RESCUE SURGERY FOR DUODENAL ULCER BLEEDING IN AN ERA OF EFFECTIVE MEDICAL MANAGEMENT OF PEPTIC ULCER DISEASE

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ABSTRACT
Objective: *To audit and share experience in managing duodenal ulcer bleeding, a rare surgical emergency, in a period of comprehensive medical management.*
Study Design: *Case series.*
Setting & Duration: *Department of Surgery, Sheikh Zayed Hospital and Federal Postgraduate Medical Institute, Lahore from July 2000 to June 2007.*
Methodology: *A retrospective study of 14 patients managed for bleeding duodenal ulcer. The data was obtained from hospital record and patient files. All the patients were initially admitted to the gastrointestinal service of the hospital. Bleeding duodenal ulcer was diagnosed endoscopically in all patients. Indications for surgery subsequent to resuscitation were failure to arrest haemorrhage medically and or by endoscopic measures, requirement of 6 units of blood during observation, unstable patients, very low hemoglobin and rare blood group.*
Results: *Average age of the group was 46 years. 11(79%) patients presented in emergency with shock. 6(43%) patients were on long term non steroidal anti-inflammatory drugs (NSAID). On endoscopy 11(79%) patients had posterior bulbar ulcer and 3(23%) had anterior ulcer. When operated it was seen that out of these 3 only 1 had anterior ulcer while other 2 had posterior ulcer. For posterior ulcer suture ligation (SL) along with bilateral truncal vagotomy (TV) and pyloroplasty (PP) was done. For anterior ulcer duodenostomy closure taking ulcer in suture line was done. Re-bleeding was seen in 2(14%) patients and was managed by anterectomy ulcer excision and bilroth-II reconstruction in one patient and embolization of gastroduodenal artery aneurysm in the other. Other post operative complications were pneumonia (22%), wound infection (22%), arrhythmias (7%) and duodenal stump leak (7%).*
Conclusion: *In this era of medical and endoscopic advancement, surgical intervention still has a definitive rescue role in bleeding duodenal ulcer with acceptable morbidity and mortality.*

KEY WORDS: *Duodenal Ulcer, Bleeding, Rescue Surgery*

INTRODUCTION

The history of management of peptic ulcer disease is one of the great stories of the history of general surgery. Surgeons who have pioneered the procedure and techniques in managing peptic ulcer disease have earned historic ranks in our discipline.[1] Surgical intervention in uncomplicated peptic ulcer disease has decreased considerably since the introduction of H2-receptor antagonists, protein pump inhibitor and advanced endoscopic and haemostatics measures such as bicap cautry, heater probe, laser photocoagulation etc. In contrast several studies have shown that number of acute surgical procedures performed in complicated peptic ulcer have remained unchanged.[2,3] Recent studies suggest that increased usage of nonsteroidal anti-inflammatory drugs (NSAIDs), antiplatelets/anticoagulant therapies have resulted in significant increase in hospital admissions for complicated peptic ulcer (bleeding or perforation). This study was undertaken to audit and share our experience in managing duodenal ulcer bleeding in a period of comprehensive medical and endoscopic management and to highlight need of surgical intervention and associated morbidity and mortality.

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METHODOLOGY

This study included 14 patients operated for bleeding duodenal ulcer between July 2000 and June 2007 in Surgical Unit I of the division of Surgery in Sheikh Zayed Hospital, a tertiary care teaching hospital affiliated to Federal Postgraduate Medical Institute. The data was obtained retrospectively from the patient records and files.

The series had of patients operated on for uncontrolled bleeding. Bleeding duodenal ulcer was diagnosed endoscopically in all patients. Indications for surgery were failure to arrest haemorrhage medically or by endoscopic means, administration of 6 or more units of blood in short period of observation and on unstable patient despite resuscitation in which case endoscopy was carried in the operation room. Relative indication for early intervention were, haemoglobin less than 8 gm/dl on presentation age above 50 years, rare blood group, rebleeding following a period of controlled bleeding by medical or endoscopic measures in high risk groups. All patients were initially admitted to gastrointestinal service and surgical consultation was requested as per hospital protocol.

