

**A Comparative Study Between Clip
Application Versus Epinephrine Injection In
Management Of Bleeding Peptic Ulcer**

Thesis

***Submitted For Partial Fulfillment of Master Degree
In Internal Medicine***

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2009

Acknowledgement

Thanks to **Allah** who granted me the power to accomplish this work.

I would like herein to express my deep gratitude to **Prof. Dr. / Mohamed Abdel-Fattah El Malatawy**, Professor of Internal Medicine, Faculty of Medicine, Ain Shams University, for his continuous support and advice throughout the course of this research.

Also, great appreciation should go to **Dr. / Hanan Mohamoud M. Badawy** ٠٠٠٠, Assistant Professor of Internal Medicine, Faculty of Medicine, Ain Shams University, for her generous help and continuous encouragement.

Many thanks to Dr. / Marcel William Keddeas, Lecturer of Internal Medicine, Faculty of Medicine, Ain Shams University, who provided me with valuable comments and experience needed to achieve this work.

My special thanks also to **Dr./Mohamed Safwat**, Lecturer of Internal Medicine and Head of Endoscopy Unit in Manshya El Bakry Hospital for his supervision and kind care.

And also special thanks to **Dr. / Mohamed Fathy**, Lecturer of General Surgery and Head of Endoscopy Unit in Manshya El Bakry Hospital for his supervision and kind care

Last but not least, I would like to express my deepest thanks to every one who helped me to finish this work and to all member in my family especially my mother and father.

List Of Abbreviations

APC	: Argon plasma coagulator
Bpm	: Beats per minute
CagA	: Cytotoxin-associated gene
CHF	: Congestive heart failure
ECL	: Enterochromaffin-like
H. pylori	: Helicobacter pyloi
H₂RA	: Histamine 2 receptor antagonist.
ICU	: Intensive care unit
IL-10	: Interleukin-10
IL-1b	: Interleukin 1b
LGIB	: Lower gastrointestinal bleeding.
MEN	: Multiple endocrine neoplasia
NSAIDs	: Non steroidal anti-inflammatory drugs
PAI	: pathogenicity island
PCR	: Polymerase chain reaction
PPI	: Proton pump inhibitor
PUD	: Peptic ulcer disease
SBP	: Systolic blood pressure
SRH	: Stigmata of recent hemorrhage
(TNF)a	: Tumour necrosis factor a
UGI	: Upper gastrointestinal
UGIB	: Upper gastrointestinal bleeding
VacA	: Vacuolating cytotoxin

List Of Tables

	<u>Page</u>
Table 1: Probable Source of GI Bleeding Within the Gut.....	8 -
Table 2: Rockall Risk Scoring System for Patients with Peptic Ulcer Disease	22 -
Table 3: Forrest classification of stigmata of recent haemorrhage and associated re-bleeding rates.....	23 -
Table 4: Long-Course Therapy for Eradication of Helicobacter pylori.	34 -
Table 5: Short -Course Therapy for Eradication of Helicobacter pylori	35 -
Table 6: Recurrent Ulcer and Postgastrectomy Syndromes after Operations for Duodenal Ulcer	58 -
Table 7: Effects of Operations for PUD on Gastric Emptying and Motility	59 -
Table 8: Forrest classification of stigmata of recent haemorrhage and associated re-bleeding rates.....	77 -
Table 9: Rockall Risk Scoring System for Patients with Peptic Ulcer Disease	78 -
Table 10: Comparison between the 2 groups as regard sex.....	85 -
Table 11: Comparison between the 2 groups as regard age.	85 -
Table 12: Comparison between the 2 groups as regard shock (SBP<100) or no shock (SBP >100) at time of presentation.	86 -
Table 13: Comparison between the 2 groups as regard presence of comorbid illness as ischemic heart disease or cerebrovascular stroke at time of presentation.....	87 -
Table 14: Comparison between the 2 groups as regard presence of comorbid illness as liver cell failure at time of presentation.....	88 -
Table 15: Comparison between the 2 groups as regard the size of the ulcer.....	89 -
Table 16: Comparison between the 2 groups as regard the presence of ulcer with adherent clot.....	90 -
Table 17: Comparison between the 2 groups as regard the presence of ulcer with visible vessel	91 -
Table 18: Comparison between the 2 groups as regard the presence of ulcer with oozing vessel	92 -
Table 19: Comparison between the 2 groups as regard the presence of ulcer spurter.....	93 -
Table 20: Comparison between the 2 groups as regard Forrest's classification.....	95 -
Table 21: Descriptive analysis of the Rockall'S Score between the 2 groups.....	96 -

