

ORIGINAL

Experience in Peptic Ulcer Surgery

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ABSTRACT

In a review of 218 patients with different peptic ulcer disease treated surgically over a nine year period, the occurrence in males was found to be 3.7 times more than in females. The patients had a mean age of 41.6 years and a mean duration of symptoms of 9.8 years. Seventy-eight cases (35.8%) presented with ulcer complications (obstruction, perforation and bleeding) and 44 patients (20.2%) had emergency operations. Although the clinical features were suggestive, gastric secretion studies, barium meal and endoscopy were confirmative investigations to diagnosis. Duodenal ulcers were found in 88.6% of patients, gastric ulcers in 6.4%, oesophageal ulcers in 3.2% and stomal (jejunal) ulcers in another 1.8% of cases. Sixteen patients (7.3%) had previous operations for the same disease. Various operations were performed on all cases, and in 32 patients (14.7%), appendectomy and cholecystectomy were additional procedures to the surgery of the ulcer. There were 3 operative deaths (1.4%) all from the emergency operations group, and postoperative complications developed in 18 (8.3%) cases. Successful results were achieved in 200 patients (91.7%) and there were 18 failures.

In an annual study conducted by us¹, patients with problems related to the gastrointestinal system had the second highest record of attendance in our outpatient clinics (18%) and were the most common

group of inpatients (21.5%). Cases with different peptic ulcerations constituted the major parts of these 2 groups. This report is an attempt to study the various patients with this disease treated by us. To verify the various procedures conducted and their indications. To find the effect of the widely used H₂ — receptor blockades on the number of the surgical patients and to clarify the long term results.

MATERIALS AND METHODS

During the period from August 1975 to August 1984, a total of 218 patients with different peptic ulcer disease were dealt with by one surgeon at one surgical unit in Port Teaching Hospital (Basrah - Iraq) and Al Sabah Hospital (Kuwait). They constituted 172 males aged 20 - 75 years, with a mean age of 42 years and 46 females aged 26 - 70 years, with a mean age of 40 years. The duration of their symptoms ranged between 2 - 25 years with a mean duration of 9.8 years.

As a confirmative aid to clinical diagnosis, endoscopy alone was carried out on 77 patients, barium studies and endoscopy in 61 cases and barium studies out on 24 cases who presented with ulcer perforations. Preoperative gastric studies using insulin hypoglycaemia or pentagastrin as vagal stimulator were performed in 24 patients. Few had postoperative gastric secretion studies and in 4 cases the gastrin level was studied also.

The indications for surgery were failure of medical treatment or intractability in 140 patients (64.2%) and ulcer complications in the other 78 cases (35.8%). Gastric outlet obstruction was present in 34 patients, ulcer perforation in 24 and bleeding in the other 20 cases.

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In patients without ulcer complications, no special preparation apart from fasting overnight was undertaken. However, in obstructive lesions usually 1 - 3 days of gastric suction and washouts together with correction of any water and electrolyte imbalances were necessary prior to surgery. In emergency situations, nasogastric suction and haemodynamic corrections usually preceded the surgery. Postoperative gastric suction was discontinued in the majority of patients immediately after recovery from anaesthesia. In the minority of cases, namely those that were operated on in emergency situations, it was continued for another 1 - 2 days postoperatively. Although preoperative antibiotics were used routinely in those cases with perforations, all other patients did not routinely receive antibiotics except in a few poor risk cases, such as diabetics, the elderly or those with chest problems. Appendectomy and cholecystectomy as additional operations to the ulcer surgery were performed in 28 and 4 cases respectively.

OPERATIVE PROCEDURES

According to the site and type of ulcers, the patients were divided into 5 groups :

1. **Group A** — Duodenal ulcer patients. Table I shows the various operations performed on these patients.

TABLE I

Operations for Duodenal Ulcers

1. HSV	62
2. TV and P	61
— Elective	35
— With underrun. bleed. U.	20
— With closure perfor. U.	6
3. TV and GE	52
— Elective	40
— With closure perfor. U.	12
4. Closure perforated ulcer	6
TOTAL	181

2. **Group B** — Gastric ulcer patients. Table II shows the various operations performed on these patients.

TABLE II

Operations for Gastric Ulcers

1. Prepyloric Ulcers :	
TV and Antrectomy	7
2. Other Ulcers :	
Billroth I PG	4
Billroth II PG	2
Wide ulcer excision with TV and P	1
TOTAL	14

3. **Group C** — All the 7 patients with oesophageal ulcers had Nissen Fundoplication.

4. **Group D** — 16 patients had different operations for peptic ulcers performed previously elsewhere and were operated upon by us as shown in table III.

TABLE III

Operations for Patients with Recurrent Ulcers (First Operation somewhere else)

No.	Diagnosis	Previous OP	Second OP
6	Rec. D.U.	Closure	TV and GE perf. only
3	Rec. D.U.	TV and P	B II PG
2	Stomal U.	GE only	TV
2	Stomal U.	B II PG	TV
2	Rec. D.U.	HSV	TV and GE
1	Rec. D.U.	TV and GE	B II PG
16 (7.3%) TOTAL			

5. **Group E** — 5 patients in our series had a second operation for recurrent ulcers as shown in table IV.

