

REVIEW OF HAEMATEMESIS AND MELAENA IN THOMSON ROAD GENERAL HOSPITAL, WITH SPECIAL REFERENCE TO PEPTIC ULCER

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SYNOPSIS

A review of 718 patients presenting with acute upper gastrointestinal haemorrhage between 1965 and 1970 showed that bleeding peptic ulcer was the commonest cause (572 cases), accounting for 79.7%, followed by bleeding oesophageal varices (11.1%) and gastric carcinoma (7.8%). In the peptic ulcer group, there was a definite male predominance, affecting the Chinese race more than the Malay race. The high incidence of subsequent recurrent bleeding was notable. In the sub-group of bleeding gastric ulcer patients, their mortality rate was high. Significant factors contributing to this high mortality were the older age incidence, the more severe mode of bleeding, the higher incidence of recurrent haemorrhage, and the consequently greater frequency of surgical intervention. The converse was the case in bleeding duodenal ulcers in which the prognosis was much better. Acute gastric conditions (superficial ulcerations, erosions and haemorrhagic gastritis) also contributed a fair percentage of cases. Their relation to drug ingestion was established. Gastroscopy, when performed early was found to be useful in their detection. The elderly patients fared badly because of their lower resistance to the stress of repeated haemorrhage, and they accounted for the majority of the deaths in this series.

INTRODUCTION

Acute upper gastrointestinal haemorrhage poses a common recurrent problem in the medical wards in Singapore. A recent study of peptic ulcer (Chua and Seah, 1969) showed that haematemesis and melaena is a common complication, occurring in 46.8% of the patients. Since 1965, a prospective study has been carried out on patients who presented with acute upper gastrointestinal haemorrhage for the first time to Thomson Road General Hospital. The source of the haemorrhage was confirmed either by surgery, radiology or endoscopy. The following is a review based on such a study over a period of 6 years (1965-1970).

CAUSES OF HAEMATEMESIS AND MELAENA

Table I lists the common causes encountered in this period of study. There were 718 cases; the vast majority were bleeding peptic ulcers, accounting for 79.7% of the cases. Haemorrhage from oesophageal varices accounted for a much smaller number (11.1%), followed by carcinoma of the stomach (7.8%).

Table II lists the less common causes. Systemic disease such as uraemia, bleeding disorders, lep-

TABLE I
HAEMATEMESIS AND MELAENA
COMMON CAUSES

	No.	%
Bleeding Peptic Ulcer	572	79.7
Bleeding Oesophageal Varices	80	11.1
Carcinoma Stomach	56	7.8
Miscellaneous Local Causes	10	—
TOTAL	718	—

TABLE II
RARE CAUSES

Systemic Diseases	Benign Tumours
Hiatal Hernia	Diverticuli
Stomal Ulcer	Specific Ulcers
Reticulosis	Foreign Bodies

tospirosis and haemorrhagic fever occasionally presented with gastrointestinal bleeding as the major problem. Amongst the rarer gastrointestinal conditions, there were 3 cases of stomal ulceration, 1 case of hiatal hernia with oesophageal ulcer, and an interesting case presenting with massive gastrointestinal haemorrhage, fever and upper abdominal

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discomfort due to an enlarged spleen. Laparotomy showed abdominal lymphoma eroding the gastric wall. A single case of reticulum cell sarcoma involving primarily the stomach, and a case of gastric leiomyosarcoma completed the list of rare gastric conditions.

Further down the gastrointestinal tract, another rare example of haematemesis was illustrated by the case of an elderly woman who presented with an acute episode of epigastric and right upper abdominal pain followed shortly by severe gastrointestinal haemorrhage and jaundice. At laparotomy a choledochal cyst was found, with areas of erosions in its wall, bleeding into the duodenum. Choledochal cyst resulting in haemobilia is extremely rare. From lower down the intestinal tract, there were single instances of bleeding from a haemorrhagic leiomyoma of the upper jejunum, a bleeding jejunal diverticulum and a Meckel's diverticulum. In these 3 patients, who presented with severe melaena, repeated gastric aspirations did not show any evidence of blood, indicating that the source of the bleeding was distal to the duodenum. An illuminating clinical experience was obtained from the case of a young patient who gave a history of pyrexia preceding a bout of severe melaena. He had taken analgesics for his symptoms before admission, and the initial diagnosis was drug-induced gastric ulcer. Investigations, however, showed that he had typhoid fever, and as repeated gastric aspirations were free of blood, the source of the melaena was typhoid ulcerations of the small intestine.

Ingested foreign objects such as animal bones can occasionally be responsible for massive gastrointestinal bleeding. An elderly patient, who had no previous history of dyspepsia, presented with severe haematemesis and a short history of retrosternal pain. At laparotomy, an animal bone was found in the blood-filled upper small intestine. Animal bones have been known to lodge in the narrower parts of the oesophagus, giving rise to retrosternal pain and massive haemorrhage from an aorto-oesophageal fistula.

