SECOND LEUCOTOMIES

By

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BILATERAL blind rostral leucotomy has been shown to be an adequate operation for the relief of many tense psychoneurotic and depressive states (McKissock, 1951; Pippard, 1955); the operation gave worthwhile results in about two-thirds of such cases in a series which included many who were unsuitable. This paper is concerned with the results in 27 cases operated on more than once.

Four patients had already had standard leucotomies with inadequate relief of symptoms; an open rostral leucotomy in one of these, a young ruminative schizophrenic, made no obvious difference. Another schizophrenic had a rostral G leucotomy to divide fibres in the inferior medial quadrant which might have been missed by the earlier standard operation (Sargant, 1953). Afterwards she no longer needed maintenance E.C.T. to keep her at a good level; reduction in tension which followed this limited incision, and the greater ease with which she could be cared for in hospital certainly suggests that a limited operation on the medial side may well be considered in some cases in which standard leucotomy has failed, and certainly before undertaking anything as drastic as Freeman and Watts' (1950) radical operation.

Another patient similarly submitted to a rostral G leucotomy had slowly relapsed after an initially successful standard leucotomy for a chronic tension state. He had, however, been left with a marked intellectual deficit and troublesome urgency of micturition and, if anything, his deficits were increased after the second leucotomy, without any useful relief of symptoms.

One man who had had several prolonged depressive illnesses which finally did not respond to E.C.T. was not relieved by an asymmetrical anterior standard operation, limited, on one side, to the inferior quadrant; 4 months later he recovered without obvious deficit, after a rostral B leucotomy.

Twenty-three patients who derived no help from rostral leucotomy, or whose symptomatic relief was insufficient or merely temporary, had a second leucotomy, rostral G in 1, unilateral standard in 3 and bilateral standard in 19.

An aggressive and bossy young woman, with the manners of a rude schoolboy, a compulsive worker who so feared being alone with her thoughts that she continued working through most of every night, was little changed by a rostral B operation but became post-operatively epileptic. More than a year later a rostral G leucotomy was done which was complicated by delayed recovery of consciousness, presumably due to some intracerebral haemorrhage. Besides slight personality changes, only evident to those who knew her well, the only sign of any alteration was that she needed rather less heavy sedation afterwards; she was still in hospital a year later.

In the unilateral standard cases environmental factors seemed to be of considerable importance in deciding success or failure.

A 28 year old woman, the less favoured of 2 sisters, formed clinging attachments to various people from puberty onwards. At 23, distress and depression, with homosexual ruminations and associated feelings of unreality, was treated unsuccessfully with modified insulin and E.C.T. and later by 3 years of psychoanalysis; this eased her guilt somewhat but encouraged the spread of ruminative thought. Open rostral leucotomy in 2 stages made little

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difference but she was somewhat less tense and with much supportive psychotherapy, giving partial satisfaction of her dependent needs, was able to work on and off, for periods of a few months. Four years later a left standard leucotomy made no noticeable difference except that the resulting intellectual deficits were another source of anxiety. She spent most of the next year in hospital, but then achieved another dependent relationship, this time to a dianeticist, was temporarily freed of depersonalization for the first time in 10 years, and again started work.

Another young woman, the tenth child of a neurotic father who took little interest in his children, was always shy, timid and anxious, with few interests and no friends but her mother. She was liable to depressive mood swings and to obsessional rumination. She married at 20 and they lived unhappily with her parents, where gradually she grew more tense and obsessional, taking hours over the simplest job and requiring constant reassurance, e.g. that she had had her breakfast. She spent a year in a psychiatric hospital, but soon relapsed and a year later had a blind rostral leucotomy. For 2 months she was better but began to relapse as soon as she returned to her parents' home. A suicidal attempt 18 months later was the occasion for left unilateral standard leucotomy, following which she left hospital to go to a new home with her husband, away from the family tensions which had proved too much for her. Eight months later she had gained weight, was more relaxed and no longer bit her nails, a sign of tension she had had since childhood. Her husband thought that there were no unpleasant personality deficits, and that her carefree attitude made her better than she had ever been. She remains fundamentally inadequate, obsessionally rigid and phobic, but is troubled by none of the distressing tension, ruminations or depersonalization for which operation was done. Intellectual deficits, obvious at interview, are of no importance in her life. The move away from the parents' home may well have determined the success of this leucotomy just as the return to the stressful situation may have prevented the rostral operation from having more than a temporary effect.

