

# Bleeding duodenal ulcer in patients admitted to Erbil City Hospital, Iraq: 1996–2004

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نزف القرحة الإثنا عشرية لدى المرضى في مستشفى مدينة إربيل العراقية: من 1996 إلى 2004

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**الخلاصة:** تم في هذه الدراسة تقييم معدل تكرار نزف القرحة الإثنا عشرية لدى المرضى الذين يعانون من نزف معدي معوي، وأدخلوا من قسم الطوارئ في مستشفى مدينة إربيل، وذلك خلال المدة 1996 – 2004. ومن بين 740 مريضاً من هؤلاء المرضى، تم تشخيص حالة 556 منهم (أي نسبة 75.1%) على أنها قرحة إثنا عشرية نازفة. وعُولج 312 مريضاً منهم (أي نسبة 56.1%) معاملة محافظة، في حين عُولج 238 منهم (أي نسبة 42.8%) بالجراحة. وبلغ معدل الوفيات على مدى السنوات التسع 4.7%. وانخفض معدل الوفيات على مدى الفترات الثلاث المتتالية، والتي تمتد كل منها ثلاث سنوات، من 7.1% في أول ثلاث سنوات إلى 2.2% في آخر ثلاث سنوات. أما معدل الوفيات العام بين المرضى الذين عولجوا جراحياً، والبالغ عددهم 238 مريضاً، فكان 8.4%. وقد انخفض هذا المعدل من 13.3% في المدة 1996 – 1998 إلى 3.1% في المدة 2002 – 2004. وبلغ معدل الوفيات في المرضى الذين عولجوا 1.9%.

**ABSTRACT** The frequency of bleeding duodenal ulcer was assessed in patients admitted with upper gastrointestinal bleeding to Erbil City hospital from the Emergency Department during 1996–2004. Of 740 such patients, 556 (75.1%) were diagnosed with bleeding duodenal ulcer: 312 (56.1%) were managed conservatively while 238 (42.8%) underwent surgery. Overall mortality over the 9 years was 4.7%. Over the 3 consecutive 3-year periods, mortality fell from 7.1% in the first 3 years to 2.2% in the final 3 years. Overall mortality among the 238 patients treated surgically was 8.4%. This fell from 13.3% in 1996–98 to 3.1% in 2002–04. Mortality in the conservatively managed patients was 1.9%.

## L'ulcère duodénal hémorragique chez les patients admis de 1996 à 2004 à l'hôpital d'Erbil en Iraq

**RÉSUMÉ** La fréquence de l'ulcère duodénal hémorragique a été évaluée chez les patients en provenance du Service des Urgences admis à l'hôpital d'Erbil pour hémorragie digestive haute entre 1996 et 2004. Sur les 740 patients concernés, il a été diagnostiqué 556 cas (75,1 %) d'ulcère duodénal hémorragique, dont 312 (56,1 %) ont fait l'objet d'un traitement conservateur et 238 (42,8 %) ont subi une intervention chirurgicale. Sur les 9 années considérées, la mortalité globale a été de 4,7 %. Au cours des 3 périodes triennales consécutives, on a constaté une chute de la mortalité, celle-ci passant de 7,1 % pour la première période à 2,2 % pour la troisième. La mortalité globale chez les 238 patients chirurgicaux a été de 8,4 %, soit une chute de 13,3 % pour la période 1996-1998 à 3,1 % pour la période 2002-2004. Chez les patients ayant reçu un traitement conservateur, la mortalité a été de 1,9 %.

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## Introduction

Duodenal ulcer disease is the commonest cause of severe upper gastrointestinal bleeding, accounting for 30%–70% of total cases [1–3]. Duodenal ulcer bleeding is 4 times commoner than gastric ulcer bleeding and is usually posterior and involves erosion in a branch of the gastroduodenal artery [1,4–6]

Significant bleeding occurs in 10% to 15% of all duodenal ulcer patients [6–8], and significant intervention is required in up to 20% of these patients. The elderly are more likely to bleed persistently because atherosclerotic vessels contract less, and surgery may be necessary in a higher proportion of patients over 60 years old.