BLEEDING PEPTIC ULCER

This important group of patients accounted for the majority of the bleeders, and a more detailed analysis of these patients (572) is given in the following pages.

Sex Distribution

Table III shows that there was a male predominance, the male to female ratio being 3.7:1.0. In contrast to this high male incidence, the sex distribution for all acute medical patients in the same

hospital during this period of study was 1.6:1.0. Further analysis showed that this marked male dominance occurred only in the young age groups, the sex distribution being more even in those above the age of 50 years.

TABLE III

PEPTIC ULCER: SEX DISTRIBUTION

Males	-	-	-	-	-	450 (79%)
Females	-	-	-	-	-	122 (21%)
M:F ratio for Bleeders	-	-	-	-	-	3.7:1.0
M:F ratio for all Medical Cases	-	-	-	-	-	1.6:1.0

Age Distribution

Table IV indicates that the age incidence was fairly evenly distributed, with a peak in the 6th decade. When the age distribution was analysed separately for duodenal and gastric ulcers, it was found that the former was composed of a younger age group, the average age of presentation being one decade earlier.

TABLE IV

PEPTIC ULCER: AGE DISTRIBUTION

Age Groups	Bleeding P.U. (%)
11-20	10.5
21-30	12.8
31-40	18.9
41-50	15.7
51-60	19.8
61-70	15.9
71-80	5.8
81-90	0.7

Racial Distribution

Table V compares the racial distribution of patients with bleeding peptic ulcer with those in the hospital population and Singapore. Peptic ulcer appeared to occur more frequently amongst the Chinese. The Malays, on the other hand, were less frequently affected. These data, however, served merely as pointers to the racial incidence as seen in hospital practice.

TABLE V

PEPTIC ULCER: RACIAL DISTRIBUTION

Race	Bleeding P.U. (%)	Hosp. Adm. (%)	Singapore (%)
Chinese	91.3	73.0	75.0
Malays	4.4	8.0	14.0
Indians	3.1	17.0	9.0
Others	1.2	2.0	2.0

Types of Peptic Ulcer

The distribution amongst bleeding peptic ulcers, as shown by Table VI, revealed that acute gastric ulcers occupied an important place, accounting for nearly 20% of the patients. The commonest types were duodenal and pyloric ulcers (60.7%), followed by chronic gastric ulcers (22.4%).

TABLE VI

TYPES OF BLEEDING PEPTIC ULCER

Types	No.	%
Duodenal and Pyloric U.	347	60.7
Chronic Gastric Ulcer	128	22.4
Acute Gastric Ulcer	108	18.9

Mode of Presentation

Melaena was found to be the major mode of presentation, as shown by Table VII. This was due to the high incidence of duodenal ulcers which usually manifested with melaena alone. Recurrent bleeding was found to be high on follow up, its incidence being 28.7%. The likelihood of a subsequent bleed was greater in this group of patients than in those who did not have a history of bleeding.

TABLE VII

HAEMATEMESIS AND MELAEANA
MODES OF PRESENTATION

Haematemesis and Melaena	43.5%
Melaena alone	41.7%
Haematemesis alone	14.8%
Subsequent Recurrent Bleeding	28.7%

Drug Ingestion and Peptic Ulcer

Table VIII shows that 32.5% of the patients gave a history of analgesic ingestion before the onset of bleeding. The incidence for patients with acute gastric ulcers was 81.0%. In contrast, the incidence for all acute medical cases in the same hospital was 13.0%. The difference in incidence of analgesic ingestion amongst these groups of patients was significant, thus showing that there was a definite association between analgesic intake and bleeding peptic ulcer.

TABLE VIII

BLEEDING PEPTIC ULCER AND
ANALGESICS

Incidence of drug ingestion amongst:

- | | |
|---|-------|
| 1. Patients with Bleeding P.U. (Whole Group) | 32.5% |
| 2. Patients with Bleeding from Acute Gastric U. | 81.0% |
| 3. General Medical Patients | 13.0% |

Partial Gastrectomy

There were 165 patients (29%) who had to be submitted for partial gastrectomy for the relief of bleeding during their first admission. By far the commonest surgical procedure used was the Polya type of gastrectomy and the surgical mortality for this group (165 patients) was 9%. This figure was higher than those obtained from patients who underwent partial gastrectomy for other indications such as pyloric stenosis and intractability. The difference could be accounted for by the fact that for the bleeding cases a greater number of operations were performed as emergencies.

