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Bleeding Complications of Peptic Ulcers

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Abstract

Introduction: Despite improvements in the diagnosis and treatment of peptic ulcer disease, there are still complications, including upper gastrointestinal hemorrhage, a life-threatening medical and surgical emergency. The aim of this study was to describe the epidemiological, diagnostic, therapeutic and evolving aspects of the hemorrhagic complication of peptic ulcers. **Methodology**: Retrospective cross-sectional study conducted over 3 years at the Kara University Hospital. All patients hospitalized for upper gastrointestinal hemorrhage of ulcer origin were included. The diagnosis was made by upper gastrointestinal endoscopy. **Results**: 83 cases of ulcerative hemorrhage were collected, 51 of them were men with an average age of 51 years. Farmers were the most affected patient's category (27%). 56% used non-steroidal anti-inflammatory drugs and 27% alcohol. Hematemesis was the main sign of hemorrhage (91%). More than half of patients sought medical attention after more than 48 hours, and 59% were in a state of hemodynamic shock. About half of the patients had an antral ulcer. Ulcers were classified as Forrest III (absence of active bleeding) in ¾ of patients. Treatment was exclusively medical in all cases. Blood products were transfused in 7 patients. The average hospital stay was 9 days, with a death rate of around 15%. **Conclusion**: Hemorrhagic complications of peptic ulcers occur mainly in adult males. There is a delay in consultation due to patients' ignorance of the symptoms and, above all, their attachment to traditional therapy. Treatment was exclusively medical, with a quarter of deaths. Raising public awareness, improving technical facilities and training qualified personnel would enable effective management of these ulcerative hemorrhages, thereby reducing mortality.

Keywords

Digestive Hemorrhage, Complication, Peptic Ulcer, Mortality, Togo

1. Introduction

Peptic ulcer disease (PUD) is defined as a significant loss of substance from the inner duodenal or gastric wall, deepening the wall down to the outer muscular layer [1]. Its prevalence varies from country to country and is estimated at between 2 and 20% in Africa [2]. In Togo, Lawson has estimated the prevalence of peptic ulcer disease at 15.5% [3].

Management of this peptic ulcer disease has improved in recent decades thanks to new diagnostic and therapeutic methods. However, the course of PUD can be unfavorable, leading to acute complications (perforation and hemorrhage) or chronic complications (pyloroduodenal ulcer stenosis and malignant degeneration) [2]. These complications of peptic ulcers are common, with an estimated prevalence of around 15% [4]. However, their prevalence remains unknown in several developing countries. Among these complications, digestive hemorrhage is the most common and constitutes a life-threatening medical and surgical emergency [5]. In Togo, UGD is the leading cause of HDH. Indeed, this hemorrhagic complication of UGD accounts for around 40% of all HDH [6]. The aim of this study was to investigate the epidemiological, diagnostic, therapeutic and evolving aspects of the hemorrhagic complication of peptic ulcer disease in the hepato-gastroenterology department of Kara University Hospital (Togo).

2. Methodology

Type, setting and period of study: This was a cross-sectional study with retrospective data collection over a period of three years (January 2021 - 31 December 2023) at the Kara University Hospital in Togo.

Inclusion criteria: All records of patients hospitalized for a hemorrhagic complication of peptic ulcer were included.

Exclusion criteria: Patients who had not undergone upper gastrointestinal endoscopy or whose medical records were incomplete were excluded.

The parameters studied were epidemiological data (frequency, age, sex, profession, lifestyle); diagnostic data (history, functional signs, haemodynamic parameters, biological data (CBC, uraemia, creatininaemia, glycaemia), and endoscopic data); therapeutic and evolving data.

Data were collected using a standardized survey form that had been validated beforehand. Information was collected from hospitalization and consultation registers and patient files in the hepato-gastroenterology department. The files were sorted manually, and the survey form was filled in manually. Data were entered and analyzed using Microsoft Word 2013, Microsoft Excel 2013 and Sphinx version 5.0 2.7.

Ethical aspects: authorization from the management of the Kara University Hospital was obtained prior to data collection. Data collection was carried out in strict anonymity.

3. Results

Over a 3-year period, we recorded a total of 306 cases of upper GI hemorrhage,

with 77 cases excluded for failure to perform upper GI endoscopy. This reduced the number of patients to 229. Of these patients, 83 had hemorrhagic ulcers, representing a hospital frequency of 36.24%. The sample included 51 men and 32 women, with a sex ratio of 1.6. The mean age of the patients was 51.3 ± 16.95 years, with extremes of 28 and 75 years.