Nine months after initially successful rostral B leucotomy, a 36 year old homosexual clerk, who from puberty had struggled against compulsive rechecking and elaborate toilet rituals, relapsed after being given too much responsibility in a hospital where he worked as a ward orderly. Left unilateral standard leucotomy only added to his burdens a slowness of thinking and memory difficulties. In his case the difficult problems of resettling him in work and providing a measure of security were not solved, so that resentment and feelings of hopelessness were intensified during the next three years. He then got suitable work as an hotel porter and when last heard of was no longer disgruntled, and apparently little handicapped by his obsessionality.

These three cases illustrate the importance of adjusting the social environment to the post-operative capacity of these inadequate and dependent personalities. Unless there is some prospect of doing this there seems little point in trying to adjust them by progressively more extensive leucotomy.

Bilateral standard leucotomy as a second operation gave poor results in 10 cases, frankly disastrous results in 2, fair results in 4 and good results in only 3.

Amongst the 10 poor results are 9 in which it is not unexpected; 2 had become chronically manic after rostral leucotomy and though the second operation damped down the manifestations of mania the mood remained unchanged and personality deterioration was severe. Of 4 schizophrenics, 3 were of simple or hebephrenic type carrying a poor prognosis, and one was a dangerously hostile paranoid schizophrenic, whose illness was virtually unaltered by either operation. The failure in one case of involutional melancholia in a deaf little woman with tinnitus is not perhaps surprising:

She lost her home in an air-raid and had to live in an uncongenial neighbourhood away from the friends of former years, her family had grown up and left her, and her personal contacts were limited to a few cronies in the local pub.; only there did she brighten up at all. There were no obvious post-operative personality deficits and her unobservant husband had not seen any change in her.

One hopelessly inadequate psychopath was relieved by standard leucotomy of his obsessional symptoms but continued residence in a mental hospital was needed because, not surprisingly, he had lost most of what little initiative he had ever had.

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One young woman had a rostral B leucotomy for the 4 year depressive illness with many hysterical features which followed the birth of her only child. Her marriage was unhappy and she had killed the baby. The first operation had little effect, but for 10 months after standard leucotomy she was much more energetic. Then followed a prolonged depressive illness during which she made a determined suicidal attempt, and later 4 months of hypomania during which, for the first time, she came to resemble the typical "frontal-lobe" patient, with her gay, carefree living for the moment, extravagant spending, outspoken rudeness to her husband, etc. Once more she slumped into depression and it seems that this is really a case of manic-depressive psychosis. As is well known, even extensive leucotomy may not prevent the recurrent mood swings of affective psychoses.

So far, then, there is no reason to be surprised at the failures.

An obsessional Civil Servant of 56 was utterly demoralized and incapacitated for 2 years by pain after ophthalmic herpes zoster. Open rostral leucotomy gave some relief for less than a week, and then he was less controlled in his complaints and appeared to suffer even more. Five months later standard leucotomy reduced him to a sarcastic person with marked frontal lobe deficits. Nearly 3 years afterwards he had managed to continue his work, but with diminished efficiency. He still complains of pain but his emotional reaction to it is reduced. His wife expressed forcibly the view that such destruction of a personality was quite unjustified but his son thought that though a high price had been paid, his suffering was definitely less.

I consider this a poor result; certainly the distress which totally disabled him has been relieved and we know of no other way in which it could have been; that does not make standard leucotomy any more than a thoroughly unsatisfactory way of dealing with intractable pain which is not due to incurable malignant disease.

The result of the second operation was good in 3 cases:

A 42 year old woman, stable, energetic and somewhat obsessional, whose hypertension, abnormal EEG, dilated ventricular system and psychological test results all suggested an organic basis for her severe involutional hypochondriasis, was only moderately helped by an open rostral leucotomy (often an inadequate operation) and later made almost symptom free by standard leucotomy, with comparatively little damage to her previously well integrated personality.

