 5,000 lobotomies were performed in the United States (1). Freeman wore neither gloves nor a mask when performing the procedure and was less than diligent when it came to sterilising his equipment. This was one of the reasons why Watts was highly critical of Freeman's procedures. Despite a mortality rate of 14 %, Freeman performed 3,439 lobotomies in the course of his life, the last one in 1967 (1).

Lobotomy was not considered a cure for a particular disorder, but a means of reducing symptoms. It was initially considered a last resort for patients who had failed to respond to other treatments. Just like the diagnostic criteria could vary, the indications were not clearly defined. The first patients who were operated on, were diagnosed with schizophrenia, but the procedure was at times performed as a last resort for disorders that were considered psychosomatic, like stomach ulcers and ulcerative colitis (4). Freeman appeared to be reporting particularly positive outcomes in patients who nowadays perhaps would have been diagnosed with obsessive-compulsive disorders (Figure 2), but lobotomy was also considered a potential therapy in palliative care (Figure 3).

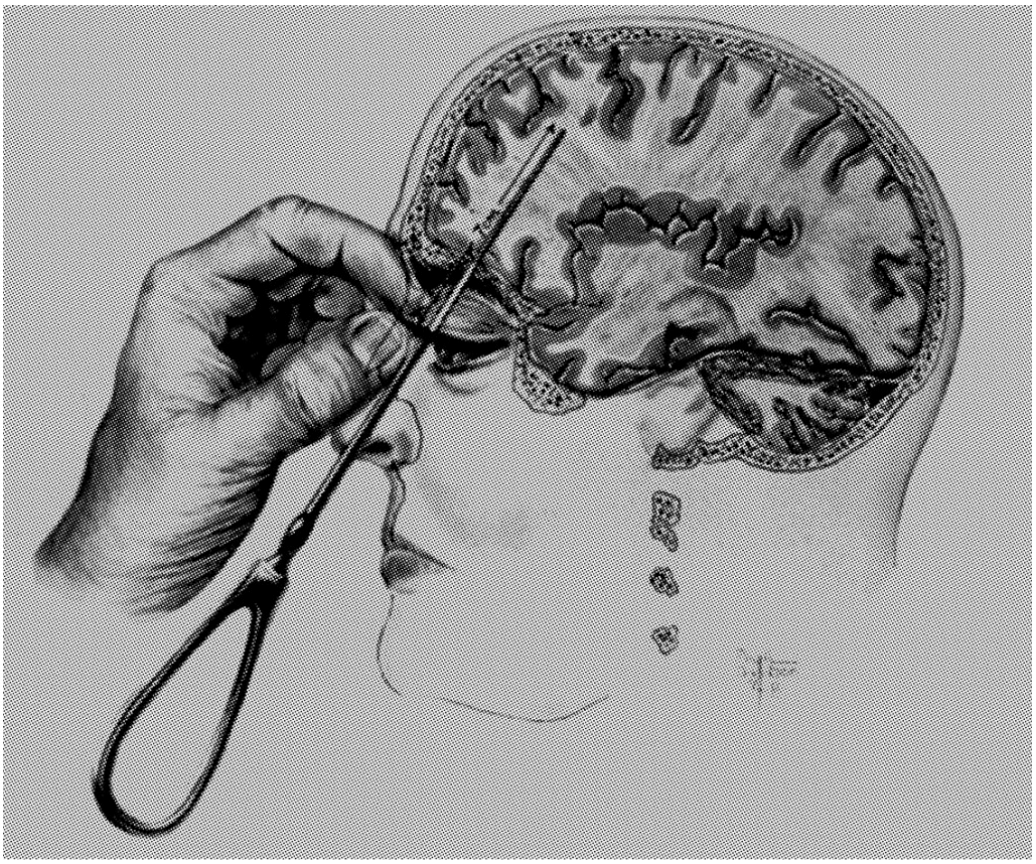

Figure 2 Drawing from the book 'Psychosurgery' by Freeman and Watts, 1950, showing how prefrontal lobotomy was carried out (2). Facsimile

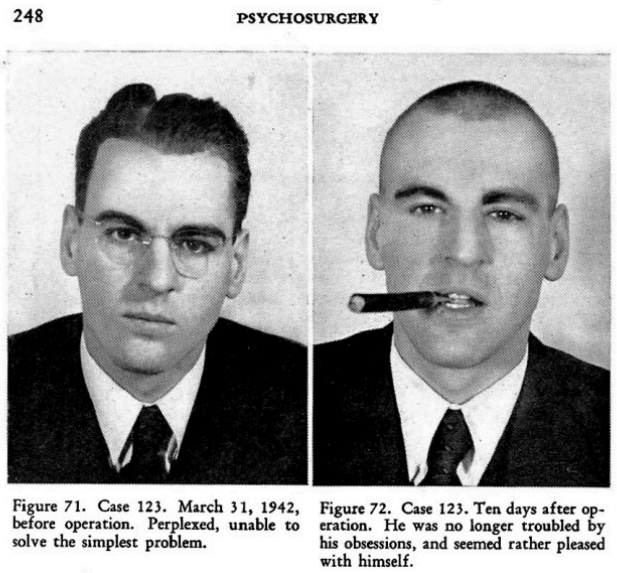

Figure 3 Typical case notes in the book 'Psychosurgery' by Freeman and Watts, 1950 (2). Facsimile

