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Massive Ulcerative Upper Gastrointestinal Bleeding: Surgical Treatment, Techniques and Results (Experience of a Moroccan Surgical Emergencies Department)

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Abstract **Original Research Article**

Introduction*:** Upper digestive haemorrhages represent a medico-surgical emergency that can be life threatening. ***Material and Method*:** this was a retrospective study that was carried out over a period of five years (2015- 2019) in the Department of Surgical Emergencies of the Ibn Sina University Hospital of Rabat, involving six patients aged between 36 and 82 years. ***Result*:** the clinical symptoms was marked by hematemesis and melena in five patients, rectal bleeding in one patient, epigastralgia preceding the gastrointestinal bleeding in 3 patients. All of our patients presented with heavy bleeding. One of our patients had a history of bulbar ulcer complicated by peritonitis, four patients are chronic smokers. Medication intake was noted in two patients. The oesogastro-duodenal fibroscopy made the diagnosis and showed a gastro-duodenal ulcer in all the patients. All patients underwent surgical treatment: three ulcer sutures and three antrectomies. Haemostasis was ensured in five patients, surgical revision was necessary in one patient with postoperative hemodynamic instability. ***Discussion: In light of these results and a review of the literature, surgery remains the essential recourse in the event of severe bleeding from peptic ulcer. ***Conclusion*:** haemorrhagic ulcer is the most common cause of upper ulcerative digestive haemorrhages, its diagnosis is clinical and endoscopic, emergency surgery is immediately indicated in the case of massive bleeding.

Keywords: Haemorrhage, ulcer, hemostasis surgery, endoscopy, bleeding.

INTRODUCTION

Upper gastrointestinal bleeding (UGIB) is an emergency due to bleeding from a lesion located above the angle of Treitz [1]. Haemorrhagic gastroduodenal ulcers are the main cause [2].

The use of nonsteroidal anti-inflammatory drugs and the aging of the population explain the apparent lack of improvement in the prognosis, despite the recent improvement in the diagnostic and therapeutic strategy [1].

Diagnosis of these haemorrhages is based on visualization of the bleeding lesion with emergency endoscopy.

Whatever the cause of UGIB, the initial course of action must allow early assessment of the severity and the initiation of resuscitation measures, thus requiring close collaboration between emergency physicians, gastroenterologists and surgeons.

Adequate management and endoscopy must ensure rapid haemostasis as soon as possible.

Concerning peptic ulcer disease, surgical treatment retains its place in the context of urgent haemostasis [3].

Aims of work:

- Describe the diagnostic aspects;
- Specify the place of surgery in the treatment of UGIB of ulcerative origin;
- Evaluate surgical methods in the treatment of UGIB of ulcerative origin.

MATERIAL & METHOD

This was a retrospective study that was carried out over a period of five years (2015-2019) in the

Department of Surgical Emergencies of the Ibn Sina University Hospital of Rabat, involving six patients aged between 36 and 82 years, who were admitted for severe upper gastrointestinal bleeding.

RESULTS

There were five male patients and one female patient.

The age varied between 30 and 50 years with an average age of 54 years.

Among the etiologies of UGIB, we found a patient with a bulbar ulcer, four patients are chronic smokers, one patient had taken Nonsteroidal anti-inflammatory drugs (NSAIDs), and another took a vitamin k antagonist (VKA).

All our patients had massive UGIB: The clinical examination found hematemesis associated with melaena in five patients, rectal bleeding in one patient, epigastralgia in four patients, and ascites in one patient.
Biological Analyzes Found: A normochromium normocytic anemia in all our patients, thrombocytopenia in three patients, hyperkalaemia in one patient, functional renal failure in two patients, and a low prothrombin level in one patient.

All our patients benefited from an esogastroduodenal fibroscopy, it objectified a hemorrhagic peptic ulcer in five patients, and suspected a duodenal process in one patient. The CT scan was performed in a patient facing diagnostic doubt with a duodenal mass.

The cause of UGIB was a bleeding peptic ulcer in all patients. All our patients benefited from urgent resuscitation measures: oxygen therapy, vascular replacement, administration of proton pump inhibitors (PPI), and transfusion of red blood cells (two patients also required a transfusion of platelet pellets). One patient required the administration of Noradrenaline. Endoscopic placement of a clip was performed in one patient.

Surgery was performed urgently in all our patients. The time elapsed between the admission of the patients and the surgical intervention was between 24 and 72 hours.

Hemostasis was ensured in five of our patients. Revision surgery was necessary for one of our patients due to postoperative hemodynamic instability.

The duration of the postoperative stay was between 4 and 10 days.