RESULTS

There were 11 male patients and 3 female patients (ratio 4:1). Average age of the group was 46 years (range 20-65 years). 11(79%) patients presented in emergency and 3(22%) patients were admitted in gastroenterology department with complaints of malena, generalized weakness and severe anemia (< 7gm/dl). All patients who reported in emergency were in a state of shock with presentation of haemtemesis and malena in 7(50%), haemtenesis alone in 3(22%) and malena alone in 4(29%). Only 3(22%) patients had upper abdominal pain (Table I). 6(43%) patients were on long term use of non-steroidal anti-inflammatory drugs for joints pains, 4(29%) patients had osteoarthritis and 2(14%) rheumatoid arthritis. 4(29%) cases were on anticoagulants for ischemic heart disease and 1(7%) patient was on long term hakeem medication for generalized weakness and infertility. Co-morbidities were diabetic mellitus in 4(29%) patients and ischemic heart disease in 3(22%) patients and 1(7%) had chronic obstructive pulmonary disease.

Table I. Presenting Features / Complaints

Presentation	No. of patients	%
Shock*	11	79
Haemtemisis & Malena	7	50
Haemtemisis Alone	3	22
Haemtemisis Alone	4	29
Upper Abdominal Pain	3	22

** Pulse > 100/min, B.P Systolic < 100mmHg, continuous bleed and Oxygen Saturation < 90*

Post-operative mortality was defined as death during the hospital admission 11(79%) patients had posterior bulbur ulcer and 3(22%) were diagnosed having anterior ulcer on endoscopy.

After resuscitation and stabilization all 11(79%) patients who presented in emergency were scoped. In 2(14%) patients bleeding was controlled by injecting adrenalin, however, they rebled on 2nd and 3rd day and were operated upon. 3(22%) patients had visible vessel with continuous spurting and 6(43%) had a large clots adherent to posterior ulcers which were difficult to dislodge. Patient injected with adrenaline were operated on regular list whereas those with visible vessels and adherent clots were operated with in 2-6 hrs of admission and resuscitation. 3(22%) patients admitted in gastroenterology unit through OPD were initially managed in these units by medical therapy. However, one had an episode of massive bleed on 3rd post admission day and was operated in emergency (required 5 units blood for resuscitation). The other two were elderly and had adherent clots in posterior bulbar wall on subsequent endoscopic evaluation and had intermitted episodes of malena and haemtemsis during hospital stay. They were operated on elective list.

All patients were operated following informed high risk consent. Duodenopylorotomy was done in 11(79%) patients diagnosed as having posterior ulcer on endoscopy and duodenotomy was done in 3(22%) patients with endoscopic diagnosis of anterior ulcer. However, in this only one had anterior ulcer whereas in the other two incisions were extended to include pylorus as the ulcers were posterior.

Table II. Pos-operative Complications

Complications	No. of patients	%
Re-bleeding	2	14
Pneumonia	3	22
Wound Infection	3	22
Arrhythmia	1	7
Duodenal Leak	1	7

In the patient with anterior ulcer duodenotomy was closed taking the ulcer in the suture line and no additional procedure was done. In patients with posterior ulcer suture ligation of vessel in cephalic, caudal and medial quadrant along with bilateral truncal vagotomy and pyloroplasty was done. In 3(22%) patients antrectomy with Billroth II reconstructive and truncal vagotomy was done as there was extensive scaring of pyloroduodenal region. In 1(7%) patient suture ligation of ulcer through duodenostomy was done. This was an elderly patient (> 60 years) who had recent history myocardial infarction. No additional procedure was undertaken. All patients were given intravenous omeperazole post-operatively. Two elderly patients were ventilated for 24 hours post-operatively.

