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Original Research Article

Endoscopic evaluation in upper gastrointestinal bleed

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ABSTRACT

Background: Gastrointestinal bleeding is one of the few frightening things that the patient experiences, which can indicate simple, benign, complex or malignant disorders and can end in disaster if proper steps are not taken to identify the source of bleeding and treat it. Aim was to study the role of oesophagogastroduodenoscopy in diagnosis, management and prognosis of upper gastrointestinal bleeding and see the aetiology and age sex incidence.
Methods: The study was conducted on 200 patients, presenting with haematemesis and melaena or history of same and Endoscopy was done using Fujinon 200 Videoendoscope (that consist of end viewing endoscope, videoprocessor and monitor).
Results: Upper gastrointestinal bleeding was 4.5 times more common in males than in females and the mean age in this series was 40 years. Most common cause of upper gastrointestinal bleeding was found to be secondary to oesophageal varices (About 90%), peptic ulcers (6%) and 4% secondary to mucosal erosions. About 22% of patients had both haematemesis and melaena, 28% had hypotension and 70% had tachycardia at the time of presentation. 54% of them had hemoglobin value less than 8 gm% and they were given blood transfusion as per requirement
Conclusions: Oesophagogastroduodenoscopy plays a major role in diagnosis, management and prognosis of upper gastrointestinal bleeding and its importance cannot be replaced by other imaging modalities.

Keywords: Endoscopy, Gastrointestinal bleed, Varices, Ballooning

INTRODUCTION

Word endoscopy is derived from the Greek language by combining “Endo” meaning within and the verb “Scopein”, meaning to view.

It is difficult to think of gastroenterology and particularly surgery of the gut without endoscopy, even though many of pioneers of endoscopy have been physicians. Yet, if the surgeon has no familiarity with the rudiments of endoscopy of the gut, he will be unaware of its potentials and may be seriously disadvantaged both in diagnosis and management of difficult situations. It has been 35 years since Hirsowitz first introduced a flexible fibreoptic endoscope that opened doors to better understanding of gastrointestinal tract.

Gastrointestinal bleeding is one of the few frightening things that the patient experiences, which can indicate simple, benign, complex or malignant disorders and can end in disaster if proper steps are not taken to identify the source of bleeding and treat it.

Gastrointestinal bleeding is divided into upper and lower gastrointestinal haemorrhage by the ligament of Teritz or Suspensory muscle of duodenum which is anatomical landmark of duodenojejunal flexure. Bleeding proximal to ligament of Treitz i.e. from oesophagus, stomach and duodenum is called upper gastrointestinal bleeding while bleeding from jejunum, ileum, colon, rectum are grouped under lower gastrointestinal bleeding.

Haematemesis and melaena are the two important symptoms of upper gastrointestinal bleeding.

Haematemesis is defined as vomiting of blood representing upper gastrointestinal haemorrhage and usually above the ligament of Treitz. The colour of vomited blood depends on the concentration of hydrochloric acid in stomach and its mixture with blood.

Melaena is defined as passage of frothy, liquid, black, tarry foul smelling stools. It usually denotes bleed from upper gastrointestinal tract but lesions in jejunum, ileum and even ascending colon may also cause melaena. Approximately 50 to 60 ml of blood is required to produce a single black stool.

Endoscopy remains the gold standard in the diagnosis and management of acute upper gastrointestinal bleeding.[1] Endoscopic sclerotherapy/banding has been the most successful and safest procedure in the management of first bleeding of oesophageal varices. It can stop bleeding in 80-90% of patients.[2] With the advent of newer modalities of endoscopic treatment and latest facilities, this life threatening sequence can be arrested.

The aims and objectives of the present study are:

- To assess the important aetiological factors for upper gastrointestinal bleeding in our setup.
- To evaluate the age and sex incidence in relation to aetiological factors for Upper Gastrointestinal Bleeding.
- To study the role of oesophagogastroduodenoscopy in diagnosis, management and prognosis of upper gastrointestinal bleeding.

METHODS

The study was conducted on 200 patients, presenting with haematemesis and melaena or history of same, at Sri Guru Ram Das Institute of Medical Sciences and Research, Amritsar after attaining approval from hospital ethics committee.

Before subjecting the patient to endoscopic studies following lab investigations were done as per need.

