RESULTS OF PARTIAL GASTRECTOMY FOR PEPTIC ULCER

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Numerous reports are available of the long-term results of partial gastrectomy in the treatment of chronic gastric and duodenal ulcers (G.U., D.U.), but most of these have been made by surgeons with a special interest and aptitude and it would be expected that their results would be better than those of their more general colleagues. In St. Thomas's Hospital the operation is performed by many surgical consultants and registrars and it was considered that their combined results would be of interest.

Present Investigation

This concerns all the patients who had a partial gastrectomy for a chronic G.U. or D.U. between October 1949 and September 1950. No case has been included who had had a previous operation other than the suture of a perforation, and none where it was done as an emergency measure. The follow-up was held approximately three years after the operation and it was done by personal interview. Note was made whether a Bilioth I or gastro-jejunal (Polya) type of anastomosis was performed, but it was not possible to go into other details of operative technique.

In the period under review the operation was performed by 10 different surgeons on 106 patients. There were 91 cases available for analysis, since of the original number two died of the operation and five subsequently from unrelated causes; eight were not traced and in another eight information had to be obtained by post either from the patients or their doctor because they were unable or unwilling to attend in person.

Results

Visick's classification (Visick, 1948) has been used in recording the results. This is as follows:

Grade I. No gastric symptoms (fullness after an extra large meal is allowed).

Grade II. No pain; mild occasional symptoms easily controlled by care; care implies limitation of size of meal, rest or avoidance of certain articles of diet.

Grade III. Mild symptoms not controlled by care; slight abdominal discomfort. This grade is subdivided as follows: *Grade IIIs.* Satisfactory (the patient is satisfied with the result; symptoms do not interfere with the enjoyment of life or with work). *Grade IIIu.* Unsatisfactory (the patient is not satisfied with the result; either the symptoms or the care taken to avoid them interferes with the patient's enjoyment of life or his efficiency at work).

Grade IV. Not improved; severe symptoms.

The results in this series were: Grade I (excellent), 51 per cent.; Grade II (good), 31 per cent.; Grade IIIs (fair), 13 per cent.; Grade IIIu (poor), 3 per cent.; Grade IV (bad), 2 per cent. These include the combined results for both types of ulcer and both sexes. All the patients in the first three grades were very grateful for having had the operation, in particular those in Grade IIIs all considered that their present symptoms were preferable to the severe pain they had before operation. These results are shown in detail in Table 1.

TABLE 1
TOTAL RESULTS

Grading	G.U.	D.U.	Total
	No. 61	30	91
Grade I (excellent)	35 (57%)	11 (37%)	46 (51%)
Grade II (good)	13 (21%)	15 (50%)	28 (31%)
Grade IIIs (fair)	11 (18%)	1 (3%)	12 (13%)
Grade IIIu (poor)	1 (2%)	2 (7%)	3 (3%)
Grade IV (bad)	1 (2%)	1 (3%)	2 (2%)

Two-thirds of the patients had the operation for G.U. and these were more satisfactory than those for D.U. This difference seemed to be due to the number of Bilioth I operations performed on those with a G.U. for it is evident on analysis that the results were considerably better after this type of operation. All the D.U. patients had a Polya operation and if a comparison is made between these and the G.U. patients who had a Polya operation the results are found to be similar (Table 2).

TABLE 2
COMPARISON OF BILROTH I AND POLYA OPERATIONS

Grading	G.U. (61)		D.U.(30)
	Bilroth I 35	Polya 26	Polya 30
Grade I (excellent)	25 (71%)	10 (38%)	11 (37%)
Grade II (good)	5 (14%)	8 (31%)	15 (50%)
Grade IIIs (fair)	4 (12%)	7 (27%)	1 (3%)
Grade IIIu (poor)	0	1 (4%)	2 (7%)
Grade IV (bad)	1 (3%)	0	1 (3%)

There was no difference in the results when they were analyzed according to age groups or in respect of the length of preceding symptoms. It was most noticeable when interviewing the patients how psychologically stable most of them were and in only two did such factors appear to play an important part in subsequent complaints. In the remainder any symptoms seemed to be due to genuine anatomical or physiological disturbances and these were more common, albeit usually mild, after a Polya type of operation. These facts suggest that where technically possible a Bilroth I operation should be performed.

The results were better in men than women, a tendency which has been noted before (Visick, 1948; Swynnerton and Tanner, 1953; Anderson, Gunn and Watt, 1955). There was no obvious reason for this difference and it did not appear to be due to the increased liability to anaemia in women (*vide infra*) which is, in any case, responsive to treatment. They suggest that one should be more critical in advising operation in women (Table 3).

