Upper gastrointestinal bleeding: audit of a single center experience in Western India

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Abstract

Upper gastrointestinal (GI) bleeding is defined as bleeding proximal to the ligament of Treitz. The most important aspect of management of GI bleeding is to locate the site and cause of bleeding. The aim of the study is to find out the common etiology, presentation and management, including the role of upper GI endoscopy. Recent advances have meant that endoscopic hemostatic methods are now associated with a reduced rate of re-bleeding, cost, blood transfusion, length of hospital stay and mortality. A prospective study of 50 cases was carried out between August 2001 and July 2003. Patients with signs and symptoms suggestive of upper GI bleeding (UGIB) such as hematemesis, melena, aspirated blood from nasogastric tubes, profuse hematochezia, etc., were included in the study. The patients were selected randomly. The most common cause of UGIB in the present study was acute erosive gastritis (34%) followed by portal hypertension (24%) and peptic ulcer (22%). All 50 patients underwent upper GI endoscopy, of whom 39 patients were treated conservatively and 11 patients underwent endotherapy to control bleeding. Out of 39 patients treated non-endoscopically, 6 cases required laparotomy to control UGIB. 8 of 50 cases had past history of UGIB, 5 of whom had a previous history of endotherapy. One case was treated with devascularization as routine hemostatic methods failed. So, initial method of choice to control the bleeding was endotherapy and surgery was undertaken if an endoscopic method failed. The most common cause of hematemesis in our setting was acute erosive gastritis followed by portal hypertension. Endoscopy is a valuable minimal invasive method to diagnose and treat upper GI bleeding.

Introduction

Upper gastrointestinal (GI) bleeding is defined as bleeding proximal to the ligament of Treitz. The most important aspect of management of GI bleeding is to locate the site and cause of bleeding.[1] Bleeding from the upper GI tract is approximately five times more common as compared to lower GI tract bleeding, and males are affected twice as much as compared to females.[2] Clinically, upper GI bleeding often presents as hematemesis or melena. Fresh blood per rectum (hematochezia) usually indicates lower GI source of bleeding or massive upper GI bleeding in 15% of cases and is associated with worse prognosis.[3] About 80% of the GI bleedings stop spontaneously; only 20% continue or recur. Diagnostic accuracy of endoscopy is 80-95% for upper GI bleeding. National Institute of Health[4] and American Society of Gastrointestinal and Endoscopic surgeons[4] recommend urgent endoscopy in a patient who is actively bleeding or has a high risk for re-bleeding (such as old age, shock, low hemoglobin, melena, more than 4 transfusions, etc.). The aim of the study is to find out the common etiology, presentation and management, including role of upper GI endoscopy. Recent advances have meant that endoscopic hemostatic methods are now associated with a reduced rate of re-bleeding, cost, blood transfusion, length of hospital stay and mortality.[5] We present here the results of a prospective study of 50 patients withupper GI bleeding (UGIB) during the period of 2001-2003.

Materials and Methods

A prospective study of 50 cases was carried out between August 2001 and July 2003. This study was conducted in a tertiary care center and medical college in Vadodara (India). This study was approved by the university authorities. Written and informed consent was obtained from the patients /relatives of the patients. All patients were selected on the basis of a detailed history and physical examination. Patients with signs and symptoms suggestive of upper GI bleeding such as hematemesis, melena, blood in the nasogastric tubes, profuse hematochezia, were included in the study. The patients were selected randomly. Endoscopy was performed in all patients within 24 h of admission depending upon the urgency of the condition by using an Olympus forward viewing flexible video endoscope. Endoscopy was performed by placing the patients in a left lateral position by standard technique.

Results

This prospective study was conducted during the period August 2001-July 2003. Cases were selected randomly and included patients admitted to both medical as well as surgical wards. The total number of cases of upper GI bleeding studied was 50, out of which 37 were males and 13 were females. Age distribution is shown in Table 1.