Freeman was personally of the opinion that the treatment could stabilise the patient's personality and alleviate strong emotions. He saw psychosis as the result of excessive self-reflection, thoughts that kept whirring back and forth in the brain. He envisaged that this never-ending circle of painful thoughts could be stopped by literally severing the fibres. Many of the patients he operated on stopped feeling anxious and appeared more child-like. It was later reported that many also became apathetic and passive, that they lost all initiative and their ability to concentrate or produce an emotional response (1).

Dissidence and growing criticism

In the 1940s and 50s, there were strong dissenting voices against lobotomy as a treatment, in the United States and elsewhere. The criticism was strongest in the Soviet Union, where a complete ban on lobotomies was introduced in 1950, on the grounds that the treatment was inhumane (3). In the 1950s, psychiatry saw the introduction of neuroleptic drugs, and lobotomy was increasingly presented as an inhumane and oppressive treatment. As early as in 1946, Robert Penn Warren (1905–89) published his Pulitzer Prize winning novel *All the King's Men*, where lobotomy is portrayed as a barbaric treatment. The Journal of the Norwegian Medical Association was also quite critical of lobotomy and referred to the treatment in 1959 as an intervention that appeared to be 'random, indiscriminate and lacking in neurophysiological and neuroanatomical insight' (5).

In the world of fiction, growing criticism of the therapy emerged as the 1950s and 60s progressed. In *Suddenly, Last Summer* (1958), playwright Tennessee Williams (1911–83) described a matriarch who wanted to have her niece lobotomised to prevent her from revealing that her son was gay. When she is told that a lobotomy will not necessarily stop her niece from doing so, she answers: 'That may be, may be not, but after the operation, who would *believe* her, Doctor?' In the famous work *One Flew over the Cuckoo's Nest* by Ken

Kesey (1935–2001), lobotomy is portrayed as a form of treatment that completely extinguishes a patient's personality and free will. It is likely that the portrayals of lobotomy in fiction played an important part in changing views on the treatment in the media and among the general population.

Why so widespread?

In the years after World War II, serious mental illnesses were rife and there was a dearth of good treatment offers. Other parts of medicine had witnessed almost miraculous breakthroughs, like antibiotics, and in the beginning, lobotomy was described as a similar breakthrough, particularly in the Anglo-American and Scandinavian media (6, 7) (Figure 4).

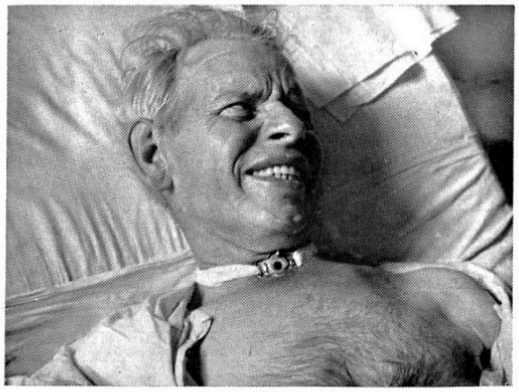

Figure 120. Case 490. April 29, 1947. Carcinoma of larynx with metastasis to brachial plexus. Agonizing pain and respiratory distress.

Figure 121. Case 490. Five days after lobotomy. Carcinoma was advancing but distress cleared up. Death occured one month after operation.

Figure 4 Lobotomy used as a palliative procedure, 'Psychosurgery' by Freeman and Watts, 1950 (2). Facsimile

The proliferation of the treatment largely appears to have been based on Freeman's charisma and his ability to enthuse the public and the news media. A comparative analysis of his publications also shows that Watts and Freeman both gave overwhelmingly positive reviews of the efficacy of the treatment, while grossly under-communicating its adverse effects (7).

> ***«The proliferation of the treatment largely appears to have been based on Freeman's charisma and his ability to enthuse the public and the news media»***

The treatment was introduced in the 1940–50s despite the fact that little research had been carried out on its effects (8). Nevertheless, many of those who witnessed the first operations were convinced that lobotomy reduced suffering and that some patients saw an almost miraculous effect.