- Hb, TLC, DLC
- Bleeding Time
- Clotting time
- Blood Urea
- Serum creatinine
- Serum Calcium
- Glucose levels
- Liver function tests
- Prothrombin index
- Platelet count
- Blood grouping and cross matching
- Viral Markers- HBsAg, HCV, HIV

Endoscopy was done using "Fujinon 200 Videoendoscope" (that consists of an end viewing endoscope, videoprocessor and monitor). Other material kept available will be bite guard, xylocaine local spray, surgical gloves, 6 shooter ligation bands with handle, sclerosant injection, ligation clips, sclerotherapy needle No. 23G and No. 21G, cyanoacrylate glue, epinephrine 1:10000.

RESULTS

The detailed study of upper gastrointestinal bleeding was conducted on 200 patients attending SRI Guru Ram Das Institute of Medical Sciences and Research, Vallah, Sri Amritsar. Endoscopic diagnosis and subsequent management was undertaken and following observations were made.

Out of 200 cases 164 were males and 36 were female patients. All patients belong to age group between 10-80 years and majority of patients 76 (38%) were in age group of 41-50 years. In this 60 (30%) were males and 16 (8%) were females.

Table 1: Etiology of bleeding.

Etiology	Male		Female	
	No	%	No	%
Alcohol	128	64	-	-
HCV	40	20	24	12
HbsAg	4	2	4	2
NSAIDS	8	4	4	2
Portal vein thrombosis	-	-	8	4
Alcohol and NSAIDS	20	10	-	-

Table 2: Symptomatology depending on different symptoms.

Symptoms	No of cases	Percentage
Reterosternal pain	80	40
Haematemesis	84	42
Haematemesis and melaena	44	22
Melaena alone	48	24
Pain in relation of food		
Decreased	20	10
Increased	24	12
No change	36	18
Abdominal distension	44	22

The majority of patients complained of reterosternal pain 80 (40%). 84 (42%) presented with haematemesis alone and 22% presented with both haematemesis and malaena. 24% patients presented with melaena alone. Pain was aggravated by food in 12% of patients and reduced in (10%) patients.

Associated history

In this study, only some patients with chronic duodenal ulcer gave a history of abdominal pain and 40 (80%) gave history suggestive of portal hypertension.

About 10 of them gave history of taking treatment with H2 antagonists and antacids.

On physical examination 140 (70%) of them had pallor, tachycardia and 56 (28%) patients with acute bleeding were in a state of shock.

Patients with portal hypertension (68%) had either splenomegaly or ascites.

Table 3: Investigations.

Investigation	No of pts	Percentage
Hb<8	108	54
Deranged RFT	24	12
PTI derangement	144	72
HCV positive	64	32
HbsAg	8	4
PHT on ultrasound	148	74

Table 4: Endoscopic diagnosis.

Diagnosis	No of cases	Percentage
Ulcer	12	6
Oesophageal varices	152	76
Gastric varices	8	4
Oesophageal varices with peptic ulcer	12	6
Oesophagitis	4	2
Erosive gastritis/duodenitis	4	2
Varices with gastritis/ duodenitis	8	4

Endoscopic sclerotherapy

Of all patients with bleeding 32 (16%) cases underwent endoscopic sclerotherapy. We used 1% sodium tetradecylsulphate as the sclerosant and about 1-2 cc was injected to every column, usually intravariceally. 140 (70%) patients underwent banding alone. There were only 8 (4%) patients who underwent both banding and sclerotherapy for varices and ulcers respectively. In 8 (4%) patients with mucosal erosions (gastritis/duodenitis/oesophagitis) only medical management was done. Recurrent bleeding was seen in 28 out of 180 patients of variceal bleed.

DISCUSSION

Upper gastrointestinal bleeding is the frequent presentation in emergency ward. This study was conducted to analyze the commonest etiology and age/sex incidence of upper gastrointestinal bleeding in patients attending Sri Guru Ram Das Institute of Medical Sciences And Research, Vallah, Sri Amritsar Emergency. Assessment of the role of endoscopy in diagnosis and management of upper gastrointestinal bleeding was also done.

Age incidence and sex incidence

In the present study male and female ratio was 4.5:1.