Patients' clinical features (symptoms) are summarized in Table 2. Clinical presentation and signs are summarized in Table 3. The most common symptom was hematemesis (100%) followed by abdominal pain (84%) and melena (28%). The most common sign observed was ascites (18%) followed by shock (14%), and hepatosplenomegaly (6%) or splenomegaly (6%). Of these, all (100%) patients had hematemesis while 28% had melena.

Out of 50 patients, 10 patients had a history of alcoholism while 14 (28%) were smokers. Four patients had a history of upper gastrointestinal surgery and 3 patients had a pulmonary tuberculosis with cirrhosis while one had only pulmonary tuberculosis. Three patients were on non-steroidal anti-inflammatory drugs (NSAIDs). Twelve patients had a past history of hematemesis (n=8) and abdominal pain (n=4).

Radiological investigations such as ultrasonography (all cases), CT scan (n=6), barium study (n=8) and splenoportogram (n=2) were carried out in addition to upper GI endoscopy to help diagnosis.

The etiological distribution is summarized in Table 4. In this study, we found that the commonest cause of upper GI bleeding was acute erosive gastritis (34%), followed by portal hypertension with esophageal varices (24%) and peptic ulcer (22%). A few cases had a dual diagnosis, so these were included

under both categories.

In our study, all patients with portal hypertension with esophageal varices were in the 20-50 year age group, while all patients with peptic ulcer were in the 20-60 year age group. Gastric and esophageal cancers were seen in patients over 40 years of age. In this study, few patients had a dual diagnosis and both diagnoses were kept in the table. Cause of bleeding was decided by recent sign of bleeding in such cases. In this study, Hiatus hernia was associated with reflux esophagitis in all cases. We were not able to confirm etiology in 2 patients.

Among the 50 cases, 44 cases were treated conservatively either by medical therapy (n=33) or by endotherapy (n=11). Six patients underwent surgical treatment. Definite surgical treatment was offered to the patients either to stop persistent bleeding or in case of recurrent bleeding (Table 5). Eleven had to undergo immediate endoscopy due to severe and persistent bleeding from the upper GI tract, while 39 patients underwent endoscopy within 24 h (Table 6).

All patients were followed for one year. Endoscopic finding was completely healed in 39 patients on subsequent follow up. Three patients of portal hypertension with esophageal varices developed repeat episodes of hematemesis. All 3 patients were treated by one more session of endotherapy; no recurrent bleeding was observed in subsequent follow up.

During the one year follow up, the operated case of resected gastric cancer had recurrent upper GI bleeding due to a disease recurrence and one patient with esophageal cancer died from metastatic disease.

Discussion

This prospective study of upper GI bleeding during the period of 2001-2003 was performed in the SSG Hospital and Medical College, Baroda, India. All patients were selected randomly.

Table 1. Age distribution of patients.

Age (years)	N. of patients	
21-30	15	30
31-40	12	24
41-50	10	20
51-60	10	20
61-70	1	2
71-80	2	4
Total	50	100

The youngest patient was of 22 years of age; the oldest patient was of 76 years old.

Table 2. Clinical features.

Symptom	N. patients with symptom	(%)
Hematemesis	50	100
Pain in abdomen	42	84
Dysphagia	5	10
Abnormal behavior or altered sensorium	1	2
Melena	14	28
Abdominal distension	7	14
Miscellaneous	16	32

The most common presentation was hematemesis followed by abdominal pain, and melena.

Table 3. Presentation and clinical features.

Sign	N patients	(%)
Shock		
Mild	1	2
Moderate	3	6
Severe (after Wilkinson 1969)	3	6
Liver failure	1	2
Encephalopathy	1	2
Hepatomegaly	2	4
Splenomegaly	3	6
Hepatosplenomegaly	3	6
Ascites	9	18

Table 4. Endoscopic finding.