Housewives (30.12%) and farmers (26.50%) were the most affected socio-professional groups (Figure 1).

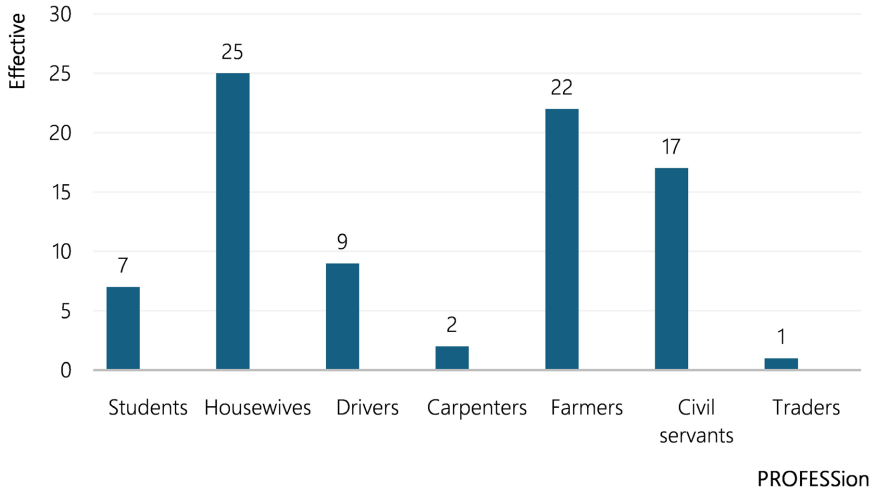

Figure 1. Breakdown of patients by profession.

Epigastralgia was the main medical history in 42.2% of cases. The risk factors for UGD found in the patients were the use of gastro-toxic drugs, in particular non-steroidal anti-inflammatory drugs (NSAIDs) in 56.5% of cases, alcohol in 27%, and long-term use of anticoagulants or platelet aggregation inhibitors (3%). Socomol (a combination of paracetamol 325 mg, diclofenac 50 mg and caffeine 30 mg) was the drug most frequently implicated in 58% of the cases. Three patients (3.61%) had diabetes and 5 (6%) were being monitored for hypertension.

Hematemesis was the main reason for consultation (91.6%). The various symptoms indicative of digestive hemorrhage are summarized in Table 1. More than half the patients had consulted a doctor within 3 days of the onset of the disease (Table 1). 36.14% (30) of patients had self-medicated and 65.06% (54) had taken herbal medicines at home prior to the consultation. More than half of the patients (56.62%) mentioned the lack of financial means to go directly to hospital after the episode of hemorrhage.

Table 1. Breakdown of patients by reason for consultation for bleeding ulcer and time to consultation.

	n	%
Reason of consultation		
Hematemesis	76	91.6

Continued

Melena	18	21.7
Hematemesis and melena	35	42.2
Abdominal pain	12	14.5
Delay before consultation		
< 24 h	5	6
[24 h - 48 h[	41	49.4
[48h - 72 h]	24	28.9
≥ 72 h	13	15.7

The performance index was classified as World Health Organization (WHO) stage 1 in 83.4% of patients. Forty-nine patients (59%) presented with hemodynamic shock. Other associated physical signs were conjunctival or mucocutaneous pallor in 28.5% and epigastric tenderness in 67.47%.

On the paraclinical level, anemia with a hemoglobin level of less than 8g/dl was found in 12 cases (14.5%). Upper gastrointestinal endoscopy (UGI) was used to determine the site and risk of recurrence of ulcer hemorrhage according to the Forrest prognostic classification. The bleeding ulcer was in the antrum in approximately 50% of patients. Bleeding ulcers were classified as Forrest III in 63 (75.90%) patients (Table 2).

Table 2. Distribution of patients according to endoscopic features of bleeding ulcer and hospital stay.

	n	%
Ulcer site		
Antre	41	49.4
Bulbe	25	30.1
Fundus	17	20.5
Forrest classification		
III (lesion without bleeding)	63	75.90
IIb (adherent clot on lesion)	11	13.25
Ib (oozing hemorrhage)	7	8.43
Ia (spurting hemorrhage)	2	2.41
Delay before consultation		
0 - 15 days	75	90.4
15 - 30 days	6	7.2
≥30 days	2	2.4

Therapeutically, all patients had received non-specific medical treatment consisting of vascular filling with isotonic saline and/or plasmion and, in some cases,

the insertion of a nasogastric tube for gastric emptying. These non-specific resuscitation measures were combined with the administration of an intravenous proton pump inhibitor at a dose of 40 mg every 12 hours. Seven patients (8.4%) showed signs of decompensated anemia, with hemoglobin levels of 7 g/dl or less, requiring transfusion of packed red blood cells. The average length of hospital stay was 9.20 days ± 5.18 days, with extremes of 4 and 20 days (**Table 2**). 12 (14.45%) patients died during hospitalization.