These results are similar to those reported by other authors. Visick (1948) after three years reported 84 per cent. in Grades I and II, 10 per cent. in Grade IIIs and 6 per cent. in Grades IIIu and IV; results which are very similar to those reported here. Swynnerton and Tanner (1953), reporting on the results for G.U., found 80 per cent. in Grades I and II, 10 per cent. in Grade IIIs and 10 per cent. in Grades IIIu and IV, but their follow-up period was between 5 to 12 years after operation. Mimpriss and Birt (1949) from St. Thomas's Hospital found 73 per cent. symptom free, 22 per cent. with slight symptoms and 5 per cent. poor. Anderson, Gunn and Watt (1955), reporting results from Illingworth's Clinic in Glasgow, found 67 per cent. were symptom free, 23 per cent. had minor symptoms and 10 per cent. were adjudged failures. Results from America are similar, though they naturally vary in detail in various series.

Causes of Disability

The results were assessed after consideration of the symptoms, weight, work record and the

patient's opinion. It has recently been pointed out by Anderson, Gunn and Watt (1955) that in the patient's view the results are rather better than those of an objective observer and this was noticed in the present series. Several had more than one disability and it was not always possible to say which was the more severe. A summary of the symptoms complained of by the patients in Grades III and IV is given in Table 4.

The dumping syndrome was the cause of distress in 22 patients (24 per cent.). In 13 this was mild and easily controlled with care, in eight it was more severe and in one disabling. Of the 22, 18 were males and four females; nine originally had a D.U., 13 a G.U. and of these ten had a Polya type gastrectomy; the three patients who had a Bilroth I type gastrectomy only had mild symptoms.

Bilious vomiting occurred in 11 patients all of whom had had a Polya type gastrectomy. In two it was severe, in four moderately severe and in five it occurred at infrequent intervals. Two of these patients also had the dumping syndrome. Two further patients complained of vomiting after a Bilroth I operation.

Reactive hypoglycaemia had occurred in five patients. One man had been apprehended by the police for drunkenness, but in the others the attacks were easily controlled and were no real disability.

Diarrhoea occurred in eight patients though two were no longer troubled by it. Two of the remaining six patients were alcoholics and this seemed to be the probable cause. In three patients the stools were said to be pale and they may have had steatorrhoea. Isolated specimens of stool fat were estimated in two, one being normal, 22 per cent., and the other raised, 35 per cent. As all these patients were working and were not anaemic, it did not seem justified to admit them to hospital for further investigation. In the remaining patient attacks of diarrhoea occurred in association with abdominal colic. A Bilroth I operation was performed on four cases and a Polya on the remainder. All three who may have steatorrhoea had a Polya type gastrectomy.

An anastomotic ulcer had probably been present in six patients. In two it had been confirmed at a second operation where a vagotomy was performed, and they both subsequently remained free of symptoms. In one an anastomotic ulcer was found at post-mortem for death from cirrhosis of the liver which occurred after he had been seen in the follow-up. In three a history of recurrent epigastric pain similar to their original ulcer strongly suggested an anastomotic ulcer, though X-ray examination failed to demonstrate one. One of these patients had had a Bilroth I operation for gastric ulcer, so he may have developed a further

TABLE 3
RESULTS SHOWING DIFFERENCES IN THE TWO SEXES

Grading	Men—73			Women—18		
	G.U.	D.U.	Total	G.U.	D.U.	Total
Grade I (excellent)	28	10	38 (52%)	7	1	8 (44%)
Grade II (good)	10	14	24 (33%)	3	1	4 (22%)
Grade IIIs (fair)	8		8 (11%)	3	1	4 (22%)
Grade IIIu (poor)		2	2 (3%)	1		1 (5.5%)
Grade IV (bad)		1	1 (1%)	1		1 (5.5%)

TABLE 4
DETAILS OF DISABILITIES IN GRADES III AND IV

Grade	No.	Sex	Age at Operation	Lesion	Operation	Weight Loss	Disabilities
IIIs ..	1	F	27	D.U.	Polya		Dumping syndrome—Hb 66% ? Anastomotic ulcer. (Barium meal negative).
	2	M	54	G.U.	Polya	Yes	Hypoglycaemia, diarrhoea. Mild dumping syndrome.
	3	M	52	G.U.	Polya	Yes	Diarrhoea, alcoholic. Mild dumping syndrome.
	4	M	48	G.U.	B.I.		? Peptic ulcer.
	5	M	35	G.U.	Polya	Yes	Bilious vomiting.
	6	M	55	G.U.	Polya	Yes	Mild dumping syndrome. Chronic bronchitis. Painful incisional hernia.
	7	M	59	G.U.	B.I.		Mild dumping syndrome. Incisional hernia.
	8	M	51	G.U.	B.I.	Yes	Vague discomfort impossible to analyse. Psychopathic personality.
	9	M	59	G.U.	Polya	Yes	Diarrhoea, ? steatorrhoea. Occasional bilious vomiting.
	10	F	53	G.U.	Polya	Yes	Dumping syndrome, bilious vomiting.
	11	F	76	G.U.	B.I.	Yes	Vomiting, ? cause.
	12	F	38	G.U.	Polya	Yes	Dumping syndrome, bilious vomiting.
IIIu ..	13	M	57	D.U.	Polya		Diarrhoea, alcoholic. Poor work record. ? laziness.
	14	F	38	G.U.	Polya	Yes	Bilious vomiting, Hb 70%.
	15	M	53	D.U.	Polya		Anastomotic ulcer.
IV ..	16	M	46	D.U.	Polya	Yes	Dumping syndrome, bilious vomiting. Depressed, very poor work record.
	17	F	69	G.U.	B.I.	?	Severe pain and vomiting. Severe O.A. hips and knees. In chronic hospital.