TABLE IV
Reoperation in Our Series

No.	Diagnosis	Previous Op	Second Op
2	Rec. D.U.	Closure perf. only	TV and GE
1	Rec. D.U.	Closure perf. only	HSV
1	Rec. D.U.	TV and P	B II PG
1	Rec. D.U.	TV and P	Antrectomy
1	Hold up at distal stomach & stitch ulcer	Wide ulcer excision with TV and P	Release of adhesions & widening of narrowing & drainage of stitch abscess
6 TOTAL			

RESULTS

The occurrence in males was 3.7 times more than in females and duodenal ulcers were the commonest types, 193 (88.6%).

Table V shows the distribution and sites of all ulcers. Half of the gastric ulcers were located in the

TABLE V

Sites of Ulcers

1. Duodenal	193 (88.6%)
— Alone	181
— With Prepyloric	10
— With oesophageal	2
2. Gastric	14 (6.4%)
— Prepyloric	7
— Other gastric sites	7
3. Oesophageal	7 (3.2%)
4. Stomal (Jejunal Ulcers)	4 (1.8%)
TOTAL	218 (100%)

prepyloric region. The other 7 cases had their ulcers in different sites of the distal part of the stomach, except one patient who had his ulcer situated in the upper part below the fundus. In those patients with both prepyloric or oesophageal and duodenal ulcers, the type of operation chosen was that for the duodenal ulcer, since the latter had the most impressive findings and related symptoms. The majority of the other ulcers were superficial. Elective surgery was performed in 174 (79.8%) of the patients and emergency operations were performed in the other 44 (20.2%) cases.

Anterior duodenal ulcers were commoner than those situated posteriorly, being 84 and 34 respectively. Multiple ulcers were present in the other 66 patients. All the perforated ulcers were duodenal situated anteriorly and all bleeding ulcers were duodenal situated posteriorly. On plain X-ray films, 3 of the 24 perforated ulcer cases had no gas under the diaphragm. Five of all cases were found to have liver cirrhosis and HBsAg positive.

There were 3 (1.4%) postoperative mortalities. Two had bleeding ulcers and one presented with perforation. All 3 patients were in their sixties. Two died suddenly on the third and fourth postoperative days from cardiac arrest due to myocardial infarction, and the third case, who had many medical problems, died immediately after operation as a result of acute respiratory and cardiac failure. Table VI shows the various postoperative complications which developed in 18 patients (8.3%). In those patients

TABLE VI

Postoperative Complications

Dumping	3 (1.4%)
Diarrhoea	4 (1.8%)
Wound Infection	4 (1.8%)
Dysphagia	1 (0.5%)
Chest Infection	4 (1.8%)
Retrosternal Pain	1 (0.5%)
Gastric Stasis	1 (0.5%)
TOTAL	18 (8.3%)

that developed dumping, the symptoms were fortunately not severe and all settled with time. Of the few patients that had temporary dysphagia, one female patient developed severe dysphagia after truncal vagotomy and pyloroplasty (TV and P) and re-admission to the hospital was necessary. She was treated with Metoclopramide and IV fluids and gradually recovered fully. In another patient re-exploration was necessary due to hold up at the distal stomach after 3 months from wide excision of a high gastric ulcer with TV and P. Adhesions were found and released followed by excellent recovery.

Generally follow up time was from 7 months to 5 years. The results of operations were studied according to Visick grading. Visick grade I, when the patient experienced no gastric symptoms of any kind. Grade II, when there was great improvement with minimal temporary symptoms. Grade III, when there were poor results with troubling gastro-oesophageal reflux, dumping and diarrhoea and grade IV when there was complete failure, including all recurrent ulcers and all who had further operation. Generally grade I and II are rated as a success and grades III and IV as failures of operation. Table VII shows the results of long term follow up for groups A to D patients. All group E patients who had a second operation had successful results. Two in group E developed recurrent ulcers but refused to have operations and remained fairly asymptomatic with Cimetidine.

TABLE VII

Follow up — Visick Grade

<i>Group</i>	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>Total</i>
A	132	33	10	6	181
B	10	3	1	—	14
C	5	2	—	—	7
D	10	5	—	1	16
TOTAL	200 (91.7%)		18 (8.3%)		218

DISCUSSION

Of the total 218 patients, 148 were dealt with during the first 4 years of the study, the other 70 cases were treated during the remaining 5 years of the study. Cimetidine has been used widely by us since

1978. There is now no doubt that this H₂ — receptor blockade had a definite therapeutic effect on the healing of peptic ulcers^{2 3 4}.

This drug and recently Ranitidine are now accepted to be the first line of treatment in peptic ulcer patients. Approximately 90% of the patients with duodenal ulcers will respond to medical treatment⁴. Although we do not have controlled trials, the majority of our patients with peptic ulcers and in particular those with duodenal ulcers, were treated with Cimetidine and recently with Ranitidine as a first choice of treatment. Surgery was resorted to in those cases with ulcer complications or those who failed to be controlled medically. We therefore, noticed a reduction in the number of patients coming for surgery.