Table 22: Comparison between the 2 groups as regard presence of a gastric ulcer or duodenal ulcer.....	96 -
Table 23: Shows comparison between the 2 groups as regard site ulcer.....	97 -
Table 24: Comparison between the 2 groups as regard occurrence of rebleeding.....	98 -
Table 25: Comparison between the 2 groups as regard requirement of surgical interference.....	99 -
Table 26: Occurrence of rebleeding in relation to the presence of comorbid illness as ischemic heart disease or cerebrovascular stroke at time of presentation.....	100 -
Table 27: Shows incidence of rebleeding in both groups in relation to Forrest's classification.	101 -
Table 28: Shows incidence of rebleeding in both groups in relation to Rockall'S Score	103 -
Table 29: Shows occurrence of rebleeding in relation to Rockall's Score <5 or ≥5 in all patients.	104 -
Table 30: Comparison between rebleeding and high risk Rockall's score in both groups.	105 -
Table 31: Comparison between the 2 groups as regard occurrence of rebleeding in relation to the size of the ulcer	106 -
Table 32: Rebleeding in relation to size of the ulcer (≤ 2 , > 2) in all patients.	107 -
Table 33: Shows the relations between rebleeding and the size of ulcer (≤ 2 , > 2 cm) in each group.	107 -
Table 34: Occurrence of rebleeding in relation to the site of ulcer GU or DU.	108 -
Table 35: Shows number of clips in relation to forrest classification in group I.....	109 -
Table 36: Shows number of clips in relation to Rockall'S Score group I.	109 -
Table 37: Shows number of needed recliping in relation to Rockall'S Score, size of ulcer in group I.	110 -
Table 38: Shows number of needed recliping in relation to forrest classification in group I.....	110 -

List Of Figures

	<u>Page</u>
Figure 1: gastric ulcer.....	- 4 -
Figure 2: The relationship between the distribution of gastritis induced by H. pylori infection and subsequent gastro duodenal disease. (Quoted from Best Practice & Research Clinical Gastroenterology (Larry et al., 2007).	- 17 -
Figure 3: Suggested flowchart for handling of acute upper gastrointestinal bleeding (Quoted from Best Practice & Research Clinical Gastroenterology. 2008).....	- 31 -
Figure 4: Role of endoscopy in assessment and treatment of ulcer bleeding. Quoted from (Best Practice & Research Clinical Gastroenterology, 2001).	- 38 -
Figure 5: Triclip application for bleeding dieulafoy lesion of the sigmoid. (Quoted from Gheorghe, 2005).	- 68 -
Figure 6: The ‘Resolution clip’ allows reopening of the clip prior to release for more accurate positioning. (Quoted from Aabakken L et al, 2008).....	- 71 -
Figure 7: Showing control of bleeding of bleeding gastric ulcer after 2 hemoclip application in patient of clip application group	- 82 -
Figure 8: Showing control of bleeding of bleeding gastric ulcer (blood clot) after hemoclip application in patient of clip application group	- 82 -
Figure 9: Showing control of bleeding gastric ulcer (oozing) after 2 hemoclip application in patient in clip application group	- 84 -
Figure 10: Showing control of bleeding deuodenal ulcer after adrenaline injection in adrenaline group.	- 84 -
Figure 11: Shows comparison between the 2 groups as regard occurrence of rebleeding (positive), no rebleeding (negative)..	- 94 -
Figure 12: Comparison between the 2 groups as regard requirement of surgical interference (positive).....	- 99 -
Figure 13: Shows incidence of rebleeding (positive) in both groups in relation to Forrest’s classification.	- 102 -

List Of Contents

	<u>Page</u>
Acknowledgement	I
List of abbreviations	II
List of tables	III
List of figures	VI
Introduction and aim of the work	1
Review of literature	
I- Peptic ulcer.....	4
II- Management of peptic ulcer	28
III – Hemoclips	64
Patients and methods	77
Results.....	83
Discussion.....	114
Summary	122
Conclusion	124
Recommendations.....	125
References	127
Arabic summary	



INTRODUCTION

Non-variceal upper gastrointestinal bleeding remains a common and a challenging emergency for gastroenterologist and general physicians. The annual incidence is 50 to 100, 000 of the population (**Rockall et al., 1995**).

