

THE JOURNAL OF MENTAL SCIENCE

(THE BRITISH JOURNAL OF PSYCHIATRY)

*[Published by Authority of the
Royal Medico-Psychological Association]*

No. 454

MAY, 1962

Vol. 108

Original Articles

LEUCOTOMY IN BRITAIN TODAY*

By

JOHN PIPPARD

Is leucotomy "one of the best treatments we have" or is it "sheer unadulterated barbarism"? These are two of the many points of view expressed to me whilst I was collecting material for this paper.

This year, Tooth and Newton (1961) published a survey (Leucotomy in England and Wales, 1942-54) on 10,365 persons who had a single leucotomy for the treatment of mental illness. During this time 84 per cent. of the operations were standard leucotomies and two-thirds of the patients operated on were schizophrenic. In only 14 per cent. was the operation performed within 2 years of the onset of illness and 41 per cent. had been ill for more than 6 years. Seven per cent. had a modification of standard leucotomy, leaving only 9 per cent. operated on by the more recent techniques developed since 1948; in 1954, 24 per cent. were operated on by such methods. The least satisfactory results were amongst the schizophrenics, with only 17 per cent. of men and 20 per cent. of women totally or socially recovered, and only one-third of the patients out of hospital (or dead since discharge) at the time of the survey in 1956-7.

Tooth estimated that in 1959 some 400 patients underwent leucotomy in the mental hospitals of England and Wales, compared with an average of more than 1,100 a year from 1948-54. The survey threw little light on the reasons for the decline in popularity of this form of treatment, but it was considered that, more than anything else, the undesirable side-effects of the operation explained it. It is also perhaps not surprising that many psychiatrists, continuing to care for the failures of leucotomy in hospital, should have become prejudiced against neuro-surgical procedures; the success of ataractic and other drugs and the increasing attention given to social influences and to occupational and recreational activities in hospital has further reduced the interest in surgery.

* A paper read to the Quarterly Meeting of the Royal Medico-Psychological Association on 15 November, 1961.

I have tried to find out how leucotomy is being used in Britain at the present time. I wrote to the 146 Superintendents of all the Regional Board mental hospitals in England, Wales, Scotland and Northern Ireland, and of the independent mental hospitals, asking them to complete a questionnaire relating to the year ending 30 June, 1961. I deliberately made this short in the hope that most hospitals would return it; in fact, all but one have done so and I am deeply in debt to all of these. The amount of information given varied a good deal and there are inevitably some inaccuracies, mostly minor I believe and chiefly where there was doubt about the kind of surgical technique used. From many hospitals I received detailed information and comments which have enabled me to build up the picture I now present, and to these I am especially grateful. I also made similar enquiries at a number of other centres at which I had reason to believe that leucotomy was being done, and I am grateful to the neurosurgeons and psychiatrists who have given me additional information.

Tooth's survey covered England and Wales only, and for comparison with his figure of 400 operations in 1959 I find that, excluding the Guy's-Maudsley Neurosurgical Unit, 402 leucotomies were carried out by the mental hospitals of England and Wales, and a further 20 by those in Scotland and Northern Ireland. In the whole U.K. I have records of some 525 operations. The total number is likely to be a little, but not much, larger than this for I have certainly missed a few operations carried out in general hospitals. If the use of the opera-