In the study conducted by Longstreth GF on Epidemiology of Hospitalization for Acute Upper GI haemorrhage, among 258 hospitalizations, the male to female ratio was 2:1.[3]

Table 5: Age and sex comparison.

Age and sex comparison	Present series	George Longstreth et al
Male: female ratio	4.5:1	2:1
Mean age	40 yrs	41 yrs

The present series established male preponderance for upper gastrointestinal bleeding, which may be due to the fact that nearly 70% of the patients encountered were alcoholics and had alcoholic liver disease.

Etiology of acute upper gastrointestinal haemorrhage

Alcohol intake was most common causative agent of upper gastrointestinal bleeding in our series, this factor was seen in 128 (64%) of patients. It was followed by Hepatitis C virus infection. HCV positivity is more in males 40 (20%) patients than females 24 (12%). Other causes were portal vein thrombosis and NSAIDS use. Among 28 (14%) of the patients with history of Non-steroidal anti-inflammatory drugs intake, there was bleeding due to gastric mucosal erosions in 12 patients, peptic ulcer 12 patients and oesophagitis 4 patients.

Table 6: Etiology of upper gastrointestinal haemorrhage in relation to alcohol use.

Cause	Present series (n= 128)	C. Mel Wilcox et al (n=212)
Gastric ulcer	8 (6.25%)	45 (21.2%)
Varices	100 (78.12%)	34 (16.0%)
Duodenal ulcer	8 (6.25%)	31(14.6%)
Mallory Weiss tear	-	15 (7.07%)
Oesophagitis	4 (3.13%)	10 (4.7%)
Erosive gastritis	8** (6.25%)	6 (2.8%)
Others	-	11 (5.1%)

*4 out of 8 patients were having Varices as well
** Both these patients were having Varices

In our study about 79% of alcoholic patients had variceal bleeding, as compared to 16% in study by C. Mel Wilcox. There is significant association of consumption of alcohol with variceal bleeding both in the present study and in the comparable study. Both gastric and duodenal ulcers were seen in our study and by C. Mel Wilcox. In our study both types of ulcers were seen in 6.25% patients, while gastric ulcers were seen in more (21%) patients by other study. Erosive gastritis also features commonly with alcoholics.

Clinical features

In the present study 28% of the patients had hypotension and 70% had tachycardia (pulse rate more than 100/min) 54% had haemoglobin of less than 8 g% and they all required blood transfusion of 2 to 4 units. Among 28% of the patients who presented in the state of shock 22% presented 6 to 12 hrs after the initial episode and 6% had

massive haematemesis and presented within the first 6 hrs of initial bleed.

Schiller et al in their study of upper gastrointestinal haemorrhage have found hypotension in 23.04%, tachycardia in 27% and haemoglobin less than 7 g% in 20.19%.

In this study the percentage is higher than Schiller et al mostly because of delay in seeking medical attention and also the small number of patients studied.

Haemoglobin estimation

It was done in all patients in the present study at the time of admission. About 54% of patients had hemoglobin levels less than 8 g% at the time of admission. At the maximum 4 units of blood was transfused within the first 24 hrs after admission. Serial estimation of haemoglobin levels was useful in identifying the amount of blood loss and for further management. Schiller et al in their study of upper gastrointestinal haemorrhage have found haemoglobin less than 7 g% in 20.19%.

Endoscopic examination was performed in all the cases

In the present study, the site of bleeding was correctly, demonstrated by endoscopy in all the patients (100%). In ASGE survey, endoscopy was diagnostic in 87% of patients with upper gastrointestinal bleeding.[5] The accuracy of detecting lesions through endoscopy is probably due to the skill of an endoscopist and stabilization of patients by medical means before taking them up for Endoscopy.