Duodenal and Pyloric Ulcers

These ulcers seemed to affect a younger group of patients, as shown by Table IX. The maximal age incidence was between 21-40 years. Melaena as the main presentation was found in 51.4%, with a further 40% having both haematemesis and melaena. Recurrent bleeding on follow up was found in nearly a third of the cases. On first admission, 20% underwent partial gastrectomy for bleeding, with a surgical mortality of 3.5%. The overall mortality for the whole group of 347 patients was 0.9%.

TABLE IX
HAEMATEMESIS AND MELAENA
DUODENAL ULCERS (347 PATIENTS)

1. % Incidence Amongst Bleeding P.U.	60.7
2. Age Incidence:	
% of D.U. Patients in 21-40 years Group	40.0
3. % Presenting with Melaena Alone	51.4
% with Melaena ± Haematemesis	92.0
4. % with Recurrent Bleeding	31.8
5. % Who had Gastrectomy	21.0
6. Surgical Mortality (%)	3.5
7. Overall Mortality (%)	0.9

Chronic Gastric Ulcers

Table X shows that this group of patients were much older, with 61 % between 51 and 70 years of age. By contrast, when the age distribution for the whole group of bleeding peptic ulcer was analysed, only 36.5% of the patients were in the same age range. The majority of cases of gastric ulcer presented with haematemesis, a symptom which was much more distressing to the patient than melaena. More than half of the patients had surgical intervention, and the incidence of subsequent bleeding was high (41.4%).

TABLE X
HAEMATEMESIS AND MELAENA
CHRONIC GASTRIC ULCERS
(128 PATIENTS)

1. % Incidence Amongst Bleeding P.U.	22.4
2. Age Incidence:	
% of G.U. Patients in 51-70 years Group	61.0
% for Whole Group of Patients between 51-70 years	35.7
3. % Presenting with Haematemesis	68.0
4. % with Recurrent Bleeding	41.4
5. % Who had Gastrectomy	54.7
6. Surgical Mortality (%)	11.3
7. Overall Mortality (%)	7.0

Table XI tabulates the differences between duodenal and gastric ulcers, and the higher incidence of serious associated conditions (such as active pulmonary tuberculosis) in gastric ulcers should be noted.

TABLE XI
D.U. AND G.U. COMPARED

	D.U.	G.U.
Relative Incidence	2.7	1.0
Maximal Age Incidence in Decade	4th	6th
Sex Distribution (M:F ratio)	4.8	3.3
% Requiring Gastrectomy	21.0	54.7
Surgical Mortality (%)	3.5	11.3
Associated Diseases—P.T.B.		
(%)	4.6	14.1
Chronic Lung Disease	1.2	7.0

Acute Gastric Ulcers

This group consisted of acute superficial gastric ulcerations, usually associated with gastritis and gastric erosions. The local incidence is compared with that reported elsewhere in Table XII. The high incidence of drug ingestion in this group (81%) should be stressed. Haematemesis was the usual mode of presentation. Massive bleeding was by no means uncommon, as 20.4% of the patients had surgical treatment. Gastroscopy was found to be valuable in the diagnosis of acute gastric ulceration. Table XIII shows that of the 85 patients submitted for gastroscopy soon after admission for haematemesis, a large percentage had acute gastric conditions.

TABLE XII
ACUTE GASTRIC ULCERS

1. % Incidence Amongst Bleeding P.U.	18.9
% Incidence Reported elsewhere (Aver.)	30.0
2. % with Drug History	81.0
3. % presenting with Haematemesis	80.0
4. % who had Gastrectomy	20.4
5. % with Recurrent Bleeding	10.5

TABLE XIII
GASTROSCOPY IN HAEMATEMESIS
AND MELAENA

Number of Patients Examined	85
Number with Acute Gastric Lesions*	40
Chronic Gastric Ulcers	25
Gastric Carcinoma	7
Anastomotic Ulcer	1
Number with No Gastric Abnormality	12

*Denotes acute gastric ulcers/erosions.

Deaths

Only deaths directly related to the episodes of bleeding or to surgery were considered. The overall mortality for the whole group of 572 patients was 3%. Table XIV shows that the aged patients were the most severely affected, 94% of the deaths occurring in those above 50 years of age. However, amongst those that died, there was no significant difference in the sex incidence.

Table XV shows the mortality rate in those submitted for surgery. When the figures between the earlier (1965 to mid-1968) and later (mid-1968 to 1970) periods were compared, there was a percentage decrease in mortality in the later period. This difference was more marked in those patients with duodenal ulcers and chronic gastric ulcers.

COMMENTS

That acute gastrointestinal haemorrhage occurred frequently is borne out by the figures given during this period of study. It should however be noted that these figures give only the minimal incidence, as a small number of cases were seen in whom no definite cause was discovered by subsequent investigations. This group of patients have been presumed by some to have acute gastric lesions (Jones, 1969). These acute lesions are not easily detectable by barium meal examination, but some are within the range of the gastroscope, and they should be visible if this procedure were performed early before the signs have disappeared, usually within a week.