Table 1: Clinical and endoscopic particularities of operated patients with types of surgeries performed

Particularités cliniques des malades	Résultats de la fibroscopie	Traitement chirurgical effectué	Indication
Malades présentant un syndrome ulcéreux : 3	Ulcère bulbaire antérieur stade IIb (1)	Section duodénale + antrectomie	Hémorragie massive d'emblée
	Antrite congestive +ulcère bulbaire postérieur stade Ib (2)	Suture d'ulcère	Apparition d'une lame d'épanchement en péri-hépatique après l'hémostase endoscopique
	Caillot adhérent au niveau de la face postérieure du bulbe + saignement en nappe (3)	Antrectomie	Hémorragie massive d'emblée
Antécédent de maladie ulcéreuse (1)	ulcère bulbaire stade IIa+ gastrite	Antrectomie	Hémorragie après suture d'ulcère perforé
Malades cliniquement indemnes: 2	Suspicion d'un processus du D2 (1)	Suture d'ulcère	Hémorragie massive d'emblée
	Ulcère duodénal avec saignement artérielle en jet (2)	Suture d'ulcère	Hémorragie massive d'emblée

DISCUSSION

1) Epidemiology:

The incidence of upper gastrointestinal bleeding remains extremely variable from one study to another [4, 5].

The primary cause of UGIB is peptic ulcer disease [6]. The number of admissions related to acute ulcerative gastrointestinal bleeding remains stable and has not been influenced by therapeutic advances in ulcerative disease. The aging of the population and the greater use of NSAIDs, which have increased the incidence and morbidity of these hemorrhages, probably explain this fact [7].

According to the literature, UGIB is more common in subjects over 61 years old [1], unlike ours where the most represented age group is between 30 and 50 years old.

Male predominance appears in the majority of studies [8].

2) Clinical assessment:

The affirmation of UGIB is generally easy in the face of hematemesis (the most frequent sign) followed by melena, especially when the exteriorization of the blood is observed by the doctor. Moreover, it is less easy in front of an isolated melena. Rectorrhagia is a sign of massive upper gastrointestinal bleeding [9, 10].

Shock, unexplained malaise, confusion, or chest pain are serious signs.

Hemoptysis, bucco-pharyngeal hemorrhage and swallowed epistaxis should not be confused with UGIB.

The anamnesis, concomitant with the affirmation of the diagnosis, must be as brief as possible so as not to delay resuscitation measures. It should look for:

- The mode of onset of the haemorrhage;
- History of ulcer disease;
- The concept of taking medication: taking NSAIDs increases the risk of severe ulcerative complications (digestive bleeding, perforation). According to Hawkeye, approximately 20 to 25% of bleeding gastroduodenal ulcers are attributable to NSAID treatments and approximately 10% to aspirin intake [11]. VKA are an independent risk factor for ulcerative bleeding [12].
- Smoking [13];
- Comorbidities: especially chronic coronary, respiratory or renal pathologies which worsen the prognosis

The clinical assessment should look for:

- Signs of severity: signs of shock (tachycardia, arterial hypotension, skin pallor, discolored conjunctivae, cold sweats, agitation, thirst, polypnea, disturbance of consciousness), the coexistence of rectal bleeding, and the amount of blood transfused to maintain normal stable hemodynamic state.
- The presence of blood on the finger cot during the proctological examination;
- Abdominal scars, abdominal contracture.

The abundance assessment criteria are specified by simple criteria (Table 2) [14]:

Table 2: Criteria for evaluating the abundance of gastrointestinal bleeding

Blood loss (ml)	**<750**	**750-1500**	**1500**
arterial pressure	Normal	Decreased in orthostatism	Decreased
Capillary pulse (sec)	<2	>2	>2
Cardiac frequency (bpm)	<100	100-120	>120
Respiratory rate (cpm)	14-20	20-30	>30
Neurological state	Normal	Anxiety	Confusion

3) Additional tests:

A complete blood count and a coagulation test looks for the impact of UGIB. Blood group determination, blood electrolyte and renal function are important for treatment [15].

Esogastroduodenal endoscopy is an essential diagnostic step [16].

It has a triple objective [17]:

- Diagnose the lesion of the ulcer (image 1) [20];
- Assess the risk of continuation or recurrence of bleeding;
- Perform hemostasis if necessary.

Its diagnostic efficiency is all the greater the earlier it is performed [6]. Propofol sedation has been recommended by some teams, allowing a better quality procedure without increased risk [18], however endoscopy is most often performed without anesthesia [19].

