FIG. 3.—Peripheral nerve. Artery with gross intimal thickening and thinning of muscularis over it. New elastic-tissue formation. Hart-Sheridan method for elastic. ($\times 420$.)

of the former diagnosis, as was the female sex of the patient. On the other hand, the peripheral neuritis which gave rise to the presenting symptoms suggested polyarteritis nodosa, particularly when no previous account of this lesion in systemic lupus erythematosus could be found.

That this was a case of systemic lupus erythematosus could not be doubted after the post-mortem examination, although there is no satisfactory explanation for the repeatedly positive blood cultures.

The diagnosis of peripheral neuritis is established by the combination of a lower motor-neurone lesion, paraesthesiae, and sensory loss in all four limbs, together with bilateral calf tenderness.

From the histological evidence already given, it is postulated that the neuritis was of a similar nature to that described in polyarteritis nodosa by Wohlwill (1923), due to ischaemic changes in the nerves produced by an obliterative arteritis of the arteria nervorum. In view of the now generally accepted belief that systemic lupus erythematosus is a widespread disease of collagen it is not surprising to find these vessels involved. Indeed, rather is it to be wondered why polyneuritis is not a more frequent manifestation of this disease process.

Summary

A case of systemic lupus erythematosus in a woman aged 34 is described in which the presenting picture was one of peripheral neuritis.

It is considered that the peripheral neuritis was due to ischaemia consequent on vascular lesions in the vessels supplying the nerves.

We wish to record our indebtedness to Dr. J. W. Litchfield and Dr. P. H. Sandifer, the physicians in attendance on the patient, for their permission to report this case and for the interest they have shown in this paper; to Dr. J. F. Taylor, who carried out the necropsy; and to Mr. A. Beasley for the preparation of countless serial sections. We are most grateful to Professor W. D. Newcomb and Professor G. W. Pickering for their help and advice.

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A FOLLOW-UP STUDY OF 238 LEUCOTOMIZED PATIENTS*

BY

HUNTER GILLIES, M.D., F.R.C.P.Ed., D.P.M.

BARBARA HICKSON, S.R.N., R.M.N., D.N.

AND

W. MAYER-GROSS, M.D., F.R.C.P.

(From the Department of Clinical Research, Crichton Royal, Dumfries)

This follow-up study was undertaken to assess the results of standard prefrontal leucotomy in 238 patients who underwent the operation at Crichton Royal between 1943 and 1948. Although it may be accepted that the value of the operation is established for chronic obsessional states and chronic affective psychoses, unexpected failures and unexpected successes are often met with. It was hoped that from a study of our own patients there would emerge criteria that would help us to select those individuals likely to respond to the operation. A special interest was taken in schizophrenics because they made up more than three-quarters of the series and because they form the great therapeutic problem. Partridge (1950) has published a valuable book on his personal follow-up of 300 patients over a period of one and a half to three years after operation; he was more interested in the clinical appearances than in the tabulation of results. We, on the other hand, to avoid being influenced by clinical impressionism have made a detailed examination of our material and results.

Material

TABLE I.—Composition of the Clinical Material

Diagnosis	No. of Cases	Percentage of Cases
Schizophrenia	194	81.1
Affective psychoses	21	8.9
Obsessional neurosis	14	6.3
Mainly organic psychoses	9	3.7
Total ..	238	100

Important features of our series were that all the patients were diagnosed and selected for operation according to the uniform standards of our hospital, while with the exception of the first 16 patients all operations were carried out by the same surgeon. The diagnosis in the 238 cases is shown in Table I. Most of the patients received the standard coronal cut of Freeman and Watts, but in 52 chronic cases

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the incision was varied so as to isolate the orbital lobes and to spare the upper quadrants; this modification was abandoned because the results were less good (Egan, 1949).

The mortality rate from the operation in our series was 3%. There were none of the "delayed post-operative deaths" described by Meyer and McLardy (1948). The incidence of post-operative epilepsy, including single fits, was 8%, most of these being male catatonic schizophrenics. There were no other serious organic complications, and persistent enuresis was not encountered.

Selection of Patients.—Our criteria of selection have always been conservative, so that only 13 of our patients had been ill for less than two years. The operation is not considered until full courses, often repeated courses, of the appropriate physical treatments have failed to induce a sustained remission. Each case was discussed pre-operatively at a staff conference, and if we thought there was any reasonable hope of remission without operation then leucotomy was avoided. Our criteria for selection included a good pre-psychotic personality, good retention of personality, and the presence of emotional tension.

Method of Follow-up

The method of follow-up we adopted for discharged patients was by personal letter to informants whom we knew to be reliable. These informants were either the relatives, the family physician, a psychiatric social worker, or, in the case of hospital patients, the appropriate medical superintendent. In some cases we also wrote to the patient himself. Our letter put the following specific questions: (1) Is the patient fully and satisfactorily occupied? (2) Is he happy and his old self again? (3) Is he easy to get on with and does he take part in social life? (4) Are there any special difficulties? (5) Do you find him a different person from what he was before his illness began?