Retrospective studies have shown that haematemesis and melaena which follow bleeding duodenal ulcer account for more than 30% of admissions with upper gastrointestinal haemorrhage [1,2,9], and bleeding duodenal ulcer is a significant cause of death in hospital, with a mortality of 5%–7% [3]. To improve results emergency measures should be undertaken [8,10,11].

Previous retrospective analyses in our region have shown a relatively high mortality of about 15% for bleeding duodenal ulcer [12]. This finding prompted the establishment in 1999 of a separate haematemesis and melaena unit in our hospital where patients are managed according to a defined protocol depending on the cause of bleeding.

The aim of this study was to review the medical treatment and medical outcome of cases with upper intestinal bleeding admitted to Erbil City hospital from the Emergency Department over a 9-year period, 1996–2004.

## Methods

The medical records of all patients with upper intestinal bleeding admitted to Erbil City hospital from the Emergency Department over a 9-year period, 1996–2004 were reviewed and the following data extracted: cause of bleeding, procedures undergone, clinical symptoms, management, outcome and follow up. Patients with other serious conditions which may lead to bleeding or affect the treatment of duodenal ulcer, such as human immunodeficiency virus infection, uncontrolled diabetes mellitus, uncontrolled hypertension, decompensated liver disease, renal failure, ischaemic heart disease, autoimmune disorders, and patients under anticoagulant therapy were excluded from this study.

The hospital management policy specified immediate resuscitation and endoscopy within 24 hours of admission. The indication for blood transfusion was shock and/or haemoglobin < 10 g/dL. During the first 2 years of the study, some patients had subsequent barium meal examination after acute bleeding attacks if the endoscopy results were suspicious for some reason or other. However after this, barium meal examination was only performed in patients who could not undergo endoscopic examination. In addition, endoscopy was used to collect biopsy specimens from gastric mucosa in all the cases for isolation of *Helicobacter pylori*. Since the eradication of *H. pylori* decreases the risk of recurrent duodenal ulcer and may prevent recurrent bleeding, a combination of amoxicillin metronidazole and clarithromycin for 4 weeks was administered to all patients positive for *H. pylori* infection as part of the standard hospital procedure.

After 12–24 hours had passed and the bleeding had clearly stopped, a patient who felt hungry was allowed oral feeding. Twice-daily haematocrit readings were taken as a check on slow continued blood loss.

## Results

### Overall results

A total of 740 patients presented to the Emergency Department of Erbil City hospital with upper gastrointestinal bleeding over the 9 years of 1996 to 2004. All patients were admitted to the hospital under the care of the surgeon on call and the emergency surgical team. Table 1 shows the causes of bleeding in the patients presenting to the Emergency Department. Bleeding duodenal ulcer was the commonest diagnosis, 556 (75.1%) patients. Of these, 532 patients (95.7%) (312 males and 220 females) [mean age 44, standard deviation (SD) 15 years] were first-time admissions, while 24 patients were re-admissions (4.3%).

Table 2 shows the treatment given to the bleeding duodenal ulcer patients, both for first- and second-time admissions. Of the 556 admissions with bleeding duodenal

ulcer, 318 received conservative medical therapy while surgery was performed on 238 patients. Of the 24 patients readmitted on a second occasion, 10 underwent surgery, while 14 were again treated conservatively, either because of associated disease (cardiac or respiratory disease) or because they refused surgery. About 5% of the patients suffering from bleeding duodenal ulcer required emergency surgery.

On admission, 170 (30.6%) patients were in shock and 328 (59.0%) had a haemoglobin of  $\leq 10$  g/dL (Table 3). Of the 556 patients with bleeding duodenal ulcer, 242 (43.5%) received more than 5 units of blood. Endoscopy was the diagnostic method most often used (91.4% of our cases) (Table 3). There were 26 deaths over the study period (4.7%); 20 occurred in patients who underwent emergency surgery, whilst 6 died in the group that was treated medically (1 following endoscopic perforation).