Re-bleeding in 2(14%) patients, pneumonia 3(22%), wound infection 3(22%), arrhythmia 1(7%) and duodenal stump leakage 1(7%) were the major post operative complications (Table II). Duodenal stump leakage was seen in patient with large ulcer and managed conservatively. Two patients who rebled were readmitted on 15th and 36th post-operative days. The one who presented on 15th post-operative day was an elderly lady, a very high risk for anesthesia, and was managed conservatively. Her angiography demonstrated aneurysm of gastroduodenal artery which was successfully coil embolized. Second patient was rescoped and there was no bleeding site. He rebled on 3rd post admission day and could not be scoped due to his condition. He was re-explored in emergency and managed by antrectomy ulcer excision and Bilroth-II reconstruction. However he expired on 7th postoperative day due to pulmonary complication.

The remaining seven patients were on regular follow up and were doing fine with long term proton pump inhibitor use, hylicobacter eradication and some adjustment in the antiplatelet therapy for their ischemic heart diseases.

DISCUSSION

Bleeding from complicated peptic ulcer disease is the most important cause of massive upper gastrointestinal hemorrhage.[1] According to study of Zullo and Hassan[4], from Italy, the important aetiopathological factors involved in peptic ulcer bleeding are NSAID and H. Pylori infection. They further emphasized that risk of bleeding is higher for NSAID than for H. Pylori related ulcers. In this study too, it is seen that 43% (n=6) patients were on long term NSAID and/or anti platelet therapy 29% (n=4).

The literature is replete with studies which support control of bleeding with endoscopic haemoclip, heater-probe and laser.[5] However such expertise are not available to our patients. At Sheikh Zayed Hospital heater probe is used as temporary measure. A consensus study of National Institute of Health in 1989 reported preference for the use of multipolar cautry and heater probe for use in endoscopic management of bleeding duodenal ulcer.[5] However despite all possible measures some patients would still require surgery for the control of bleeding.

Currently there is no consensus on the best procedure for emergency surgical intervention.[6] In the authors experience suture ligation (SL) with pyloroplasty (PP) and truncal vagotomy is a good procedure with better long term results. In 13 patients with posterior bulbar ulcer, 9 patients were managed by SL, PP and TV and they are doing well in follow-up except for one who rebled. However, when there is extensive scaring of pyloroduodenal region, gastric resection with billroth-II reconstruction is a better and valid option but management of duodenal stump, often, is challanging. Xing Wu have made similarly observation in their study in which they published their results of a modified technique involving partial gasterectomy, duodenostomy and use of omental patch around tube duodenostomy[8].

Probably the role of surgery has changed. Its aim is no longer to cure the ulcer diathesis but rather to urgently control bleeding in anticipation of ulcer cure with medical management.[9] Brehant has shown and strongly supported the surgical conservative treatment of recurrent duodenal bleeding with continuous proton pump inhibitors. His study also validates use of conservative therapy in ulcers with low rate of bleeding. However, this concept needs further studies before it is taken up[7].

Cheung's and Lau's series from China support endoscopic hemostasis even in large ulcers (> 2 cm) in elderly with comorbidity[10]. Preferential management for a bleed from the anterior duodenal ulcer is to treat by endoscopic means and surgical intervention in posterior ulcer after initial resuscitation and stabilization by the authors. Patients are operated earlier if there is continuous oozing from the source, an adherent clot on the ulcer, failure of resuscitation, rare blood group, advance age, re-bleeding during same admission after initial medical/ endoscopic control of bleeding. These are infact generally accepted criteria for intervention.[11]

A controlled randomized trial by Bertran Millat and associates concluded that gastric resection with ulcer excision is procedure of choice for bleeding because postoperative mortality and morbidity is lower and overall mortality and duodenal leakage are same as

oversewing plus vagotomy.[12] On the contrary several retrospective studies have stated that oversewing the ulcer plus vagotomy and drainage was better than gastric resection with excision of ulcer.[13,14] The best choice of procedure is to be determined by the experience of the surgeon and careful patient selection. The main objective of controlling the haemorrhage must always be held paramount in consideration. Persistent or recurrent haemorrhage following initial therapy is associated with mortality rates ranging from 10% - 44% depending upon response rate of initial therapy.[15]

CONCLUSION

Despite advance medical and endoscopic management there is a definitive role for surgical intervention. It leads to early arrest of haemorrhage with acceptable morbidity and mortality keeping in view the severity of complicated (bleeding) duodenal ulcer.

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