| Regional Mental Hospitals | Population in millions | Total number of leucotomies | Number/million of population | Blind Standard | Open Standard Modified Standard | Blind Bimedial | Open Bimedial | Blind Rostral | Open Rostral | Lower Quadrant | Orbital | Cingulectomy | Grantham | Modified, type uncertain |
|--------------------------------|------------------------|-----------------------------|------------------------------|----------------|---------------------------------|----------------|---------------|---------------|--------------|----------------|-------------|--------------|-------------|--------------------------|
| Scotland | 6.5 | 16 | 2.5 | 10 | 2 | | | 1 | | | | | 3 | |
| N. Ireland | 1.4 | 4 | 2.8 | | 4 | | | | | | | | | |
| Newcastle | 2.9 | 9 | 3.1 | | 4 | | | | | | 4 | | | 1 |
| Leeds | 3.1 | 10 | 3.2 | 6 | 2 | | 2 | | | | | | | |
| Sheffield | 4.3 | 33 | 7.7 | | 2 | 4 | 11 | 6 | | | | | 9 | 1 |
| East Anglian | 1.5 | 2 | 1.3 | | | | | | 2 | | | | | |
| N.W. Metropolitan | 4.0 | 17 | 4.2 | | | | | 2 | 5 | | 4 | | | 6 |
| N.E. Metropolitan | 3.1 | 62 | 20 | 2 | | 10 | | 37 | | 1 | 12 | | | |
| S.E. Metropolitan | 3.2 | 58 | 18 | 8 | 4 | | | 10 | | 7 | 28 | | 1 | |
| S.W. Metropolitan | 3.1 | 13 | 4.2 | 3 | | 6 | | 3 | | | 1 | | | |
| Wessex | 1.7 | 19 | 11 | 3 | | | | 16 | | | | | | |
| Oxford | 1.5 | 15 | 10 | | | | | | | | 15 | | | |
| South Western | 2.7 | 15 | 5.5 | 7 | 1 | | | | | 7 | | | | |
| Welsh | 2.6 | 32 | 12 | 1 | | | | 21 | 6 | | 4 | | | |
| Birmingham | 4.6 | 47 | 10 | 1 | | | | 3 | 13 | | 11 | 1 | | { 6 Rostral/Cingulectomy |
| Manchester | 4.4 | 35 | 8 | | | | | | | 35 | | | | { 12 Open Standard/ |
| Liverpool | 2.1 | 10 | 4.8 | 1 | | 1 | | | | | | | 8 | Bimedial/Lower |
| Belmont | | 18 | | | | | | 13 | | | 5 | | | Quadrant |
| Guy's-Maudsley | | 25 | | | | | | 25 | | | | | | |
| Private Mental Hospitals | | 7 | 1 | | | 6 | | | | | | | | |
| Total | 52.7 | 447 | 8.5 | 43 | 12 | 17 | 28 | 30 | 127 | 8 | 61 | ..74 | ..21 | 26 |
| Nursing Homes | | 13 | 2 | | | | | 1 | 9 | | 1 | | | |
| General Hospitals | | 30 | | | | | | 3 | 16 | 10 | | | | 1 |
| London Area | | | | | | | | | | | | | | |
| Other areas | | 35 | ..9 | | | | | 14 | 11 | | | | 1 | |
| Total | | 78 | 2+9? | | | | | 18 | 36 | 10 | 1 | 1 | 1 | 1 |
| Grand Total | | 525 | 45 | 12 | 17 | 28 | 30 | 145 | 8 | 97 | ..85 | ..22 | 27 | 9? |

tion is still declining these figures give no evidence of it, but the pattern over the country as a whole is far from uniform and requires discussion.

If, for the moment, we omit the special Guy's-Maudsley Unit, which carried out some 25 open bimedial operations during the year, there were only 11 mental hospitals which did more than 10 leucotomies; one of these was Belmont, a "neurosis unit" with no catchment area, and one hospital, surprisingly, carried out 45 operations. Between them, these 11 hospitals accounted for 189 or 45 per cent. of all mental hospital operations, although they have less than 10 per cent. of the mental hospital beds in the U.K. Sixteen hospitals (11 per cent. of the beds) did between 6 and 10 leucotomies accounting for 118 (28 per cent.), and a further 53 hospitals did between 1 and 5 operations each, totalling 115 (27 per cent.). Thus 27 hospitals carried out three-quarters of the leucotomies. Sixty-five hospitals, nearly half the mental hospitals in the country, and with 42 per cent. of the beds, did no leucotomies at all; of these 18 expressed their opposition to the operation in principle and the rest had not seen any patient for whom leucotomy was considered indicated.