S. N.	Diagnosis	N. (%)
1.	Acute erosive gastritis	17(34%)
2.	Portal hypertension with esophageal varices	12(24%)
3.	Peptic ulcer	11(22%)
4.	Reflux esophagitis	9(18%)
5.	Stomal ulceration	4(8%)
6.	Hiatus hernia	3(6%)
7.	Esophageal cancer	2(4%)
8.	Gastric cancer	2(4%)
9.	Ulcerated leiomyoma	1(2%)
10.	Portal hypertension with gastropathy	1(2%)
11.	Normal endoscopy	2(4%)

Table 5. Diagnostic *versus* therapeutic endoscopy.

Procedure	N. cases	(%)
Diagnostic endoscopy	39	78%
Therapeutic endotherapy	11	22%
Total	50	100%

Table 6. Immediate *versus* within 24 h of endoscopy.

Procedure	N. cases	(%)
Immediate	11	22%
Within 24 h	39	78%
Total	50	100%

Age and sex distribution

Out of 50 cases, 37 were males and 13 were females, which suggests a preponderance of UGIB in males. It is common in the 20-60 year age group and may be associated with alcohol consumption and smoking. In female patients, UGIB was commonly associated with use of non-steroid anti-inflammatory drugs (NSAIDs). Out of 13 female patients, 6 (46.15%) were taking NSAIDs. According to a study conducted by Saowaros V et al.,[6] the male:female ratio was 3.3:1 and the majority of the patients belonged to the 20-60 year age group.

Symptoms

Hematemesis was present in all patients (100%) followed by abdominal pain (84%) and melena (28%). Fourteen percent of patients presented with abdominal distension due to ascites. Miscellaneous symptoms such as weakness, loss of weight and chest pain were present in 32% cases. One patient presented with grade II hepatic encephalopathy that responded well to conservative management.

UGIB was associated with alcohol consumption in 20 cases, smoking in 14 cases, and NSAID use in 3 cases. Daily NSAID use caused a 40-fold increase in gastric ulcer and an 8-fold increase in duodenal ulcer.[7] Twenty percent of the patients with long-term use develop mucosal ulceration.[8]

The incidence of peptic ulcer disease is declining but it remains the biggest cause of UGIB (35-60%). In this study, acute erosive gastritis was the most common cause of UGIB followed by portal hypertension and then peptic ulcer. A disproportionately large number of patients (40%) have a personal history of alcoholism and this may be the probable reason why portal hypertension is the leading cause of UGIB as compared to peptic ulcer.

Examination

After initial resuscitation, patients were investigated. According to these investigations, 16 patients were found to have moderate to severe iron deficiency anemia as a result of either acute or chronic blood loss; blood transfusion was carried out in these cases due to hemodynamic instability. Altered liver function test was observed in 8 cases. Hypoproteinemia was found in 3 cases. Altered liver function and hypoproteinemia were because of chronic alcoholism leading to poor nutritional intake due to loss of appetite. Altered liver function test was corrected with vitamin K.

Endoscopy and treatments

All 50 patients underwent upper GI endoscopy, of whom 39 patients were treated conservatively and 11 patients underwent endotherapy to control bleeding. Out of 39 patients treated conservatively, 6 cases required laparotomy to control UGIB. Eight of 50 cases had past history of UGIB, 5 of whom had a previous history of endotherapy. One case was treated with de-vascularization as routine hemostatic methods failed. So, initial method of choice to control the bleeding was endotherapy and surgery was undertaken if an endoscopic method failed.

A study by Gasim and Fedail et al.[9] in 2002 showed that endoscopic injection sclerotherapy is an essential component in the management of acute variceal bleeding. In a study by Sugawa and Steffes in 1990 at the Wayne State University, Detroit, of etiology, recurrence and prognosis of UGIB, it was found that out of 562 patients, conservative management was sufficient in 89.5% cases, endotherapy in 144 cases, while surgery was required in 58 cases. It indicated that most patients with UGIB can be treated with conservative treatment. These results are consistent with the present study.

