

SURGICAL TREATMENT OF MASSIVE UPPER GASTROINTESTINAL BLEEDING IN OCTOGENARIAN

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ABSTRACT

Acute upper gastrointestinal bleeding is a potentially life-threatening abdominal emergency condition. More immediately life-threatening is massive upper gastrointestinal bleeding resulting in cardiovascular compromise causing dizziness, syncope and shock.

The causes of upper gastrointestinal bleeding include bleeding peptic ulcer, Mallory-Weiss tears, acute stress gastritis, Dieulafoy lesion, non-steroidal anti-inflammatory drugs induced bleeding and neoplasms.

The management of massive upper gastrointestinal bleeding entails resuscitation with intravenous fluids and blood transfusion, urgent diagnostic esophagogastroduodenoscopy and possible intervention. Endotracheal intubation is done to protect the airway in situation of high risk of aspiration from altered sensorium following shock. Intravenous proton pump inhibitor is given. There should be a collaborative team work between gastroenterologist and the surgeon.

We report two octogenarians that presented with massive upper gastrointestinal bleeding that were treated by surgery and had good outcome. The aim of this study was to emphasize the need for early surgical intervention in massive upper gastrointestinal bleeding especially in elderly whose functional reserve is markedly depleted with poor tolerance to acute blood loss.

Introduction

Upper gastrointestinal bleeding is usually defined as a bleeding source proximal to the ligament of Treitz. Massive upper gastrointestinal bleeding is characterized by haematemesis, melaena, haematochezia (if bleeding is massive and brisk) with evidence of

haemodynamic compromise such as dizziness, syncope and shock. The incidence of upper gastrointestinal bleeding is approximately 100 cases per 100,000 per year with overall mortality of 6-10%¹. Its mortality increases with older age (> 60 years), in both males and females².

KEYWORDS:

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The management of upper gastrointestinal bleeding has evolved overtime from passive diagnostic esophago-gastroduodenoscopy and medical treatment to active intervention with endoscopic techniques followed by angiographic and surgical approaches if endoscopic therapy fails³. Upper gastrointestinal endoscopy is the diagnostic modality of choice in upper gastrointestinal bleeding and often treatment⁴. Prior to esophagogastroduodenoscopy,

resuscitation should be started to minimize complications⁵. However, in patients with brisk and massive bleeding, endoscopy may be performed simultaneously with resuscitation⁶. Endotracheal intubation to protect the airway may be necessary in severe haematemesis with mental alteration from shock and high risk of aspiration⁷. Consultation with a surgeon should be considered for all patients with gastrointestinal haemorrhage.

We report two octogenarians that presented with massive upper gastrointestinal bleeding that were treated by surgery and had good outcome. The aim of this study was to emphasize the need for early surgical intervention in massive upper gastrointestinal bleeding especially in elderly whose functional reserve is markedly depleted with poor tolerance to acute blood loss.

Case 1

An 80-year-old woman was admitted into the emergency room with a 4-day history of vomiting of blood and a day history of passage of dark stool. Vomiting of blood was once a day and she had two episodes on the day of admission. Estimated blood volume in each episode was approximately 200mls of frank blood. She passed dark stool twice a day before admission. There was associated weakness, dizziness and fainting spells. She had been on non-steroidal anti-inflammatory drugs for knee arthritis. There was no history of alcohol intake or cigarette smoking. She was a known peptic ulcer disease patient for eight years who had been regularly on antacids and a known hypertensive for 15 years on anti-hypertensive (Nifedipine). A review of other systems was normal. Prior to hospital admission, she had received three units of blood on account of low

haematocrit of 15% in another hospital. General examination revealed an acutely ill-looking elderly woman, restless and anxious, pale, dehydrated, afebrile, anicteric, acyanosed and nil pedal edema. Her pulse rate was 98 beats/min, blood pressure 100/70mmHg and respiratory rate 28 cycles/min. Her abdomen was full, moved with respiration with tenderness in the epigastrium. The liver and spleen were not palpably enlarged and the kidneys were not ballotable. The bowel sound was hypoactive. Blood clots and frank blood were evacuated on digital rectal examination and no rectal mass was felt (Figure 1).

An urgent upper gastrointestinal endoscopy was carried out and revealed a stomach filled with blood clots and continuous bleeding from the first part of the duodenum. Her clotting profile was normal. She was treated with intravenous fluids and transfused three units of whole blood while being prepared for emergency laparotomy. Nasogastric tube drained frank blood and urethral catheter drained clear urine. She was given oxygen, intravenous Amoxil, Erythromycin and Rabeprazole.