The first inquiry elicited satisfactory information in a great majority of cases, and at the end of our investigation only one of the 238 patients was untraced. A postal follow-up has disadvantages; so has a personal interview, because the patient can give a deceptive impression of normality, and this has to be corrected by more objective opinions from relatives and doctors. We are satisfied that our study gives an accurate picture of the leucotomized patient's place in society, and, after all, criteria of success or failure after leucotomy are mainly social criteria. It was found that the patients' own letters reflected an uncritical self-satisfaction and lack of judgment, while they were prone to describe ease of social relations when in fact their social adaptation was impaired.

The average time between operation and our inquiry was four and a half years; the shortest was one year four months and the longest seven years two months. There is no doubt that follow-up studies made less than one year after operation give a deceptive picture of the results of leucotomy.

Results

The patients' condition during the first four months of 1950 is indicated in Table II. From this we see that, broadly speaking, of these prognostically hopeless cases almost one-third are living a normal or almost normal family life, and more than one-fourth are usefully and gainfully employed. Of those who remained in hospital almost half are much improved; they are happier and are easier to nurse. Our findings over a lengthy period confirm, therefore, the findings of those workers who have followed their cases for only a short time.

Apart from assessment of the therapeutic results of the operation, an attempt was made to discover which factors influenced these results.

Factors Influencing Results

Sex.—Although, like other workers, we have found a greater number of good results in females, our figures are not significant. However in schizophrenia this same trend

TABLE II.—*Graded Condition of Patients at Time of Investigation*

Grade	Condition	Definition	No.	%
I	Recovery	Social life as before illness. Working at old job or at one at the same occupational level as before illness. Minimum of any form of symptoms	41	17.2
II	Social recovery	Relatively normal social life. Lower standard of work; may or may not be gainfully employed. Some symptoms of psychosis or marked post-leucotomy symptoms present	31	13.0
III	Social defect	Deterioration in social behaviour, sometimes even antisocial. May or may not be gainfully employed. Symptoms as with social recovery	15	6.3
IV	Home invalid	Require care and observation in their daily life, and in any simple occupation which they may do at home. Not otherwise employed. Marked symptoms still present	15	6.3
Va	Hospital invalid	Generally improved—i.e., able to work in hospital and take part in entertainments. Have some form of parole	21	8.8
Vb	Hospital invalid	Easier nursing problems; no longer so aggressive and impulsive. Some may have a simple occupation in the ward	20	8.4
Vc	Hospital invalid	No change since operation	22	9.3
Vd	Hospital invalid	Deteriorated	28	11.8
VR	Readmitted to hospital, and in at April, 1950		35	14.7
VI	Dead	As a result of operation From other causes	7	3.0
VII	Untraced		2	0.8
			1	0.4
Totals			238	100

has been found by others in spontaneous remissions (Guttman, Mayer-Gross, and Slater, 1939) and also in those who received insulin coma treatment (Mayer-Gross, 1951, unpublished observations). It may in part be correlated with the greater ease with which a female can be again accepted into family life.

Age at Operation.—Good results occurred equally in our three age groups: (a) those under 30 years; (b) those of 30–39; and (c) those of 40 and over. However, the oldest age group had the smallest number of relapses.

Pre-morbid Personality.—By examining the case records and social histories we classified our patients into those who had been well adapted to life and society before the psychosis appeared and those whose pre-morbid adaptation had been poor and unstable. Of those who had a well-adapted pre-morbid personality 68% made grade I or grade II recoveries. Of those who were poorly adapted before their illness only 35% made grade I or II recoveries.

Time Spent in Hospital.—By this we mean the total of time in hospital since the illness began. Our total of grade I and II recoveries was 50% of those who had been in hospital under one year and only 11.5% of those who had been in hospital more than five years.

Duration of Illness.—By this we mean the total time since symptoms first became apparent. Here our findings were unexpected and we think important. In the group of patients who had been ill for 10 years and over there were almost as many grade I and II recoveries as there were in the group who had been ill less than five years (see Table III).

TABLE III.—*Relationship Between Duration of Illness and Condition at Time of Investigation*

Duration of Illness (years)	Grade (see Table II)										Totals
	I	II	III	IV	Va	Vb	Vc & Vd	VR	VI	VII	
Under 5	14	11	2	6	6	4	12	18	3	1	77
5–9	14	9	8	3	6	7	15	11	3	0	76
10 and over	13	11	5	6	9	9	23	6	3	0	85
Totals	41	31	15	15	21	20	50	35	9	1	238

The conclusion is that, by itself, long duration of illness should not weigh against performance of the operation. Freeman and Watts (1950) make this same point. The apparent discrepancy between the effects of length of illness and length of stay in hospital is probably to be explained by the view that the patient who is able to remain outside hospital, even though ill, does so because of his good retention of personality and his social adaptability.