Many comparative studies have been carried out between the accuracy of barium studies and its relation to endoscopic findings⁵. The accuracy of endoscopy was found to be high provided that reporting is taken as correct. Many of our patients had no barium studies and therefore, we did not regard radiology as essential. Endoscopy for our patients was either performed by us⁶ or by the gastroenterology medical units.

Although we performed gastric secretion studies on 24 of our patients, we failed to continue these tests because of inconvenience to the patient and the limited benefit which we gained from them, in addition to the shortage of facilities and personnel. After thorough elaboration to these tests it has been concluded that acid tests may be helpful in patients with X-ray negative dyspepsia. There is only a minimal tendency for patients with higher acid outputs to have a worse prognosis, and to be operated on, than those with lower acid outputs. This limited prognostic information does not justify routine gastric function tests on patients with known duodenal ulcer, except as part of a research programme.

Similarly to our previous report³ approximately 45% of the patients operated on had active ulcers and in 36.5% multiple duodenal ulcers were found. Although all bleeding ulcers were usually situated posteriorly some were located near the lesser curvature side. Our course of treatment for duodenal ulcers was highly selective vagotomy (HSV). Although we attempted this procedure in cases with impending obstruction, we did not try this operation in bleeding, perforated or obstructive ulcers. The next choice was TV and P which was also the operation of choice in bleeding duodenal ulcers after under-running the

bleeder. Heineke-Mikulicz pyloroplasty was our preference, truncal vagotomy and gastro-enterostomy (TV and GE) were left for those with gastric outlet obstruction or impending obstruction. Although it seems logical to change a perforated anterior acute duodenal ulcer with minimal scarring to pyloroplasty, we did not find this procedure appropriate in cases with much scarring and oedema. In the majority of these patients, not only suturing of the perforation might be difficult but the chances for future obstruction due to scarification are very high. Therefore, all of these cases had TV and GE after closing the perforation and covering it with omentum. Our preference in prepyloric ulcers was truncal vagotomy and antrectomy since it enables us to have a full histological examination of the ulcer. It was demonstrated that the recurrence rate after HSV for ulcers in this location is 35 - 40% at 5 - 6 years, which is thus unacceptable. Partial gastrectomy including the ulcer in the excised part was carried out for all other gastric ulcers whenever applicable, except in one patient. His ulcer was situated high near the cardia below the fundus and was suspected to be malignant, therefore, wide excision locally together with TV and P was carried out.

All operated cases who had hiatus hernia were of long standing with severe uncontrolled oesophagitis. All were treated medically for many years before surgery was decided upon as an alternative treatment.

In all cases Nissen Fundoplication was performed and when there was an associated duodenal ulcer, the operation of highly selective vagotomy was the first step to be carried out before dealing with the hernia.

A mortality rate of 1.4% is considered acceptable, especially when it occurred in patients with ulcer complications and their death was related to medical problems and not directly related to the disease. The incidence of dumping syndrome may be as high as 25%⁹, however, in only 1 - 2% of the cases is the problem of any clinical significance. In our series, this occurred in 1.4% of the cases, they all responded well to dietary regulations and non-specific drugs. Following vagotomy, diarrhoea is common but is usually self limited and is resolved by the time the patient has fully recovered from the operation. Although the incidence of diarrhoea following vagotomy may be as high as 10%^{9,10}, generally less than 1% are seriously troubled with severe diarrhoea. Four patients of ours (1.8%) suffered from this condition and needed re-hospitalisation. They recovered fully with time.

Recurrent ulcers may be due to incomplete vagotomy, insufficient operation, inadequate gastric resection, inadequate drainage procedures, retained antrum, Zollinger-Ellison syndrome or drugs^{10 11}. The incidence of recurrent duodenal ulcer following vagotomy and drainage is approximately 10%. However, following highly selective vagotomy the incidence is below 10% with less morbidity compared with the truncal vagotomy and drainage operations^{12 13 14}. This incidence is reduced to 2% or less with vagotomy and antrectomy, but with higher morbidity.

The assessment for recurrence in our patients was difficult. Firstly not all patients were able to be followed up for sufficient time and secondly the study included various types of operation. Although a prevalence of 6.8% appears to be good this will certainly be more appropriate if it was an analysis of the different types of operation accompanied by proper follow up of all patients. This was difficult for many reasons.

CONCLUSION

Approximately one third of our patients presented with ulcer complications. Endoscopy was more useful than radiology in diagnosis and follow up. Gastric secretion studies are not essential in diagnosis and might give misleading results, however, they might be useful in recurrent ulcers. Flexible ways of surgical approach are recommended to promptly deal with the various types of ulcers, especially with the new techniques. Highly selective vagotomy is a good operation for uncomplicated duodenal ulcers, whilst some form of gastric resection is still needed for gastric ulcers until further evaluations can be completed for the newer techniques. Due to the implementation of H2 — receptor blockade drugs as first choice for treating peptic ulcer patients with high ulcer healing rate, the number of surgical patients was reduced but the situation could change in the future. In our communities we still have some difficulties in accurately reporting the long term results of all our patients.

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