The vast majority of gastrointestinal haemorrhage that occur in systemic diseases usually do so as a complication rather than as a major presenting symptom. In this study, the only systemic disease that was found to present with haematemesis and melaena as the first and only symptom was idiopathic thrombocytopenic purpura. The skin and mucosal manifestations might not be present on admission. Hence, in the early management of cases of bleeding from the gastrointestinal tract, a watch for the emergence of bleeding from other sites should be kept. This is particularly important as steroids in high doses, which are contraindicated in other cases of gastrointestinal haemorrhage, will reduce the severity of the bleeding in thrombocytopenic purpura.

The rare local causes of gastrointestinal bleeding make interesting case readings but they are unimportant in clinical practice. Nevertheless, repeated gastric aspirations shown to be free of blood should make one suspect the probability of bleeding further down the intestinal tract.

Amongst the commoner causes, it should be mentioned that carcinoma of the stomach may present with bleeding as its first symptom. Fifty-six such cases were found, which represented 12% of all cases of carcinoma of the stomach seen during this period of study. This would certainly constitute an important indication for an early investigation of patients with haematemesis, more so if they belong to the elderly group. Bleeding from oesophageal varices commonly occurs as a complication of

TABLE XIV
DEATHS IN HAEMATEMESIS AND MELAENA

1. Age: High Incidence in the Aged Patients: 94.0% of Deaths Occurred in those above 50*
2. Sex: Male : Female ratio in the Dead = 3.3:1.0 Male : Female ratio in Whole Group = 3.7:1.0

*In the whole series only 42.2% of the patients were above 50 years.

TABLE XV
SURGICAL MORTALITY

Types of Ulcer	Early Period (%)	Late Period (%)	Whole Period (%)
Duodenal Ulcers	6.0	1.9	3.5
Chronic Gastric Ulcers	19.4	6.1	11.3
Acute Ulcers	12.5	21.4	18.2
All Cases	12.5	6.0	9.0

portal hypertension secondary to liver cirrhosis; this was confirmed in the present study. In such cases, other features of liver disease are usually present; here splenomegaly is an important sign, though exceptional cases have been encountered where this sign could not be elicited easily and the other stigmata of liver disease are absent. A hitherto difficult problem in differential diagnosis in such instances, this could now be largely resolved with the help of a flexible oesophagoscope such as the Olympus EF model.

The most important cause of haematemesis and melaena, as in similar series elsewhere, was bleeding peptic ulcer (Bockus, 1963). Together with the acute gastric lesions, this formed nearly 80% of all cases, an incidence comparable to most series reported in various parts of the world. There was a definite male predominance up to the 5th decade. Age distribution was fairly even, with a peak in the 6th decade, followed by a sharp drop in incidence amongst the older patients. This could be attributed to the smaller number of aged subjects in the population, and hence a smaller number of persons exposed to the risk of peptic ulceration.

Duodenal ulcer was the most common of the group, but the average age of presentation was 10 years earlier than gastric ulcer. Analysis showed that if the patient with bleeding duodenal ulcer were below 50 years of age, the prognosis was good, the overall mortality for the whole group being less than 1%. On the other hand, patients with bleeding gastric ulcer tended to have more severe haemorrhage, as indicated by a higher percentage requiring surgical intervention. Associated conditions such as significant pulmonary diseases were more common; this, together with the severer form of bleeding, were two major factors reducing their survival rate.

Analgesic drugs were more commonly taken by patients with bleeding peptic ulcer compared with general medical patients. During minor epidemics of influenza, the incidence of bleeding gastrointes-

tinal tract was higher than in other periods of the year. This was well illustrated by the hospital's experience during the influenza epidemic between July and September in 1968. Within this period of 40 days, there was a sharp three-fold increase in incidence of bleeding cases over the preceding months. More than half of the cases had been taking analgesic drugs prior to the onset of bleeding.

The racial difference was well borne out by this study, though the data was based on hospital statistics. Wider epidemiological surveys are needed, with consideration of factors such as statistics of admissions to private hospitals and attendances at out-patient and private clinics, to confirm this racial difference. Previous regional studies on peptic ulcer have noted similar differences between the Chinese and the Malays, and this probably has a multi-factorial basis, both environmental and constitutional factors being involved, as was shown by a recent study (Alhady, 1968).

The elderly patients presenting with haematemesis and melaena were shown to fare badly. Repeated and massive haemorrhage were more common in this group, due to arteriosclerotic arteries in most instances. Other adverse factors were a higher incidence of emergency surgical intervention and a poorer general condition, especially amongst those with gastric ulcers having associated pulmonary diseases.

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