

Emergency Surgery for Bleeding Peptic Ulcer and Erosive Gastritis – A Study of 124 Cases

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Summary

THIS IS a review of the immediate results of emergency surgery for medically uncontrollable bleeding peptic ulcer and erosive gastritis in 124 patients. A high prevalence occurs in the Chinese compared with the other racial groups. Gastric resection carried a acceptable mortality of 2.8% for gastric ulcer and 9% for erosive gastritis. For duodenal ulcer, gastric resection had a mortality of 14%, higher than the 10% with vagotomy and suture ligation. The frequency of rebleeding was however higher with vagotomy. Although these results were not statistically significant, better overall results might be expected if gastric resection is limited to good risk patients with bleeding duodenal ulcer.

Although bleeding peptic ulcer and erosive gastritis occur commonly there has as yet been no review of the problem in this country. A report of our experience might thus be of some value in establishing the prevalence of the different types of ulcers and erosive gastritis in relation to age, sex and racial groups as well as their clinical presentation. The factors affecting mortality are also analysed; in particular, an attempt has been made to define more clearly the choice of surgical procedure in the treatment of bleeding ulcer and gastritis, which has remained a controversial problem.

Methods and Materials

Since the inception of the University Hospital, it has been our policy to admit and treat all cases of upper gastrointestinal bleeding directly into the surgical wards thus avoiding undue delay in surgical

intervention. This report covers the five year period from January 1968 to December 1972, during which a total of 562 patients with upper gastrointestinal bleeding were treated. Initial treatment consisted of continuous nasogastric suction and intravenous administration of crystalloid solutions. Whole blood was transfused when shed blood exceeded one litre in volume or when the systolic blood pressure fell to 90 mmHg. Diagnosis of bleeding peptic ulcer or erosive gastritis was usually made clinically. Barium studies were performed when there was uncertainty as to the cause of the haemorrhage. Attempts at gastroscopy during massive bleeding proved frustrating and was performed only after bleeding subsided.

Emergency laparotomy was carried out on 124 patients with peptic ulcer or erosive gastritis in whom the bleeding was massive (i.e. fall of systolic blood pressure to 90 mmHg) or was continual and recurrent after 24 hours, and in the presence of one of the following factors:— (1) Age over 40, (2) a proven history or barium diagnosis of peptic ulcer, (3) previous haemorrhage, (4) shortage of blood.

Results

The 124 patients consisted of 63 cases of duodenal ulcer, 41 of gastric ulcer, 16 of erosive gastritis and 4 of recurrent and stomal ulcer (Table I).

1. Age (Table II)

The age range, and mean age (50 ± 1) were similar in patients with duodenal and gastric ulcer and in erosive gastritis.

Table I

Diagnosis, Type of Operation and Mortality in 124 Patients with Bleeding Peptic Ulcer and Erosive Gastritis

Diagnosis	Total No. of Patients	Resection	Vagotomy & Drainage	Suture of Ulcer	Laparotomy only
Duodenal Ulcer	63(8)	43(6)	20(2)	—	—
Gastric Ulcer	41(3)	36(1)	3	2(2)	—
Erosive Gastritis	16(2)	11(1)	3	—	2(1)
Recurrent & Stomal Ulcer	4	2	2	—	—

Figures in parenthesis indicates number of deaths.

Table II

Age in 124 Patients with Bleeding Peptic Ulcer and Erosive Gastritis

Diagnosis	Total No. of Patients	Age Range	Mean Age
Duodenal Ulcer	63	17-80	49
Gastric Ulcer	41	17-77	51
Erosive Gastritis	16	15-78	49
Recurrent & Stomal Ulcer	4	33-57	48.5

2. Race and Sex (Table III)

There was a predominance of Chinese patients, 113 cases, 91%, far in excess of their hospital utili-

sation, 55%; $P < 0.5$. In contrast, the Malays, Indians, Pakistanis and Ceylonese formed a much smaller proportion of patients, 8% in comparison with their hospital utilisation, 41%. Males were five times more commonly affected than females.

3. History of Dyspepsia

Two thirds of patients had ulcer symptoms and in more than half of these exceeded five years. Half the patients with erosive gastritis had varying periods of dyspepsia.

4. Previous Haemorrhage

One third of the patients had one or more episodes of previous haemorrhage.

5. Clinical Presentation

Melaena was the commonest presentation, 108 cases, 87%; haematemesis occurred in 75 cases, 60%. Shock, with blood pressure 90/60 mmHg and below, was present on admission in 20 patients

Table III

Analysis of Bleeding Peptic Ulcer @ Erosive Gastritis by Race and Sex and in relation to Hospital Utilisation

	Chinese		Indians Pakistanis Ceylonese		Malays		Others		All Races		Total
	M	F	M	F	M	F	M	F	M	F	
Duodenal Ulcer	47	10	4	—	1	—	1	—	53	10	63
Gastric Ulcer	30	8	2	—	1	—	—	—	33	8	41
Erosive Gastritis	11	3	—	—	2	—	—	—	13	3	16
Recurrent & Stomal Ulcer	4	—	—	—	—	—	—	—	4	—	4
Total	113		6		4		1		124		124
Percentage	91		4.8		3.2		1				
Hospital Admission (1969/1970) percentage	55		26		15		4				

Male:Female ratio = 5:1

while in another 16 patients shock developed as a result of continued or recurrent haemorrhage in the wards. On admission the haemoglobin exceeded 11 gm. in 34 patients, and was 9 to 11 gm. in 26 patients. In 64 cases, 51.6%, the haemoglobin was 3.2 to 9 gm., suggestive of massive haemorrhage prior to admission. In another 12 patients the haemoglobin fell to below 9 gm. as a result of further bleed and in spite of blood transfusion. The total blood transfusion per patient averaged 7.5 units.