Endoscopic therapy is well accepted as the first line treatment in most management algorithms. The management of patients with peptic ulcer bleeding requires cooperation among gastroenterologists who are skilled in endoscopic hemostasis and surgeons who are experts in ulcer surgery (**Sung, 2005**).

Since the late 1980s, endoscopic hemostatic therapy has been widely accepted as the first-line therapy for upper-gastrointestinal bleeding. Numerous clinical trials have confirmed the efficacy of endoscopic therapy in this setting. Most clinical trials demonstrated a reduction in both recurrent bleeding and the need for surgical intervention when endoscopic hemostasis was used (**Alan Barkun et al., 2003**).

Endoscopic therapy can be broadly categorized into injection therapy, thermal coagulation, and mechanical hemostasis. When analysed separately, injection therapy, thermal-contact devices, and mechanical treatment all decrease the frequency of recurrent bleeding and the rate of surgical intervention. Injection with solutions of diluted epinephrine



(1: 10, 000) is widely used because of its-among others- simplicity and low cost (**Park et al., 2004**).

Mechanical haemostasis with endoloops or clips, e.g. the hemoclip (teleflex Medical, PA), has an increasing role in the control of non-variceal UGIB. Endoclips are deployed on a visible vessel to achieve vascular compression and can achieve homeostasis in up to 100% of cases (**Church et al., 2003**). Comparative studies suggests lower re-bleeding rates than adrenaline injection (**Chou et al., 2003**).



AIM OF THE WORK

The aim of this study is to evaluate and compare between the epinephrine injection versus clip application in achieving hemostasis, rebleeding incidence and the need for secondary intervention in bleeding peptic ulcer.

PEPTIC ULCER

Definition

Peptic ulcer is defined as loss of the enteric surface epithelium that extend deeply enough to reach or penetrate the muscularis mucosa (*Arlt and leyh, 2001*).

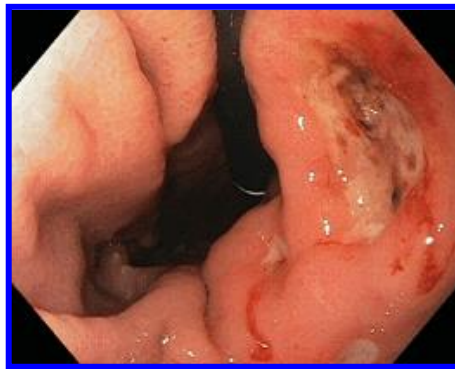


Figure 1: gastric ulcer

Most commonly ulcers have occurred in duodenum and stomach but may also occur in the esophagus, small intestine at gastro enteric anastomosis and at any site with ectopic gastric mucosa. Peptic ulcer accounts for about 50% of all cases of upper gastrointestinal bleeding. Acute mortality may be as high as 14% (*Arlt and Leyh, 2001*).

Physician office visits and hospitalizations for PUD have decreased in the last few decades. The mortality rate has decreased modestly in the last few decades and is approximately 1 death per 100, 000 cases. The hospitalization rate is approximately 30 patients per 100, 000 cases (*Le et al.,*

2007). Mortality is especially high in the elderly and in in-hospital patients (*Leerdam, 2008*).

Clinical Features:

Typical symptoms of peptic ulcer disease include episodic burning epigastric pain; pain occurring two to five hours after meals or on an empty stomach; and nocturnal pain relieved by food intake, antacids, or antisecretory agents. A history of episodic or epigastric pain, relief of pain after food intake, and nighttime awakening because of pain with relief following food intake are the most specific findings for peptic ulcer and help rule in the diagnosis. Less common features include indigestion, vomiting, loss of appetite, intolerance of fatty foods, heartburn, and a positive family history. The physical examination is unreliable in one study, On physical examination, epigastric tenderness is the most frequent finding, usually in the midline and often midway between the umbilicus and the xiphoid process, The natural history and clinical presentation of peptic ulcer disease differ in individual populations (*Cappell, 2003*).