There were associated lesions in the upper gastrointestinal tract of 54 patients with bleeding duodenal ulcer during endoscopy, but those were not the source of major bleeding. Of the 54, 15 patients had acute gastric erosions, 4 had small varices, 6 had chronic benign gastric ulcer, 19 had oesophagitis, 9 had hiatus hernia and 1 patient had a prepyloric ulcer.

### Trends over the 9 years

In order to evaluate trends, comparison was made between the 3 consecutive 3-year periods of study (Table 4). During 1996–98, there were 168 admissions with duodenal ulcer and 12 deaths (7.1%). For 1999–2001, there were 202 admissions and 10 deaths (5.0%). For 2002–04, there were 186 admissions and 4 deaths (2.2%). The operative mortality was 10 of 76 operations (13.2%) for the first 3-year period, 8 of 100 operations (8.0%) for the second 3-year pe-

Table 1 Causes of severe upper gastrointestinal bleeding

Diagnosis	No. of patients (n = 740)	%
Duodenal ulcers	556	75.1
Gastro-oesophageal varices	51	6.9
Angiomas	21	2.8
Mallory–Weis tear	7	0.9
Tumours	33	4.5
Erosions	40	5.4
Others	32	4.3

Table 2 Treatment method for patients with bleeding duodenal ulcer

Type of admission	Medical therapy	Surgical treatment		Total no. of patients
		Emergency	Elective	
First admission with bleeding duodenal ulcer	304	22	206	532
Re-admission with bleeding duodenal ulcer	14	7	3	24
Total admissions with bleeding duodenal ulcer	318	29	209	556

riod and 2 of 64 operations (3.1%) for final 3 years of the study.

In the medically treated patients there were 2 deaths in each 3-year period. There was no change in the frequency of shock on admission. The endoscopic diagnostic rate rose from 76.2% in the first period of study, to 100% in the last period with the introduction of new generations of endoscopes.

#### Results of medical management and follow-up

A total of 318 patients were admitted and treated medically, 32 of these were re-bleed and 20 of these were again treated conservatively (Table 5). The mean age of this group of patients was 55 (SD 15) years. In 106/318 (33.3%) of these patients there was a past history of upper gastrointestinal bleeding.

Table 3 Data on patients admitted for bleeding duodenal ulcer

Patient data	No. of patients (n = 556)	%
Endoscopic diagnosis	508	91.4
Haemoglobin $\leq$ 10 g/dL on admission	328	59.0
Shock on admission	170	30.6
Received > 5 units of blood	242	43.5
Deaths	26	4.7
Operative deaths	20	3.6

Of the medically treated patients, 6 died in hospital. There were 92 patients lost to follow-up in this group, giving a follow-up rate of 71.1% for a mean period of 2.5 years.

Fifty (50) patients subsequently underwent elective surgery for duodenal ulcer, usually for symptoms not controlled by medical management.

#### Results of surgical management and follow-up

Of the 556 patients diagnosed with bleeding duodenal ulcer, 238 (42.8%) patients were treated by surgery (elective or emergency) (Table 6). The mean age of these patients was 56.5 (SD 10) years. Three types of surgical procedure were undertaken: vagotomy and pyloroplasty, vagotomy and antrectomy, and oversewing. Of 204 patients treated by vagotomy and pyloroplasty, 6 had a recurrent ulcer.

There were 20 deaths, giving an operative mortality of 8.4%. The overall death rate in those undergoing vagotomy and pyloroplasty (5%) was lower than those undergoing vagotomy and antrectomy (23.5%). On follow-up, 12 patients died more than 3 months after discharge; 8 deaths were due to diseases unrelated to duodenal ulcer and in 4 cases the cause of death was unknown; 12 patients were lost to follow-up. Overall, 85% of the patients with surgical interven-

Table 4 Data on patients admitted for bleeding duodenal ulcer by time period

Patient data	1996–98 No. of patients	1999–2001 No. of patients	2002–04 No. of patients
Admissions	168	202	186
Endoscopic diagnosis	128	194	186
Haemoglobin $\leq$ 10 g/dL on admission	90	110	128
Shock on admission	46	74	50
Received > 5 units of blood	96	84	62
Operations	76	100	64
Deaths	12	10	4
Operative deaths	10	8	2

tions had satisfactory outcome from their operation.