Retention of Personality.—By this we understand that, despite his psychosis, the patient retains an interest in his appearance, in personal and topical affairs, and in social intercourse. Of those patients with good pre-operative retention of personality 46% made grade I or II recoveries. Of those who seemed deteriorated before operation 21%, less than half, made grade I or II recoveries. Even this 21% is quite a respectable figure, but then it is notoriously difficult, especially in schizophrenia, to determine the presence or absence of deterioration. We found that probably the best test is the response to electric convulsion treatment (E.C.T.), and we would now hesitate to stigmatize a patient as too deteriorated for operation until we had seen the response he made to a course of electroplexy.

Response to Electric Convulsion Therapy.—Of those who had made a good, albeit transient, response to E.C.T. given before leucotomy 22% made grade I recoveries, while of those who had shown no response to E.C.T. only 3.5% made grade I recoveries. Table IV illustrates these results.

TABLE IV.—*Relationship Between Response to E.C.T. and Condition at Time of Investigation*

Clinical Response to E.C.T.	Grade (see Table II)										Totals
	I	II	III	IV	Va	Vb	Vc & Vd	VR	VI	VII	
No improvement	2	11	6	2	5	5	16	8	2	0	57
Temporary improvement	33	19	8	13	13	13	23	22	6	1	151
No E.C.T. given	6	1	1	0	3	2	11	5	1	0	30
Totals ..	41	31	15	15	21	20	50	35	9	1	238

Response to Insulin Coma Therapy.—On the other hand, we found no significant differences after leucotomy between those schizophrenics who had made some response and those who had made no response to insulin coma therapy.

Emotional Tension.—It is generally agreed that the best results of leucotomy occur in those patients who still show a strong affective reaction to their psychosis. As the presence of this affective reaction or emotional tension was one of our main criteria of selection, there were only 16 patients in the series who showed no obvious tension: the figures are therefore too small for comparison. It is interesting, however, that even of these 16 patients five made grade I or II recoveries.

Diagnostic Categories.—The series included 35 cases of affective psychosis and obsessional neurosis and 194 cases of schizophrenia. In the former group 60% made grade I or II recoveries, while only 27% of the schizophrenics reached these grades. Surprisingly, all our five cases of mania made grade I or II recoveries.

Relapses.—It was found that of 115 patients who had improved enough to be discharged from hospital 22 relapsed after an average period of two and a quarter years free from symptoms. When this group of relapsed cases was compared with those who had maintained their recoveries the only significant factor found was that the pre-operative personality was more often intact in the recovered cases than in the relapses (Gillies and Mayer-Gross, 1950).

Summary and Conclusions

A follow-up study was made of 238 chronic psychiatric patients who had undergone the standard leucotomy operation some one to seven years previously. The best results occurred in those whose pre-operative personality

was more or less intact, who had well-adapted pre-psychotic personalities, and who had been only a short time in hospital. If these factors were present, long duration of illness did not worsen the prognosis.

In schizophrenia the best test for pre-operative deterioration is afforded by the response to electric convulsion treatment.

Of the psychiatric patients who have hitherto been regarded as hopeless hospital invalids the standard leucotomy can return one-third to a normal or almost normal social life and can fit one-quarter for gainful employment.

Broadly speaking, the prognostic criteria for leucotomy are still those well-tried criteria that hold for the untreated psychosis.

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FAMILIAL ERYTHEMA NODOSUM

BY

JOHN FRY, M.B., F.R.C.S.

(From a General Practice)

Erythema nodosum is a clinical entity with a characteristic skin eruption, usually accompanied by a general constitutional upset. Diagnosis of the eruption is easy, but there is still some uncertainty with regard to the aetiological aspects of this condition. The general consensus of opinion is that it is a non-specific reaction in a sensitive subject in response to a number of various allergens. These are best discussed under separate headings.

Tuberculosis.—It is probable that erythema nodosum is most often associated with the primary tuberculous complex, particularly in children and adolescents. In these cases the eruption occurs when the patient first develops hypersensitivity to tuberculin. The time-interval for this to happen has been estimated at three to eight weeks from the time of infection. The frequency with which erythema nodosum is associated with primary tuberculosis apparently varies individually and also nationally. Thus Wallgren (1938) estimated that 30% of primary infections in Scandinavia were associated with the eruption; Dunlevy (1949), in Eire, found only a 2.8% incidence. In Scandinavia the average age of primary infection is much higher than that in Eire. Wallgren, in a series of 800 cases, reported that 95% had a positive tuberculin skin reaction. This is significant, because these Scandinavian children could normally have been expected to have a negative reaction. He also describes a number of cases in which the change of the skin response from negative to positive was definitely associated with the eruption.

Punch (1941) was able to show that in student nurses the change from a tuberculin-negative to a tuberculin-positive skin reaction was often accompanied by an eruption of erythema nodosum. Bruce Perry (1944), in a series of 112 cases, found a positive Mantoux reaction in 54%. In those under 15 the incidence was 75% and in those over 15 it