4. Discussion

This study has a few limitations. The sample was small, with several files that could not be used due to the retrospective nature of the study. This could constitute a bias in the interpretation of the data and a lack of power. The study only concerned the hemorrhagic complication of UGD. A larger study considering the characteristics of patients presenting with all the complications of UGD would be more exhaustive. Nevertheless, digestive hemorrhage is the most frequent and most serious complication of UGD.

The hospital incidence of ulcerative HDH was estimated at 36.24%. This rate was lower than that of Bagny *et al.* in Togo, which was 39.84% (6). This lower frequency in our series could be explained by the fact that digestive endoscopy is not performed systematically in the event of any digestive hemorrhage, for several reasons. Firstly, this examination is difficult to access. The Kara University Hospital is the only public health center in the whole of northern Togo, which has a population of around 3 million, to have digestive endoscopy. Some patients also cite financial difficulties or die before the examination.

The sample consisted of 51 men (61.4%) with a sex ratio of 1.6. The studies by Benajah *et al.* in Morocco and Hasadia *et al.* reported a clear male predominance, with 75.8% and 86.4% respectively [4] [7]. The mean age of patients was 51 years, slightly higher than that of Benajah *et al.* in Morocco and Sombié *et al.* in Burkina Faso, who reported mean ages of 47 and 46.8 years respectively [4] [8]. UGD is confined to adults, who are more exposed to factors that attack the gastric mucosa. Advanced age (over 60) is a factor in the worsening of bleeding because of comorbidities in this category of people treated for several pathologies. The use of gastro-toxic drugs was the main risk factor found in 56.5% of patients. This frequency is higher than that reported by Mekkaoui *et al.* in Morocco, who reported 16.4% [9]. Our sample consisted mainly of people engaged in agricultural activities requiring physical effort, resulting in chronic use of non-steroidal anti-inflammatory drugs.

Among these patients, 42.2% had chronic epigastric pain that had never been documented. In contrast, the Moroccan and Lebanese series reported a history of peptic ulcer disease in 8% and 11.4% of patients respectively [9]. The use of upper gastrointestinal endoscopy for the investigation of epigastric pain is not common due to ignorance of our populations. The risk factors for UGD, in particular stress, fasting and diet, had not been properly assessed due to the retrospective nature of

the study. Similarly, not all patients had undergone a gastric biopsy to check for *Helicobacter pylori*, an important infectious factor in the genesis of UGD.

In terms of time to consultation, more than half of our patients consulted within 3 days. These results are like those of Sombie *et al.* in Burkina Faso and Mekkaoui *et al.* in Morocco, who reported an average consultation time of around 3 days [8] [9]. This delay in consultation in African series can be explained by several factors, in particular the population's ignorance, poverty and attachment to the practice of traditional therapy in Africa. People only consult a specialist after traditional therapy has failed.

Hemorrhage can vary from occult bleeding to cataclysmic digestive hemorrhage with hemorrhagic shock. In 91.6% of cases, hematemesis was the mode of presentation of the bleeding ulcer in our series. Hematemesis is the main revealing sign of hemorrhagic UGDs and its frequency is variously estimated in several studies at between 15 and 50% [4] [7] [8]. The main associated signs were conjunctival pallor in 28.5% and signs of hemodynamic shock in 59%. Sombie *et al.* in Burkina Faso also found signs of hemodynamic shock in 33.6% [8].

Diagnostically, upper gastrointestinal endoscopy revealed a predominance of antral ulcers followed by the bulb (**Table 2**). This result was like that of the series by Mekkaoui *et al.* in Morocco (9). However, these results were contrary to those of Benajah *et al.*, who found that the bulb was more represented, with 91% and 66.7% of cases respectively [4]. In our series, 76% of ulcers were classified as Forrest III. This result could be explained by the fact that endoscopy was performed late in most cases, reflecting the delay in consulting patients. In addition, endoscopy was not performed as an emergency procedure at Kara University Hospital; it is only performed on one working day during the week and on hemodynamically stable patients following non-specific resuscitation measures. Early emergency endoscopy makes it possible to diagnose the more serious stages of bleeding ulcers (Forrest I or II). This was not the case in our setting. Performing emergency endoscopy within 24 hours of admission enables adequate management of the lesions and significantly reduces the rate of blood transfusion, the length of hospital stays and patient mortality [10] [11].