The main complications of operative treatment were late post-operative bleeding in 18 patients (7.5%), leakage in 3 (1.3%), sepsis in 6 (2.5%), early dumping syndrome in 12 (5.0%), and late dumping syndrome in 15 (6.3%).

### Re-bleeding

Most patients in this study with bleeding peptic ulcer were successfully managed by

medical means alone and initial therapeutic effects usually halted the bleeding. H2-blockers and proton pump inhibitors decreased the risk of bleeding but had limited effect on active bleeding.

In cases of re-bleeding the death rate was about 30%. A policy implemented in 1999 of early surgery for those who re-bleed improved this figure. Patients who were over age 60 years, who presented with haematemesis, who were actively bleeding at the time of endoscopy, or whose admission

Table 5 Results of medical management and follow-up

Patient data	No. (n = 318)	%
Re-bleed	32	10.1
History of past bleeding	106	33.3
Follow-up death	42	13.2
Inpatient death	6	1.9
Elective operations	50	15.7
Emergency operation (at re-bleed)	7	2.2
Recent ulcer indicated by history and endoscopy	30	9.4

Table 6 Results of surgical management and follow-up

Patient data	Type of operation			Total
	V + P	V + A	O + S	
No. of patients	198	34	2	238
Operative death	10	8	2	20
Late death	12	–	–	12
Lost to follow-up	12	2	–	14
Recurrent ulcer	6	–	–	6

V + P = vagotomy and pyloroplasty.

V + A = vagotomy and antrectomy.

O + S = oversewing.

haemoglobin was  $< 8$  g/dL had a high risk of re-bleeding. Most cases of re-bleeding occurred within 2 days of the time the first episode had stopped.

## Discussion

Duodenal ulcer disease is the commonest cause of severe upper gastrointestinal bleeding, accounting for 30%–50% of total cases [1–3]. The mortality rate is high due mainly to recurrent or persistent bleeding, surgical complications, or other underlying diseases [3,8]. Approximately 20% of patients with duodenal ulcer will experience a bleeding episode, and this complication is responsible for about 40% of deaths from peptic ulcer [11,13].

In this study, the overall mortality was almost 5%. Patients over 50 years of age and those in shock were most likely to have a poor outcome. The study suggests that with a planned approach to the problem, mortality can be reduced and supports the concept of early endoscopy and an active surgical approach. Early surgery, particularly in patients over 50 years of age, is supported by the experience of other studies which noted a significant relationship between mortality and further haemorrhage in hospital inpatients of over 60 years of age or with coincidental disease [14,15].

During the three 3-year periods the mortality fell from 7.1% during the first 3 years to 2.2% in the final 3 years. During the last year of the study there were no deaths with 90 admissions. Admission to a specialist unit, early endoscopic diagnosis and a

combined medical/surgical approach were possibly responsible for the lower mortality. There are occasional patients with advanced disease (cancer, cardiac or respiratory disease) or very old age for whom no treatment is desirable. This was the cause of 4 of 6 deaths in the medically treated group.

The type of surgery performed was dependent upon the circumstances. Partial gastrectomy was performed when vagotomy might have been difficult, such as when varices were present, or when there was marked obesity or an enlarged left lobe of the liver [10,14]. Vagotomy + pyloroplasty and oversewing were the most effective surgical treatments as is generally recommended, especially in the aged [16–18].

Despite the rapid developments in endoscopic and surgical techniques over the study period, we had to use the same lines of treatment throughout the 9 years of the study because of the sanctions imposed by the United Nations on Iraq after the Gulf war. These circumstances pushed Iraq back considerably in progress in all areas, including the medical services. Despite this, we did succeed in lowering the mortality rate over the 9-year period, both overall and for surgically-treated patients.

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