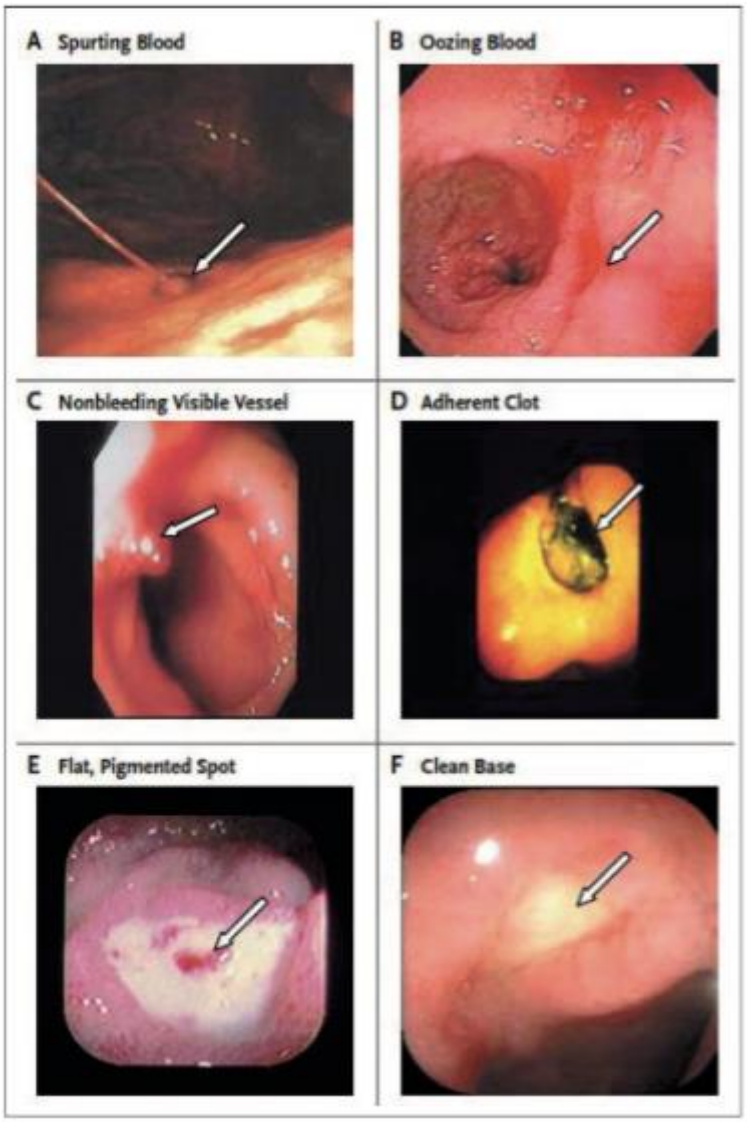

Image 1: Forrest Classification

The different endoscopic series show that the bulbo-duodenal seat is the most common in Morocco, France, the United States and Dakar compared to the gastric seat. This ratio is reversed in Asian countries such as Thailand and Japan [8, 21-23].

Mortality from ulcerative upper gastrointestinal bleeding is around 5% and has been relatively stable for 30 years despite therapeutic progress.

Mortality is usually not explained by blood loss itself but by decompensation of pre-existing pathologies such as ischemic heart disease, renal failure, liver disease or chronic respiratory failure [1].

4) Treatment:

The management of acute gastrointestinal bleeding requires multidisciplinary collaboration involving pre-hospital and hospital emergency physicians, gastroenterologists, radiologists and surgeons.

Vascular replacement and transfusion of blood products are the most urgent means to establish [24].

Treatment with high-dose intravenous proton pump inhibitors should be administered without waiting for endoscopic diagnosis [25].

Endoscopic treatment has a prominent place, due to the advent of new interventional techniques. The quality of endoscopic hemostasis essentially depends on the experience of the gastroenterologist. Endoscopic hemostasis of bleeding ulcers is recommended in case of active bleeding (Forrest Ia or Ib) or with stigma of risk of bleeding recurrence (Forrest IIa or II b).

In the event of arterial jet bleeding, the use of a thermal (laser and electrocoagulation) or mechanical (clips) method is recommended to complete haemostasis

and avoid recurrence [15]. In other situations, the injection of adrenaline alone is sufficient [26].

For Forrest stage IIb, endoscopic ablation of the adherent clot is intended to prevent its spontaneous fall with rebleeding. It is only recommended in a situation and environment that allows coping with a possible haemorrhage by endoscopy [27].

Surgery for the treatment of ulcerative bleeding is less practiced with the advent of endoscopy, but remains immediately indicated in the event of massive bleeding. It is also indicated when endoscopy has failed to stop the bleeding, and in the event of recurrent bleeding after initial endoscopic hemostasis [28].

The decision on the surgical procedure (partial gastrectomy, suturing of the ulcer associated with a vagotomy) can only be made intraoperatively depending on the nature of the ulcer, the remodeling of the pyloroduodenal block and the patient's condition [29].

Surgical treatment is an effective haemostatic treatment, but its mortality and morbidity are high (respectively 10% and 30%).

Surgical treatments are to be preferred to conservative treatment because they reduce the risk of postoperative bleeding recurrence, a postoperative mortality factor, without increasing mortality and morbidity [30].

CONCLUSION

Upper digestive hemorrhage is a medico-surgical emergency that threatens the patient's vital prognosis.

The primary cause of UGIB is peptic ulcer disease.

Management is based on a set of means (resuscitation, endoscopy, surgery), developed by a multidisciplinary team.

Surgery remains a means indicated from the outset in the event of massive bleeding.

Preventive measures remain essential to prevent the fatal evolution of UGIB, by detecting the gastroduodenal ulcer early and fighting against its risk factors.

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