Treatment was exclusively medical in all patients, as in the series by Sombié *et al.* in Burkina Faso [8]. However, in the series by Chaabane *et al.* in Tunisia, 8 patients (8.6%) underwent endoscopic hemostasis by peri-ulcer injection or injection around an adherent clot of adrenaline diluted to 1 in 10,000, and hemostasis clips were used in 12 cases [12]. According to the consensus of the National Institute of Health, endoscopic hemostasis is indicated in cases with a high risk of hemorrhage recurrence, such as active bleeding and a visible vessel [13]. The risk of rebleeding in the case of active bleeding is 85% and 40% for visible vessels [14]. The limited technical resources available in our developing countries, the precariousness of the population and the lack of qualified personnel are factors which justify medical treatment alone. This lack of more effective hemostatic procedures explains the longer hospital stay for patients and the high mortality rate in African series. The average length of hos-

pital stay was 9 days, with around 15% of patients dying. These data were comparable to those reported by Sombié *et al.* in Burkina Faso (average hospital stay of 6 days with a mortality rate of 17%) (8). According to the literature, the mortality rate linked to hemorrhagic complications of UGD is estimated at 5% - 10% [15]. A further prospective study is required to assess the factors associated with recurrent hemorrhage and death from ulcerative GI hemorrhage.

5. Conclusion

The in-hospital incidence of hemorrhagic peptic ulcers is estimated at 5.4% in Kara and occurs mainly in adult males. Farmers and housewives were the socio-professional groups most affected. We noted a delay in consultation due, on the one hand, to patients' ignorance of their symptoms and, on the other, to their attachment to traditional therapy. Treatment was exclusively medical in all patients, with 15% dying. Improving the technical platform and training qualified personnel would enable effective management of these ulcerative hemorrhages, thereby reducing mortality.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Appendix

A1. Survey Sheet

Order number……/File number……/Year: ……

1. Epidemiological Data

Identite:

Age……/Sex: Male ☐ Female ☐ Profession……/

Entry date ……/Release date: ……

Antecedents:

Medical: Epigastralgia ☐ GDU ☐ Gastric tumor ☐ Liver disease ☐ blood preassure ☐ Diabete ☐ Asthma ☐ Others: ……

Surgical: Yes ☐ No ☐ If yes, precise…….

A2. Diagnostic Data

Consultation reason: Hematemesis ☐ Melena ☐ Hematemesis & Melena ☐

Occurrence circumstances: Spontaneous ☐ After taking NSAIDs ☐ Alcohol ☐ Others ☐

Duration before admission: 0 h - 24 h ☐ 24 h - 48 h ☐ 48 h - 72 h ☐ > 72 h ☐

Treatment before consultation: Automedication ☐ Traditional treatment ☐

If traditional treatment, precise……

General examination: Blood pressure : ……mmHg RR……cpm HR……bpm Temperature……

Conjonctiva: Colored ☐ Pallor ☐ Jaundice ☐

Awareness: normal ☐ obnubilé ☐ Coma ☐.

Physical Signs

1) Abdominal aspect: Normal ☐ Bloated ☐

2) Epigastric pain: YES ☐ NO ☐/Abdominal mass: YES ☐ NO ☐

3) Defense: YES ☐ NO ☐

4) Others, precise……

Additional Examinations

Bilogy

Blood count: Hemoglobin = MCV = MCHL = Leukocytes = Platelets =

Urea = Creatininemia = Glycemia = CRP =……/SR =……

Natremia = Kaliemia = Chloremia =

Upper fibroscopy realised: YES☐ NO☐ If yes, results ……

If no, precise the reason: Death ☐ Financial difficulties ☐ other ……

Diagnosti Retained: ……

A3. Therapeutic Data

Medical Treatment

Hospitalization: In medical intensive care Yes ☐ No ☐

Rehydration: ISS ☐ IGS ☐ HGS ☐ RL ☐

PPI: Yes ☐ No ☐ Others, precise ……

Antiacid: Aluminum salts ☐ Magnesium salts ☐
Blood transfusion: RCC ☐ FFP ☐
Eradication treatment of *Helicobacter pylori*: YES ☐ NO ☐
Endoscopic treatment: Hemostasis Yes ☐ No ☐ If yes precise……
Surgical treatment: Yes ☐ No ☐ If yes precise……

A4. Evolving Data

Duration of hospitalization: ……(days)
Patient discharge mode
Cured ☐
Dead ☐
Discharge against medical advice ☐
Escapee ☐