At laparotomy, the first part of the duodenum down to the rectum was dilated and filled with blood. Kocherization of the duodenum was done and duodenotomy revealed an actively bleeding vessel in an ulcer crater in the posterior wall of first part of duodenum. No other pathology was seen. Oversewing of the bleeding vessel was carried out with Vicryl O suture and bleeding stopped. The duodenum was closed transversely in order not to narrow it. Truncal vagotomy was not carried out. A sub-hepatic drain was put in place and abdomen was closed. She was transferred to intensive care unit. Post-operatively,

she had a total of seven units of blood. She was continued on antibiotics, analgesia, Rabeprazole, antihypertensive and Enoxaparin. She developed hypokalaemia on the 2nd day post-operatively which was corrected with potassium chloride. Her blood pressure rose to 187/98mmHg which was controlled with anti hypertensives by the cardiologist. She commenced oral feeding on the 3rd day after surgery. A surgical site infection was observed on the 7th day after surgery. Wound swab yielded *Esherichia Coli* and *Klebsiella* sensitive to Amikacin and she was commenced on it with daily dressing of the wound. The wound healed without any need for secondary closure. She was discharged on the 20th day after surgery with haematocrit of 37.7% (Hemoglobin = 10.6g/dl).

Case 2

An 81- year- old woman was admitted with a 12-hour history of vomiting and passage of dark altered blood in the stool. She vomited frank blood with passage of dark stool twice while on hospital admission. There was associated dizziness, weakness and fainting spells. She had been on non-steroidal anti-inflammatory drugs for treatment of arthritis for many years. She took alcohol occasionally with herbal medications but never smoked cigarette. She was a known diabetic and hypertensive for ten years and had been on Metformin, Ramipril and frusemide. A review of other systems was normal.

Physical examination revealed an elderly woman, restless, pale, dehydrated, anicteric and no pedal edema. Her pulse rate was 100beats/min, blood pressure 100/60mmHg and respiratory rate 30cycles/min. There was tenderness in the epigastrium on abdominal palpation, the liver and spleen were not palpably

enlarged and the kidneys were not ballotable. There was no rectal mass on digital rectal examination and gloved finger was stained with dark stool.

Full blood count showed haematocrit of 24% (Hemoglobin= 7.0g/dl), total white blood cell count $8.5 \times 10^3/\text{mm}^3$ and platelet $222 \times 10^3/\text{mm}^3$. Urgent upper gastrointestinal endoscopy was carried out and revealed blood clots filled stomach and bleeding from the first part of duodenum. Random blood sugar, clotting profile and electrolytes, urea and creatinine were normal.

Nasogastric tube passed drained frank blood and urethral catheter drained clear urine. She had intravenous infusions, blood transfusion, intravenous Amoxil and Metronidazole. She had emergency laparotomy. The findings were fundus of gallbladder adherent to the first part of the duodenum, fibrosis in the first part of the duodenum, dilated intestines from duodeno-jejunal junction to the rectum filled with blood. Kocherization of the duodenum and duodenotomy revealed an ulcer crater approximately 2cm in the posterior wall of the first part of the duodenum with slough on its floor and a bleeding vessel. Over-sewing of the bleeding vessel was carried out with Vicryl O and the bleeding stopped. Duodenum was closed transversely. Truncal vagotomy was not carried out.

Post-operatively, she was transferred to intensive care unit. She had six units of whole blood and was continued on triple regimen (proton pump inhibitor and two antibiotics for eradication of *Helicobacter pylori*), antihypertensive and anti-diabetic drugs. Hypokalemia was observed on the third day after surgery which was corrected with potassium chloride. She was discharged on the 10th day after surgery with haematocrit of 36.3% (Hemoglobin= 12.1g/dl).



Figure 1: Case 1 showing fresh and dark blood passed out through the anus by the patient

Discussion

Surgical treatment of massive upper gastrointestinal bleeding can be quite challenging especially in elderly whose functional reserve is markedly depleted. Indications for surgery include severe, life-threatening haemorrhage not responsive to resuscitative measures efforts, failure of medical therapy and endoscopic haemostasis with persistent recurrent bleeding, co-existing reason for surgery, such as perforation, obstruction or malignancy, prolonged bleeding with loss of 50% or more of the patient's blood volume and a second hospitalization for peptic ulcer haemorrhage.

Prior to surgery, urgent esophagogaastroduodenoscopy is indicated for confirmation of the site of bleeding and possibly treatment to stop the bleeding. According to the 2010 international consensus on non-variceal upper gastrointestinal bleeding, early esophagogaastroduodenoscopy (within 24 hours of presentation) is appropriate for most patients with upper gastrointestinal bleeding to determine the cause of

bleeding and possibly intervention⁸. Esophagogaastroduodenoscopy can be carried out simultaneously with resuscitation of the patient. The two cases reported had esophagogaastroduodenoscopy which located the site of bleeding in the duodenum prior to surgery. In the absence of facilities and expertise for therapeutic esophagogaastroduodenoscopy to stop the bleeding, surgery was the only available option and it was carried out in the patients to stop the bleeding.