There are regional differences which for instance make it unlikely that a patient will be leucotomized in the mental hospitals of the East Anglian Region, with an annual rate of 1.3 per million of the total population of the region, and more likely in, say, the N.E. Metropolitan Region (20 per million), the S.E. Metropolitan Region (18 per million) or the Welsh Region (12 per million). These differences appear to be based upon the orientation of particular hospitals or individual psychiatrists. In some regions, e.g., the S.E. Metropolitan, leucotomy is employed by all the hospitals and by a variety of techniques ranging from standard leucotomy to rostral, lower quadrant and orbital sections and stereotactic operations; in some, e.g., the Western Region of Scotland, only standard leucotomy, performed by a general surgeon, was available and the operation is recommended by only 2 of the 13 hospitals. But in many regions modified techniques are used with benefit at some hospitals whilst others, not far away, have set their faces against surgery.

Some of the differences arise because of local difficulties in getting surgery done. More than one hospital reports in terms such as this: "We do not have any neurosurgeons interested in leucotomy and only the standard operation would be available. None of my colleagues have felt the need for leucotomy, though if we had closer liaison with neurosurgeons our views would probably be changed." A few, rather isolated, hospitals have never had a leucotomy done and at others there is so long a wait that this acts as a strong disincentive. Where, however, clinicians have become aware of the real value of modified leucotomy for carefully selected patients it is not too difficult to arrange for the operation to be done: patients are sent from Dorset and Somerset to neurosurgical centres in London. Transfer to an appropriate centre is, in any case, usually necessary for special operations such as orbital or Grantham (electrocoagulative) leucotomy.

Without good co-operation between psychiatrists and neurosurgeons neither can gain the experience which is essential if leucotomy is to be used with any confidence, and so the operation is used less and less. One colleague frankly admits that he has "difficulty in selecting cases in terms of various types of operation" and so refers fewer cases for surgery. In the period with which Tooth's survey was concerned the decision to operate was much easier; there was only the standard operation, or some slight modification of it, and it could be, and was, performed if need be by the local general surgeon; the majority of patients operated on were regarded as well-nigh hopeless. Psychiatrists everywhere gained a lot of experience of the effects of major frontal cuts in patients

with long-standing and severe psychoses. To quote Slocum (1959) writing of experience in the United States:

“the great majority of physicians, including our own specialty, have written off frontal lobe surgery as a therapeutic weapon for any illness short of chronic major psychosis. The type of patient necessarily selected from the big State hospitals for the early work in this field and the emotional flattening resulting from the wide, deep and extensive cuts originally employed, have set up a mental image of the lobotomized patient that it will take many years to erase. . . .”

Many of my correspondents seem to have been affected in this way by their past experience; one dismisses leucotomy as a “fashion of its time and therefore smart to do”; many refer to the disappointing results, including one hospital which still does an occasional standard operation although regarding it as “unsound technically, physiologically and philosophically”. There are, however, a very few hospitals which prefer to use the standard operation although modified operations are available.

Standard Leucotomy

It is eight years since Greenblatt and Solomon (1953) demonstrated that standard leucotomy is too drastic an operation even for chronic schizophrenics, and that bimedial cuts produced results equal to or better than standard leucotomy. This was confirmed by the 5-year follow-up of these patients; 54 per cent. of those who had bimedial operations were working full-time and productively, compared with 33 per cent. of those who had standard cuts (Paul, 1956). Similar findings emerge time and again from studies on modified operations which do much less damage to the personality (Scoville, 1960; Lewin, 1961); Freeman (1953) found the frontal-lobe syndrome 20 times as frequent after standard as after transorbital leucotomy. Yet despite this the standard operation continues to be used; in a few places it is performed by general surgeons but elsewhere by neurosurgeons. I have been told of 45 operations carried out by blind, more than 12 by open techniques and 9 in which there is doubt whether operation was blind or open. There were 17 “modified” standards, presumably involving cuts in the lateral frontal white matter. Of mental hospital leucotomies 14 per cent. were standards, compared with 67 per cent. in 1954; 4 per cent. were modified standards (9·2 per cent. in 1954). The standard or its anterior modification still accounts for nearly one-fifth of all operations; it is on the way out, but all too slowly, and should be finally abandoned.