In our study, 4 cases who had undergone surgery in the past presented with recurrent UGIB due to stomal ulceration. All patients were diagnosed by endoscopy and treated conservatively. As seen in Table 4, the most common cause of UGIB in the present study was acute erosive gastritis (34%), followed by portal hypertension (24%) and peptic ulcer (22%). A study by Saowarso et al.,[6] in a review of 5,000 cases for upper GI bleeding, peptic ulcer was found to be the commonest cause (51.24%), followed by erosive gastritis (31.61%) and esophageal varices (8.2%). In another study in 1991, Makela et al.[10] found that peptic ulcer (43%) was the commonest cause followed by erosive gastritis (16%) and esophageal varices (16%). However, these results differ from those of the present study as the most common cause here was acute erosive gastritis. The probable reason for erosive gastritis being the most common cause of GI bleeding in this study may be the overuse of NSAIDs, smoking and alcohol. But overall, from previous studies and our own, we can conclude that the major causes of UGIB are peptic ulcer, erosive gastritis or portal hypertension with varices.

Four patients were found to have cancer (esophageal n=2, gastric n=2). All these patients were over 40 years of age. All patients were followed for at least one year. All patients were observed for persistence of symptoms, recurrence of symptoms and appearance of newer symptoms. In this study, no complication was observed with endoscopy including endotherapy. One patient died of advanced malignancy in the successive follow-up year.

Endoscopy was found to be most useful method of management of UGIB; it reduced the risk of mortality and morbidity of surgery. Upper GI endoscopy was also found to be a great help in the diagnosis of lesions such as gastritis, reflux esophagitis, which can be treated conservatively. All patients of varices treated with endotherapy showed a good response with no episode of recurrence of bleeding. Follow-up endoscopy showed good results of endotherapy. Patients with active bleeding from peptic ulcer, who were treated by endotherapy, showed good response except in 2 cases who had a recurrence of bleeding. One of these was managed with one more session of endotherapy, while the other underwent definitive surgical management because of high risk of developing recurrent bleeding.

Considerable progress has been made in the endoscopic hemostatic methods nowadays and endotherapy in the form of endovariceal ligation (EVL) is the procedure of choice. This has almost replaced sclerotherapy as a first line of management of variceal bleeding. For endoscopic management of non-variceal bleeding, non-erosive contact probes (heater probe and BICAP) and adrenalin injection or sclerotherapy are preferred.

New techniques have been recently introduced to control acute non-variceal bleeding, e.g. fibrin glue and hemoclip application to visible vessels. Treatment failure rate with glue was found to be less than that with injection;[11] another study found that endoclip or hemoclip to be superior to heater probe in preventing re-bleeding.[12]

Nowadays, there is very little doubt about the effectiveness of endoscopic hemostatic methods. These are found to be very useful in controlling primary active bleeding as well as in reducing the re-bleeding rate and reducing the need for emergency surgery. A meta-analysis by Cook et al. has indicated significant reduction in mortality with endotherapy.[13]

The worldwide mortality of UGIB has stabilized at 10% (5-12%) over the last 50 years. It is zero in this study. This is due to good management and also because the biggest cause in this study was acute erosive gastritis, which is associated with a better outcome.

The main limitation of this study is the small sample size and we have not included Glasgow-Blatchford scoring on admission or the Forrest classification for endoscopic triage. This study does, however, show zero mortality and that erosive gastritis is the commonest cause. This is in contrast to Western literature in which peptic ulcer is the most common cause.

Conclusions

The most common cause of upper GI bleed in the present study is acute erosive gastritis and not peptic ulcer. From the present study, it is clear that endoscopy has a definite role in the diagnosis as well as the therapeutic management of UGIB. It is minimally invasive and

the safest method of controlling the bleeding. By using endoscopic hemostatic methods it is possible to avoid major surgery and the associated mortality and morbidity can be avoided.

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