TABLE 5
SUMMARY OF DISABILITIES

Disability	Mild	Severity Moderate or Severe	Total	Grading				
				I	II	III _s	III _u	IV
Dumping syndrome ..	13	9	22	4	9	8		I
Bilious vomiting ..	5	6	11	I	4	4	I	I
Other vomiting ..		2	2			I		I
Anastomotic ulcer ..		6	6	2	I	2	I	
Indeterminate pain ..	2	I	3		2			I
Diarrhoea ..	4	4	8	2	2	3	I	
Incisional hernia ..	7	10	17	3	8	5	I	
Hypoglycaemia ..	4	I	5		4	I		

N.B.—These figures include some patients who have had symptoms but no longer get them.

gastric ulcer. The rest had a Polya type gastrectomy for duodenal ulcer.

Two further patients had occasional mild upper abdominal pain which could not be ascribed to any definite cause.

An incisional hernia was found in 17 patients (19 per cent.). In seven it was small and not important, one had been cured by a repair operation and the remaining nine had to wear a belt permanently.

A subsequent operation had been performed in eight patients; two had a vagotomy for anastomotic ulcer; two an operation for afferent loop obstruction; one for duodenal stenosis following a Bilroth I operation and one for repair of an incisional hernia.

Anaemia. The haemoglobin was estimated in 70 patients (54 males, 16 females). In six females, one-third of all the women, it was below 70 per cent., and all of these were under 55 years old. There were only five females under 55 years with a haemoglobin above 85 per cent. In eight males the haemoglobin was less than 85 per cent., but in none was it under 75 per cent. This sex difference is to be expected as it has already been shown that there are often multiple factors present in iron deficiency anaemia (Staffurth, 1951). It is particularly likely to develop after gastrectomy in females in the reproductive period of life and it should be constantly looked for in them. Indeed it would appear to be advisable for any female who has had a partial gastrectomy to take iron intermittently until the menopause.

Pulmonary tuberculosis had arisen in two patients after operation. Pulvertaft (1952) and others have recently suggested that post-gastrectomy patients may be liable to develop pulmonary tuberculosis. Because of this a routine chest X-ray was taken in most of the patients. One had been under treatment for tuberculosis which had developed after

operation. A chest X-ray was taken in 80 (90 per cent.) of the patients and in one undoubted active tuberculosis requiring treatment was discovered, a man of 54 who had no suggestive symptoms and who had not lost weight. Scars of old tuberculosis are very common in South Londoners and it was present in many of these patients with no suggestion of reactivation.

Weight loss. In most cases there was a record of the weight immediately before the operation and this was compared with that present at the follow-up; 57 (63 per cent.) patients had either gained weight or their present one was considered satisfactory; 34 (37 per cent.) were considered to be still under weight, 18 of them having failed to reach their pre-operative figure. It is not surprising that this group comprises many of those with post-gastrectomy symptoms. But 23 (12 Group I, 11 Group II) of them are classed as good results; they looked and felt perfectly well, they did not complain of weakness and they all had good work records.

These disabilities are summarized in Table 5.

Summary

The results of partial gastrectomy for the treatment of uncomplicated gastric and duodenal ulcer are reported from a London teaching hospital three years after the operation.

The results were considered good in 82 per cent. (Grades I and II), fair in 13 per cent. (Grade III_s) and poor in 5 per cent. (Grades III_u and IV).

A brief résumé is given of the post-gastrectomy disabilities that were found in this series.

Acknowledgments

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Bibliography continued on page 429

associate of the College, on a subject connected with general practice. The title for 1955 is 'The influence of home conditions during the first five years of life on the physical and mental health of children.'

Essays must be submitted to the Chairman of the Awards Committee, the College of General Practitioners, 14 Black Friars Lane, London, E.C.4, by September 30th, 1955. They should be typewritten and headed with a motto—the name and address of the sender being enclosed in a sealed envelope with the motto written outside.

Queen Square Prize in Neurology. A prize of £100 will be awarded annually to the postgraduate student, or ex-student, of the Institute of Neurology who presents the best written paper describing clinical work carried out or initiated at the National Hospitals for

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Full particulars from the Dean, Institute of Neurology, (Queen Square), The National Hospital, Queen Square, London W.C.1.

Buckston Browne Prize Essay. The prize, consisting of a medal, together with the sum of £100, will be awarded for the best essay on 'Hypertension,' submitted by August 31, 1956. The prize is open to any member of the medical profession registered in the British Isles or Dominions, and is limited to candidates under 45 years of age.

Further particulars may be obtained from the Honorary Secretaries, Harveian Society of London, 11 Chandos Street, Cavendish Square, London, W.1.

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