Selective Leucotomy

Besides the 12 open standard leucotomies already discussed, 135 patients had open leucotomies of three principal types. These were the 25 bimedial operations at the Guy’s-Maudsley unit and 5 others elsewhere; 8 cases of open rostral leucotomy and 12 cases in which open standard, bimedial or lower quadrant leucotomy was done. Orbital leucotomy and cingulectomy were done 85 times, all but a few being orbital undercuts; most were done at two or three neurosurgical centres.

Stereotactic techniques are in use at three or four centres and 22 patients had Grantham operations. One hospital regularly uses lignocaine to produce a temporary leucotomy before proceeding with the permanent lesion.

In addition to the 62 blind standard and modified standard operations

already discussed, blind leucotomies were done in 270 patients: 145 rostral, 28 bimedial, 97 lower quadrant.

The technique used is in doubt in 24 cases. Thus, nearly two-thirds of all leucotomies were blind operations.

It is interesting to note that in 1954, of the total 1,094 English and Welsh mental hospital leucotomies recorded by Tooth, 101 had modified standard and 254 other selective operations. The figures for the year to June, 1961 are 13 and 346 respectively. The decline in the use of leucotomy has therefore been in the use of the standard operation; the total number of modified operations is almost the same.

Second Operations

Twelve hospitals have carried out operations on 18 patients who had had a previous leucotomy (4 standard, 1 modified standard, 1 open bimedial, 1 rostral, 4 lower quadrant and 7 orbital undercuts or cingulectomy. One of the lower quadrant operations was a third leucotomy).

Freeman (1960) considers that about 10 per cent. of patients should have a second operation. In the U.K. 3·4 per cent. were second operations and it may be that too few are being done. It is regrettable that standard leucotomy has not been abandoned as a second operation, since the incidence of undesirable personality changes is very high when it is used in this way (Pippard, 1955).

Selection of patients for leucotomy

The criteria used in selecting patients for operation differ widely from hospital to hospital and undoubtedly this is important in generating satisfaction or otherwise with the results. Many hospitals seem to have narrowed their indications to very limited groups of patients; the most frequent category mentioned is that of *severe* obsessional illness, and many operate on no other type of patient; one hospital operates only on "severe monosymptomatic obsessionals". Another operates only on "intractable or persistent depression of the elderly". Some exclude all but chronic disturbed psychotics, and these tend to use standard leucotomy, but others specifically exclude patients of this type because the results are so unsatisfactory. Some, rightly, stress the importance of long-standing tension and anxiety and one hospital, which carried out 17 lower quadrant operations during the year, regards it as "an indispensable standby for the intractable cases where tension is the prominent feature, however and whatever its cause". Depression which has failed to respond to other measures is also frequently mentioned as an indication; one hospital notes the better results in patients aged more than 45.

Several hospitals feel that they have neglected leucotomy because of the obvious success of ataractic and other drugs and are "prepared for a swing of the pendulum"; some mention that although they have not been using the operation recently they have several patients under consideration for surgery. Yet others obviously feel that leucotomy was of great value in the past, and would not hesitate to use it in suitable cases, but feel that the same results can now be achieved without it; many mention the lessened need since effective drugs became available, but some stress that the need for selective leucotomy has not diminished in the psychoneurotics, who are now operated upon more than psychotics. In general I get the impression that leucotomy is not sufficiently considered as a method of treatment in many cases which could, perhaps, be effectively treated only in this way. Few hospitals seem to adopt wide enough

criteria, so that even where certain patients have the benefit of operation others may be denied it because they do not fit into a particular group for which the psychiatrist concerned has become confident to use it. One correspondent writes "there has been a premature stampede out of it (neurosurgery) just as there was rather an irresponsible stampede into it when it began".