In our study the commonest cause of upper GI bleed was oesophageal varices in about 90% of cases, whereas second common cause was peptic ulcer. In contrast to Longstreth and American society of Gastrointestinal survey where peptic ulcer remains the commonest source of upper gastrointestinal bleeding.[3,5]

In other study conducted by Leonardo et al on 436 patients, 50% of cases were of peptic ulcer, only 12% had varices as cause followed closely by oesophagitis 10%.[6]

But study conducted by Caestecker J, 24% were having duodenal ulcer, 23% gastric erosions, varices were seen only in 10% of cases.[7]

Survival after endoscopic intervention

One hundred eighty cases of oesophageal and oesophagogastric varices were detected by endoscopy. Among 180 patients, 56 cases had hypotension at the time of presentation and all the patients underwent emergency sclerotherapy/banding within 12 to 24 hrs after admission, the remaining 124 cases underwent elective intervention. 1% sodium tetra decylsulphate was used as sclerosant for all patients in our study and six bands ligator was used as banding agent. Among these 180 cases, 16 deaths were reported in the first week after the procedure. Of the remaining 164 cases, 48 cases are still in follow up undergoing repeated sclerotherapy/banding at the interval of 3 weeks for complete obliteration of varices. And no incidence of recurrence of bleeding has been reported in any of the remaining 120 cases. Of the 16 deaths reported, 4 patients died due to hepatic encephalopathyand the other 12 due to recurrent bleeding.

The result of the present study are compared with a study conducted by Massimo Graffeo et al from the University of Brescia, Brescia, Italy.[8]

The present study indicates that endoscopic intervention is very useful in arresting the first episode of bleeding and in preventing rebleed. The study done by MassinoGraffeo et al indicates that the only way of reducing the high incidence of recurrence of varices after initial obliteration appears to include complete obliteration.[8]

In a recent study by Hashizume et al, oesophageal varices were completely eradicated in 78% of patient. In our study this rate was of range of 91.11%.

In our study the percentage of death by haemorrhage within the first week was found to be 8.89%. In a recent study by Hashizume et al, 2.8 percent of deaths by haemorrhage were observed during follow up.

In a study done by Massimo Graffeo et al when true eradication was confirmed after endoscopy, no recurrences were noted. Eradication of varices certainly reduced the risk of further fatal haemorrhages in short term andalso medium/long term andtherefore it was associated with survival. However variceal eradication is a long term processand Massimo Graffeo et al achieved it on the average 26 months after the initial sclerotherapy by repeating treatments. Therefore, only patients who did not die in the first months of follow up could have obtained the eradication.

In our study esophageal sclerotherapy as well as banding had no complications. Esophageal sclerotherapy and banding has shown fairly goodresults in the initial arrestof bleeding due to esophagealvarices with a low incidence of major side effects and also helped in their long term management.

CONCLUSION

200 cases of acute upper gastrointestinal bleeding were studied in this series between the periods of January 2009 to December 2015.

All the cases were subjected to upper gastrointestinal endoscopy. Each case history was recorded individually

as per the Performa and investigations were done as the cases demanded.

- Upper gastrointestinal bleeding was 4.5 times more common in males than in females and the mean age in this series was 40 years with the range falling from 10 to 80 years
- Most common cause of upper gastrointestinal bleeding in the present study was found to be secondary to oesophageal varices (About 90%), peptic ulcers (6%) and 4% secondary to mucosal erosions
- Most of the patients presenting with upper gastrointestinal bleeding were alcoholics (74%)
- About 22% of patients had both haematemesis and melaena. In all the patients studied about 28% had hypotension and 70% had tachycardia at the time of presentation. 54% of them had hemoglobin value less than 8 gm% and they were given blood transfusion as per requirement
- In all cases in the series the site of bleeding was correctly demonstrated with the help of endoscopy. Ultrasound examination was done in most of the cases to rule out parenchymal disease of liver and spleenomegaly associated presence of secondaries in liver in cases of gastrointestinal malignancies and also to diagnose extrahepatic causes of portal hypertension
- Oesophago-gastroduodenoscopy was very useful in locating the site of bleed in all cases, for banding/sclerotherapy in cases with variceal bleeding, for taking biopsy for histopathological study in suspicious cases of gastric ulcers
- Endoscopic banding has been found to be most successful and safe procedure in the initial arrest of bleeding due to oesophageal varices with least complications
- All the cases of upper gastrointestinal haemorrhage secondary to oesophageal varices were subjected to endoscopic banding and sclerotherapy with 1% sodium tetradecylsulphate. Gastric ulcers with bleeding were subjected to biopsy through endoscopy
- Almost all the patients in the study group were treated conservatively until the condition of the patient was stable. Then they were subjected to definitive line of management like medical or surgical line which was suitable for them
- Overall mortality in the present series was 8% which was due to rebleeding and hepatic failure. This mortality rate was correlating well with other studies.

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