The diagnosis was uncertain in the case of a serious, hard working bank clerk of 30, who had been regarded as a simple schizophrenic; from childhood he had repeated chest and ear, nose and throat infections. For years life seemed boring and without interest and recurrent depression and headaches put him off work for months at a time from 21. At 29 he was in hospital, listless, complaining of constant headache, lack of concentration and embarrassment at what others might think of him. He became depersonalized after 3 E.C.T.; insulin made him feel worse. Rostral leucotomy made no apparent difference. Eight months later bilateral standard leucotomy lifted his anergic depression and in the 8 months since he has had no headaches. Though irritable and inclined to row with his father, with whom he has never been on good terms, the personality changes are not as marked as in many who have had 2 leucotomies. He takes an intelligent interest in world affairs and has read the first 4 volumes of Churchill's *War Memoirs* since standard leucotomy. The hurdle of returning to work has not (8 months later) been surmounted and his slick, unselfcritical and inaccurate responses to sensorial tests suggest that he is unlikely to be able to work at his previous standard. There is nothing now to suggest schizophrenia.

The other good result is more important:

A 42 year old housewife, a sociable person of extraverted personality, gave up her work as a milliner at 21 to care for her elderly parents. At 29, 3 months after they died, soon after each other, she married a cousin and was never really well from that time; fear of collapsing and of being alone prevented her going out and a thyroidectomy for supposed thyrotoxicosis only made her worse. Prolonged psychotherapy and physical treatments were unavailing. Behind a kindly front she was seething with indignation against her sister, whose illegitimate child she brought up, and with reactive disgust at herself. Rostral leucotomy relieved her tension but her behaviour was unchanged, though she was more irritable. Ten months later standard leucotomy made her bland and dull and it was not long before she was able to travel by 'bus for the first time in 14 years. At follow up nearly 2 years later she had grown plump and was giggly and rather fatuous, voicing her thoughts without concern for their effect on others. Her housework fully occupies all her days; she can no longer read since she cannot understand what she reads. She could not take 7 serially from 100 and her responses to questions about the meaning of proverbs were entirely concrete. She sometimes misused nouns (e.g. calling a grate a "drain"). Patient and husband call this result "a complete success", and he rather likes the severe frontal lobe deficit syndrome.

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In another social setting personality deficits as marked as in this case might well have proved disastrous and comparable deficits in a woman of 29 have ruined a marriage.

She is a nice person and quite unable to understand why her husband finds her dull, but, as he says, "she never starts a sentence with 'I think' " and has the objective mentality referred to by Golla (1946). She is so much dominated by the immediate present that she never enquires about her father, to whom she was devoted and who lives at a distance, and can often be heard singing about her work within a few minutes of being desperately distressed by her husband's impatience and lack of affection for her; "she is not the woman I married", he said; I have not heard such a comment made by any relative of a patient who had uncomplicated rostral leucotomy.

A woman of 33 has been relieved of most of her tense preoccupation with death, and is even able to work at a job which requires speed in handling figures; it is fortunate that her husband is sufficiently robust to tolerate the emotionally flat, inefficient and inert person she has become for there is now no possibility of her being a companion to him.

Both of these cases rate as fair results; two other cases also rate fair, mainly because personality deficits spoil what would otherwise be good results.

A 65 year old man, in his second depressive breakdown, was ultimately relieved of illness, but has a lack of restraint which permitted him to expose himself to his young grand-daughter, and considerable intellectual impairment.

In the case of a 49 year old man whose depression apparently fluctuated with the Addisonian anaemia from which he suffered two leucotomies were done before his anaemia had been adequately treated and his recovery may be due to sufficient liver treatment rather than to operation. He has a marked personality change of characteristic type; formerly a scientific assistant in a laboratory he is now employed as a dish-washer in a canteen.

Two other comparatively young women have been virtually destroyed by the standard operation; both are now epileptic and likely to remain permanently in a mental hospital. It is possible that the functional effects of the lesion are, as a result of some such process as Hebb (1949) envisages, much more extensive than the probable anatomical extent of the lesion would suggest; certainly there was nothing unusual in the post-operative course of either to suggest that the anatomical extent of the incision was anything but the standard cut intended. One case is given as an example:

A married woman of 36, brought up in poverty and seriously handicapped by recurrent chest illnesses following pneumonia at 5, was timid and frightened of others. She tried to do domestic and factory work but had often to give up because of her physical health, and, against advice, had 2 children. For 9 years she had worried excessively, was too fearful to travel on buses, or even, sometimes, to leave her home, and her husband had to be released from the army to look after her. She carried on with increasing difficulty, tense, nagging and with occasional outbursts of temper. She was better in hospital but after open rostral leucotomy was little different. Nearly 2 years later standard leucotomy was done and for 10 days she was inert and doubly incontinent. At a rehabilitation centre she was symptom-free but when she went home she did no housework, often did not get up till midday and dressed no more than once a week. Slovenly and dirty in her personal habits, rudely outspoken and explosively irritable, she lived entirely in the present and totally lacked initiative. If told to do something she did it but nothing more. She was aware of her incapacitating inertia but insisted that her inability to do things was not just laziness. She described her psychic experience in metaphorical terms "I'm tied up in a room and I can't get out; it is dark . . . my mind is quite blank. I feel like I had a room full of furniture and it has been emptied and I feel it still has furniture in it . . . my mind is in there and I can't get it out . . . I can't make my mind work"; but when asked about the "dark room" she treated it concretely and said "it can't be a cellar, we haven't got a cellar; I can't find the door . . . we have no dark rooms in the house". She took no pleasure in anything. Ultimately it became necessary for her to remain in a mental hospital where the ordered life and constant encouragement to do things hides the gross disorganization of her personality. A single fit occurred 7 months after rostral leucotomy and she has had about 6 fits since the standard operation. She and her relatives all regret the operation.

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The results in 22 cases show that though standard leucotomy may relieve symptoms where rostral leucotomy does not (and the relief even in these cases is rarely complete) the personality deficits may be appalling, at any rate in younger and vulnerable personalities. They suggest that if rostral leucotomy fails in cases which appeared to be suitable the answer is unlikely to be found in standard leucotomy. The capacity of this operation to do harm is such that the indications for it must be definite; it is too dangerous a procedure to employ merely because we cannot think of anything else to do.

Unilateral standard leucotomy might seem to be a suitable second operation if a rostral cut fails. With only 3 cases in this series, 1 of whom was better partly as a result of improvement in social conditions, there is too little evidence on which to base an opinion.

It may sometimes be that rostral leucotomy is inadequate because the incision is less than intended on one or both sides; if on both sides then a unilateral standard operation may well prove inadequate too, and if on one side only there is an even chance of making the cut on the side where there is already sufficient damage. So, on the whole, I do not regard unilateral standard leucotomy as a good second operation.

It is more likely that the answer, if surgical at all, will be found in an operation directed elsewhere, perhaps at the thalamus.

These strictures on standard leucotomy should not be extended unduly. There is less evidence of serious personality damage in those cases in which the operation is most often done, the chronic schizophrenics; it is, however, necessary to ask seriously whether failure of rostral leucotomy in patients with well preserved personalities, particularly if they are "inadequate", is because the case has been wrongly regarded as suitable for treatment by surgery or because ancillary psychotherapy or social case work has been neglected, rather than because the surgery was not sufficiently extensive. Though McKissock (1951) is undoubtedly right when he says that blind rostral leucotomy can always be followed by a more extensive section later the evidence presented here suggests that it is but rarely that it should be so followed, at least by a standard cut. The higher incidence of epilepsy after second operations (Freeman, 1953a) should also lead to additional caution in recommending them.

Freeman (1953b) has almost abandoned standard leucotomy in favour of transorbital, and Greenblatt *et al.* (1953) find a "bimedial" operation gives better results in chronic schizophrenics than the "bilateral" (standard) operation.

Sargant (1953) has long maintained that the more worried you are about doing a leucotomy because the personality remains good, the better will be the result. Ström-Olsen and Tow (1949) state that the more the patient is endowed in the first place with "spiritual quality", or for that matter with any higher qualities, the worse is the relative outcome in the end for that particular patient. These two views are reconcilable: it is standard leucotomy, on which Ström-Olsen and Tow reported, which can be so destructive of "spiritual quality". Limited operations, with which Sargant has had greater experience, and as experience with rostral leucotomy confirms (Pippard, 1955) are rarely destructive in this way, and it is the better personalities who derive most help from the reduction in tension they give.

SUMMARY

The results of second leucotomies are described in 27 cases. Whilst a more extensive prefrontal cut than rostral leucotomy may relieve symptoms the personality deficits will inevitably be larger; they may be comparatively unimportant after standard leucotomy in

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schizophrenics, but in inadequate, vulnerable psychoneurotics are usually serious. Of 19 cases who had bilateral standard leucotomy as a second operation, only 3 are considered good results, and one of these only because her husband likes her with marked frontal lobe deficits. Failure of rostral leucotomy in a psychoneurotic patient should lead to doubt whether surgery is the proper treatment for that case, rather than to more extensive leucotomy. Standard leucotomy in the plane of the coronal suture is too destructive an operation for such cases.

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