Surgical options for a bleeding duodenal ulcer include vagotomy with a drainage procedure (pyloroplasty, antrectomy or gastrojejunostomy) and over sewing of the bleeding ulcer. Most common surgical options performed for a bleeding duodenal ulcer are: truncal vagotomy and pyloroplasty with suture ligation of the bleeding ulcer, truncal vagotomy and antrectomy with suture ligation of the bleeding ulcer and proximal (highly selective) gastric vagotomy with duodenotomy and suture ligation of the

bleeding ulcer⁸. Truncal vagotomy inhibits acid production that occurs during cephalic phase of gastric secretion while the drainage procedure enhances gastric emptying due to gastric atony resulting from truncal vagotomy except proximal gastric vagotomy. The two cases reported only had over sewing of the bleeding ulcer. Vagotomy was not done because they presented in extremis with hypovolaemic shock, and in advanced age hence emphasis was placed on stopping the bleeding, avoiding any additional surgery that will increase anaesthesia and surgery time. Moreover, the use of proton pump inhibitors have been effective in controlling gastric acid production coupled with eradication of the *Helicobacter pylori* with appropriate antibiotics.

The two patients were treated with proton pump inhibitors and appropriate antibiotics for eradication of *Helicobacter pylori* for two weeks. Proton pump inhibitors decrease re-bleeding rates in patients with bleeding ulcers associated with an overly clot or visible non-bleeding vessel in the base of the ulcer⁹.

The mortality rate in bleeding peptic ulcer increases with older age (greater than 60 years) in both males and females². The American Society for Gastrointestinal Endoscopy (ASGE) grouped patients with upper gastrointestinal bleeding according to age and correlated age category to the risk of mortality. The ASGE found a mortality of 3.3% for patients aged 21-31 years, a rate of 10.1% for those aged 41-50 years and a rate of 14.4% for those aged 71-80 years¹⁰. Age greater than 60 years, severe co-morbidity, active bleeding, red blood cell transfusion greater than or equal to six units and severe coagulopathy are factors associated with recurrent bleeding, need for endoscopic

haemostasis or surgery and increased mortality¹¹. The two patients reported were at least 80 years old, had massive bleeding and co-morbidity. They had surgery with good outcome.

Conclusion

Surgical intervention has a prominent role in the treatment of massive upper gastrointestinal bleeding especially in the elderly. Early surgical consultation should be considered for all cases of gastrointestinal bleeding especially when bleeding is massive and in elderly whose functional reserve is markedly depleted with poor tolerance to acute blood loss. Additional treatment with proton pump inhibitor and eradication of *Helicobacter pylori* with appropriate antibiotics may go a long way to reduce the risk of re bleeding.

References

1. Fallah MA, Prakash C, Edmundowicz S. Acute gastrointestinal bleeding. *Med Clin North Am* 2000; 84: 1183-1208.
2. Pilotto A, Maggi S, Noale M, Franceschi M, Parisi G, Crepaldi G. Development and validation of a new questionnaire for the evaluation of upper gastrointestinal symptoms in the elderly population: a multicentre study. *J Gerontol A Bio Sci Med Sci* 2010; 65: 174-178.
3. Pongprasobchai S, Nimitvilai S, Chasawat J, Manatsathit S. Upper gastrointestinal bleeding etiology score for predicting variceal and non-variceal bleeding. *World J Gastroenterol* 2009; 15: 1099-1104.
4. Lam KL, Wong JC, Lau JY. Pharmacological treatment in upper gastrointestinal bleeding. *Curr Treat Options Gastroenterol* 2015; 13: 369-376.
5. Barodarian R, Ramdhany S, Chapalamadugu R, Skoczylas L, Wang K, Rivilis S, et al. Early intensive resuscitation of patients with upper gastrointestinal bleeding decreases mortality. *Am J Gastroenterol* 2004; 99: 619-622.

6. Barkun AN, Bardou M, Kuipers EJ, Sung J, Hunt RH, Martel M, et al. Ann Intern Med 2010; 152: 101-113.
7. Zongyu JC, Martin LF. Management of upper gastrointestinal bleeding emergencies: evidence-based medicine and practical considerations. World J Emerg Med 2011; 2: 5-12.
8. Stabile BE, Stamos MJ. Surgical management of gastrointestinal bleeding. Gastroenterol Clin North Am 2000; 29: 189-222.
9. Leontiadis GI, Howden CW. The role of proton pump inhibitors in the management of upper gastrointestinal bleeding. Gastroenterol Clin North Am 2009; 38: 199-213.
10. Peter DJ, Dougherty JM. Evaluation of the patient with gastrointestinal bleeding: an evidence based approach. Emerg Med Clin North Am 1999; 17: 239-261.
11. Adler DG, Leighton JA, Davila RE, Hirota WK, Jacobson BC, Qureshi WA, et al. American Society for Gastrointestinal Endoscopy guideline: the role of endoscopy in acute non-variceal upper gastrointestinal haemorrhage. Gastrointestinal Endosc 2004; 60: 497-504.