The present position, then, is that in some hospitals the indications for, and techniques of carrying out leucotomy have not been significantly revised since the early days and the results are somewhat disappointing. In others, dissatisfaction with these results and the unpleasant effects on personality of extensive cuts has led to the disuse of the operation. In the relatively few hospitals where experience of selective operations in carefully chosen patients of good personality has given confidence in their use, these operations are performed in patients for whom standard leucotomy might be a disaster and who, because of this, would not be considered for operation elsewhere. It is not necessary that a patient should be so ill that operation can be thought of only as a last desperate resort; nor need a patient be permanently institutionalized before operation can be considered. It has a definite place in the treatment of some obsessive tension and phobic states, and in obsessive-compulsive neuroses, although here the results are less impressive than in some others. It is valuable in persistent depressive states in older patients, especially those with obsessional personalities, and in some schizophrenic syndromes, particularly the paranoid and pseudoneurotic. Where a particular treatment measure is used only rarely it is all too easy to forget about it and I feel sure that this is one of the reasons for the relative disuse of leucotomy. Operation should be considered, though not, of course, necessarily done, in any case where serious emotional distress has failed to respond to other reasonable treatment measures. I am well aware that disagreement about what is serious and what is reasonable lies behind some of the wide differences in clinical practice which this survey has revealed. However, this paper is not directly concerned with defining criteria for the selection of patients and I shall not labour the point.

The Future

I think that for a long time to come we shall need leucotomy for a minority of patients; I doubt whether there are many chronic institutionalized patients who ought to be operated upon, but there are probably some schizophrenics in hospital who might be returned to effective life with the help of a selective leucotomy. I suspect that both too many and too few patients are being sent for operation: too many chronic disturbed psychotics operated upon in desperation, too few of the less disturbed but still gravely handicapped patients with, for example, chronic phobic and tension states. There may be suspicion that the one mental hospital which operated upon three times as many patients as any other has been overdoing it. I have visited this hospital and discussed many of the patients operated upon with the consultant responsible for their treatment. It appeared to me that the cases had been carefully selected and the results of operation seemed satisfactory in a high proportion, not only to the patients themselves but also to their relatives. It has not been the experience at this hospital, nor has it been my own, that, as one of my correspondents puts it, "it may 'cure' the patient, but frequently makes life even more impossible for his relations"; this sad result is only likely to follow standard leucotomy in unsuitable cases. At Claybury, with some 2,000 beds, where leucotomy is used cautiously and by some only of the consultant staff, 7 rostral or bimedial operations were done during the year, about the average number for the past 3 years.

Even this rate of operating, applied uniformly throughout the country, would lead to about 600 mental hospital leucotomies a year, or 200 more than at present, and this figure is, I suspect, considerably lower than it should be.

SUMMARY

The use of leucotomy in Britain during the year ending 30 June, 1961 has been determined from the replies to a questionnaire sent to all mental hospitals and to many other centres. Reasons are discussed for the decline in this treatment during the last few years and for the marked differences existing between hospitals. Selective leucotomy is still a valuable treatment measure and should be considered more often than it is, particularly, but not only, in those mental hospitals, nearly half of those in the whole country, which did no leucotomies in the year under consideration.

REFERENCES

- FREEMAN, W., "Hazards of lobotomy", *J.A.M.A.*, 1953, **152**, 487.
Idem, in *American Handbook of Psychiatry*, p. 1523. New York. *Basic Books*.
GREENBLATT, M., and SOLOMON, H. C. (Eds.), *Frontal lobes and Schizophrenia*, 1953. New York.
LEWIN, W., "Observations on selective leucotomy", *J. Neurol. Neurosurg. Psychiat.*, 1961, **24**, 37.
PAUL, N. L., FITZGERALD, E., GREENBLATT, M., "5-year follow-up of patients subjected to 3 different lobotomy procedures", *J.A.M.A.*, 1956, **161**, 815.
PIPPARD, J., "Second leucotomies", *J. ment. Sci.*, 1955, **101**, 788.
SCOVILLE, W. B., "Late results of orbital undercutting", *Proc. R. Soc. Med.*, 1960, **53**, 721.
SLOCUM, J., BENNETT, C. L., and POOL, L. J., "The role of prefrontal lobe surgery as a means of eradicating intractable anxiety", *Am. J. Psychiat.*, 1959, **116**, 222.
TOOTH, G. C., and NEWTON, M. P., *Leucotomy in England and Wales 1942-1954*, 1961, H.M. Stationery Office.

John Pippard, M.A., M.D., M.R.C.P., D.P.M., *Claybury Hospital, Woodford Bridge, Essex*