Some individuals with active duodenal ulcer have no ulcer symptoms. Thus, there is felt to be an underestimation of duodenal ulcer frequency (*Abeloff et al., 2000*).

Postprandial epigastric pain is more likely to be relieved by food or antacids in patients with duodenal ulcers than in those with gastric ulcers. Weight loss precipitated by fear of

food intake is characteristic of gastric ulcers (**Ramakrishan and Salinas, 2007**).

The patient should be evaluated for alarm symptoms. Anemia, hematemesis, melena, or heme positive stool suggests bleeding; vomiting suggests obstruction; anorexia or weight loss suggests cancer; persisting upper abdominal pain radiating to the back suggests penetration; and severe, spreading upper abdominal pain suggests perforation. Patients older than 55 years and those with alarm symptoms should be referred for prompt upper endoscopy. Endoscopy is more sensitive and specific for detection of peptic ulcer disease than upper gastrointestinal barium studies and allows biopsy of gastric lesions. Patients younger than 55 years with no alarm symptoms should be tested for *H. pylori* infection and advised to discontinue the use of NSAIDs, smoking, alcohol, and illicit drug use . If test results are positive for *H. pylori*, the infection should be eradicated and antisecretory therapy, preferably with a proton pump inhibitor, administered for four weeks. Further management is based on the endoscopic or radiological diagnosis. Patients with persistent symptoms should be referred for endoscopy to rule out refractory ulcer and malignancy (**Talley et al., 2005**).

About 25 percent of patients with peptic ulcer disease have a serious complication such as hemorrhage, perforation, or gastric outlet obstruction. Silent ulcers and complications are

more common in older patients and in patients taking NSAIDs (**Martinez and Mattu, 2006**).

The incidence of Upper gastrointestinal bleeding ranging from 37 to 172/100 000 adult persons (**Leerdam , 2008**). Peptic ulcer accounts for 50% to 70% of cases of acute nonvariceal upper GI bleeding (**Barkun et al., 2003**).

The frequency of PUD is variable and determined primarily by association with the major causes of PUD: *H pylori* and NSAIDs (**Le et al., 2007**).

Prevalence of peptic ulcer has shifted from predominance in males to similar occurrences for both sexes, Lifetime prevalence is approximately 11-14% for men and 8-11% for women (**Le et al., 2007**).

Age trends for ulcer occurrence reveal declining rates in younger men, particularly for duodenal ulcer, and increasing rates in older women (**Le et al., 2007**).

Hematemesis is observed in 40-55% of patients with peptic ulcer, including patients with coffee-ground emesis. Melena is documented in approximately 70-80% of patients, and hematochezia is documented in approximately 15-20%. These clinical signs may also be indicators of the potential source of the GI bleeding, as noted in the following table (**Peter, 1999**).

Table 1: Probable Source of GI Bleeding Within the Gut.
(Quoted from e medicine (*James et al. , 2007*)).

Clinical Indicator	Probability of Upper GI Source	Probability of Lower GI Source
<i>Hematemesis</i>	Almost certain	Rare
<i>Melena</i>	Probable	Possible
<i>Hematochezia</i>	Possible	Probable
<i>Blood-streaked stool</i>	Rare	Almost certain
<i>Occult blood in stool</i>	Possible	Possible

Some prognostic indicators that can be detected from the history and physical examination findings are helpful for developing a scoring system to assess the risk of poor outcome with UGIB. These factors include age, heart rate, systolic blood pressure (SBP) upon admission, orthostatic changes in blood pressure or pulse rate, and the use of any anticoagulants. Assessing the patient for hemodynamic instability and clinical signs of poor perfusion is important early in the initial evaluation to properly triage patients with massive hemorrhage to intensive care unit (ICU) settings. Worrisome clinical signs and symptoms of hemodynamic compromise include tachycardia of more than 100 beats per minute (bpm), systolic blood pressure of less than 90 mm Hg, cool extremities, syncope, and other obvious signs of shock such as ongoing brisk hematemesis or maroon or bright-red stools, which requires rapid blood transfusion (*James et al., 2007*).