6. Ulcerogenic Drugs

A history of ingestion of known ulcerogenic drugs was obtained in 10 patients (Salicylates, 9; Corticosteroids, 1). Several other patients had taken various "Chinese medicine", and some of these might contain salicylates. Of the 16 patients with erosive gastritis, one had taken aspirin and another two "Chinese medicine."

7. Barium Meal

In 13 patients a barium meal had been done prior to haemorrhage. In 20 patients emergency barium studies were done and in 15 of these the lesion localised was confirmed at operation. We have performed barium studies more frequently in the later part of the series and have found it to be a valuable diagnostic aid.

8. Laparotomy

In 56 patients, 45.2%, surgery was performed within 24 hours of admission because of massive haemorrhage. Continued or recurrent haemorrhage necessitated surgery for 68 patients 54.8% over a one to seven day period.

In all cases the stomach and duodenum were examined by a gastroduodenostomy. The lesions found and operations performed are summarized in Table I. Resections were generally performed, but because of individual preference vagotomy or drainage procedures were also done.

9. Postoperative Complications and Mortality (Table I)

There were 13 deaths in the whole series of 124 cases, a mortality rate of 10.5%. The mortality rate was 12.5% in both duodenal ulcer (8 deaths in 63 cases), and erosive gastritis (2 deaths in 16 cases). In gastric ulcer it was 7.5% (3 deaths in 41 cases).

a) Effect of Age

The mean age of the 13 patients who died was 61, a decade higher than the average of 49 for the whole series. No death occurred below the age of 40.

b) Effect of Systemic Disease

There was no death in the 56 patients without systemic disease, the 13 deaths being confined to the 68 patients with systemic disease. Severe systemic disease was directly responsible for three deaths (cardiopulmonary 2, diabetic coma 1) and formed important contributory causes of death in the other 10. Stress ulcers caused death in four patients.

c) Effect of Operative Procedure

i) Bleeding Duodenal Ulcer

The incidence of recurrent bleeding, 5 in 20 cases, 25% was higher following suture ligation with vagotomy and drainage than following gastric resection 7 in 43 cases, 16.3%. Leakage however occurred more frequently with gastric resection, 5 in 43 cases, 11.6% compared with vagotomy and drainage, 1 in 20 cases, 5%. The operative mortality, 6 in 43 cases, 14% was also higher with gastric resection than after vagotomy and drainage, 2 in 20 cases, 10%. The two groups of patients treated by resection and vagotomy with drainage were comparable in age and degree of haemorrhage, though a relatively greater proportion of patients with systemic disease, 12 of 20 cases, 60% were treated by vagotomy and drainage than by gastric resection, 17 of 43 cases, 40%. Although differences exist in operative mortality and complications between gastric resection and vagotomy, the differences were not statistically significant.

ii) Gastric Ulcer

There were three deaths in 41 cases, a mortality rate of 7.5%. 36 patients were treated by gastrectomy with one fatality, 2.8%. Vagotomy with drainage and suture ligation was performed on three patients without mortality. In the early part of the study period, two patients with severe systemic disease (Cardiopulmonary, liver failure) were treated by suture ligation without vagotomy. Both had recurrent haemorrhage but subsequent gastrectomy did not prevent mortality. One other patient bled after gastrectomy but improved with blood transfusion.

iii) Erosive Gastritis

There were 16 cases with two deaths, a mortality rate of 12.5%. 11 patients had gastric resection with one death, and two instances of recurrent haemorrhage. Three patients underwent vagotomy and drainage with one recurrent bleed and no mortality. The second death was due to cardiac arrest on the table before definitive surgery.

iv) *Recurrent and Stomal Ulcer*

Vagotomy (with revision gastrectomy in 2 cases) was performed on four patients without operative mortality.

Discussion

There is greater frequency of bleeding duodenal ulcer compared with gastric ulcer (1.5: 1). This is in keeping with earlier reports by Sreenevasan (1966) of 685 radiologically proven peptic ulcers and Ti and Yong (1973) of 73 perforated peptic ulcers. Erosive gastritis form 12.8% of our series, being of the same order of frequency, 10%, as reported by Desmond and Reynolds (1972).

The low prevalence of bleeding peptic ulcer in the Malays, Indians, Pakistanis and Ceylonese and the predominance in the Chinese is striking. This strongly related racial prevalence has been reported in radiological proven peptic ulcer (Sreenevasan, 1966) and in peptic ulcer perforation (Alhady, 1965; Sreenevasan, 1966; Ti and Yong, 1973). No satisfactory explanation has yet been given for this racial difference. The socioeconomic and cultural background and dietary habits differ widely in these racial groups. Alhady and Kandiah (1967) reported that there is no difference in maximal acid output in normal controls amongst the three major races but the number of subjects studied were few.

The mortality of our series compares favourably with others and we believe that this is at least due in part to our policy of direct admission, observation and treatment in the surgical wards so that there is no undue delay in surgical treatment.

The low incidence of complications and operative mortality, 2.8% following resection for bleeding gastric ulcer seems to justify it as the best procedure for the treatment of this condition. Erosive gastritis had also been treated with an acceptable mortality of 9% by gastrectomy and this would confirm Desmond and Reynolds's (1972) assertion that gastrectomy is the procedure of choice for the treatment of these difficult cases.

Our experience indicate that the operative mortality of 12.7% in bleeding duodenal ulcer might possibly be reduced by a more selective policy in the choice of operative procedure. In good risk patients, resection may be done safely, being the surest way to control haemorrhage. The elderly patient with severe systemic disease and bleeding duodenal ulcer are particularly difficult problems. A policy of strictly performing only conservative surgery (vagotomy with drainage and suture ligation) might reduce the high operative mortality in these poor risk patients.

References

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