One of the problems in psychiatry was the lack of objective measures to gauge the efficacy of treatments, and lobotomy scored well on the measures that did exist. For instance, the patients' IQ appeared to remain intact, and many

patients needed fewer coercive measures and no longer acted out after treatment (1). This is why lobotomy, now seen as barbaric, was considered to be a humane breakthrough.

Whenever you have faith in a treatment, there will always be a risk that conflicting interests cloud your judgement, whether consciously or unconsciously, particularly if the results are financially significant or associated with prestige. The treatment was promoted by highly charismatic opinion leaders, who had good access to the media (8). Freeman was a highly idealistic and charismatic doctor, and he had a strongly-held belief in his treatment, even after it fell into disrepute (1). Lobotomy has later been seen as one of the greatest mistakes in modern medicine, and the awarding of the Nobel Prize to Moniz is described as a stain on the history of the Prize. However, the story of lobotomy's journey from experimental to standard treatment has much in common with the way that other medical revolutions develop. At the time, the success criteria tended to focus on curbing aggressive behaviours and facilitating the transfer of patients from the asylums to the community (1, 2).

The heroes and villains of medicine

Whether a medical treatment is necessary and worth the risk will be a judgement call that is coloured by the historic context. It is easy to blame the practice of lobotomy on the poor judgement showed by the doctors of times past. It is however important to remember that those who promoted the method, were driven by idealism and a strongly held belief that their treatment alleviated suffering. One of the reasons why Freeman's reports of efficacy and adverse effects today come across as highly anecdotal and unscientific (9), is that the very notion of what constitutes valid scientific reporting has changed (1). Today's perception of lobotomy as an outlandish and barbaric treatment is an indication that the world has changed dramatically since the 1950s.

> ***«Who will be remembered as the heroes and villains of medical innovation will depend on society's narrative about a treatment»***

As doctors and researchers, we are not only competent or incompetent but also lucky or unlucky. Who will be remembered as the heroes and villains of medical innovation will depend on society's narrative about a treatment. Freeman remained convinced all his life about the positive effect of lobotomy, and he never gave up trying to convince the world around him about its usefulness. As the 1960s progressed, he turned up at psychiatry conferences with shoeboxes full of Christmas cards sent to him by grateful lobotomy patients and their loved ones, and he emptied them out in front of sceptical colleagues (1). But no-one was listening to him anymore.

Past and future

When all standard treatments have failed, doctors will always have to decide whether it is time to make one last ditch attempt by trying a novel treatment, at the risk of being damned if they do and damned if they don't. What is considered effective treatment, will be influenced by the times we live in, and how the effect is evaluated. In 1941, Clarence Charles Burlingame (1885–1950), one of the leading psychiatrists at the time, held a famous talk in which he asked (1): 'Do we use these (treatments) as empirically as our predecessors did their leeches and their bleedings? Are we, in the light of others who come after us, going to be accused of being users of stupid, bizarre or crude methods? Will they think us no better than quacks?'

If we were to learn a lesson from history, it should be this: It is easy to blame the treatments of earlier times on poor judgement. But we are no less able to disengage ourselves from society and the framework conditions that guide our work today. The history of lobotomy should be a lesson in humility. We can never be entirely sure what will be remembered by future generations as a breakthrough and what will be considered a big mistake.

REFERENCES

1. Pressman JD. Last Resort. Psychosurgery and the limits of medicine. Cambridge: Cambridge Press, 1998.

2. Freeman W, Watts JW. Psychosurgery. 2. utg. Springfield, IL: Charles C. Thomas, 1950.

3. Stone JL. Dr. Gottlieb Burckhardt–the pioneer of psychosurgery. J Hist Neurosci 2001; 10: 79–92. [PubMed][CrossRef]

4. Terrier LM, Lévêque M, Amelot A. Brain Lobotomy: A Historical and Moral Dilemma with No Alternative? World Neurosurg 2019; 132: 211–8. [PubMed] [CrossRef]

5. Frontal leukotomi for sinnslidelser – en avsluttet epoke. Tidsskr Nor Legeforen 1959; 79: 406–7.

6. Diefenbach GJ, Diefenbach D, Baumeister A et al. Portrayal of lobotomy in the popular press: 1935-1960. J Hist Neurosci 1999; 8: 60–9. [PubMed] [CrossRef]

7. Ogren K. Portrayals of lobotomy in American and Swedish media. Prog Brain Res 2013; 206: 201–17. [PubMed][CrossRef]

8. Afkhami AA, Fatollahi JJ, Peace A et al. Spinning lobotomy: A conventional content analysis of articles by the pioneers of the procedure in the United States. SSM Mental Health 2022; 2: 100123. [CrossRef]

9. Freeman W. Frontal lobotomy in early schizophrenia. Long follow-up in 415 cases. Br J Psychiatry 1971; 119: 621–4. [PubMed][CrossRef]

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