

Upper gastro-intestinal bleeding: Aetiology and demographic profile based on endoscopic examination at Dhulikhel Hospital, Kathmandu University Hospital

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Abstract

Background: The upper gastrointestinal bleeding (UGIB) is defined as bleeding within the intraluminal gastrointestinal tract from any location between the upper oesophagus to the duodenum at the ligament of Treitz. It is one of the important medical emergencies worldwide.

Objective: The objective of this study is to study the aetiology of upper gastrointestinal bleeding based on endoscopic examination findings in patients of various demographic characteristics.

Materials and methods: This is a retrospective observational study. The endoscopic record book from 2007 January to 2009 October was reviewed for all the cases who underwent oesophago-gastro-duodenoscopic examination for upper GI bleeding. The clinico-epidemiological data of all the patients was reviewed and analyzed in concert with the aetiology of bleeding.

Results: A total of 90 patients (58 males, 32 females; mean age 45.32 ± 18.47 years) of upper gastrointestinal bleeding was studied and analyzed in terms of aetiology of bleeding and demographic profile. Among the ethnic groups, Aryan 46 (51%) was the most common ethnic group to have upper GI bleeding followed by Newars 24 (27%), Mongolians 16 (18%), Dalits 3 (3%) and others 1 (1%). Out of 90 patients, 47 (52.2%) cases was less than 45 years of age, 30 (33.3%) of 46 to 65 age ; and 13 (14.4 %) more than 65 years of age.

Gastric ulcer 23 (25.6%) was the most common endoscopic finding, followed by oesophageal varices 14 (15.6%), acute erosive/haemorrhagic gastropathy 11 (12.2%), duodenal ulcer 9 (10%), growth 7 (7.8%), vascular lesions 3 (3.3%), Mallory-Weiss tear 1 (1.1%), fundal varices 1 (1.1%) and, no cause was identified in 21 (23.3%) cases.

The peptic ulcer bleeding was the most common finding in Aryan 22 (47.9%), whereas oesophageal varices and growth were more common in Newar 7 (29.2%) and 3 (12.5%) respectively.

Conclusion: Peptic ulcer disease is the most common cause of upper GI bleeding which was most commonly found in Aryan population; followed by oesophageal varices and growth as second and third most common causes and were more prevalent in Newar and Mongolian people.

Key words: Endoscopy, Peptic ulcer disease, Upper GI bleeding, Varices

The upper gastrointestinal bleeding (UGIB) is defined as bleeding within the intraluminal gastrointestinal tract from any location between the upper oesophagus to the duodenum at the ligament of Treitz. Bleeding from the gastrointestinal tract may present in five ways: 1) haematemesis, 2) malena, 3) haematochezia, 4) occult gastrointestinal bleeding, and 5) features of blood loss or anaemia such as light headedness, syncope, angina, or dyspnoea¹.

Upper gastrointestinal bleeding is one of the important medical emergencies worldwide, accounting for high morbidity and mortality^{2,3}. It is estimated that 1 – 2% of all acute admissions are due to GI bleeding⁴. More

than 350,000 hospital admissions are attributable to upper gastrointestinal bleeding, which has an overall mortality rate of 10%. Despite the fact that more than 75% of cases of bleeding ceases spontaneously and require only supportive measures, however, most of the patients require further intervention, which often involves the combined efforts of gastroenterologists, surgeons, and interventional radiologists^{5,6}.

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Upper GI endoscopy is the most valuable initial procedure of choice for the evaluation of acute upper gastrointestinal bleeding. Early endoscopy allows not only the detection of cause and source of bleeding it also gives estimation of the risk of recurrent bleeding and potentially enables various therapeutic options. Studies have shown that early endoscopy is associated with lower healthcare costs and improved medical outcomes, compared with other procedures. However, upper GI endoscopic findings are nondiagnostic in about 10% of cases^{7,8,9,10}.

There are very few published studies in upper GI bleeding particularly from the health institutions at urban areas. The study of upper GI bleeding at rural community settings in Nepal is scarce. Dhulikhel hospital which is also a University teaching hospital provides health services largely to the rural community population of a diverse ethnic backgrounds and cultural practices. The aim of this study was to study the aetiology of upper GI bleeding based on endoscopic examinations in relation with demographic characteristics of the patients.

Materials and methods

This is a retrospective study on patients of upper gastrointestinal bleeding who underwent oesophago-gastroduodenoscopy in the period of January 2007 to October 2009. All clinico-epidemiological data was reviewed and analyzed. The inclusion criteria for the study were the presence of any one of the following: 1) haematemesis 2) melaena or both 3) nasogastric aspirate of blood; and 4) recent onset anaemia with positive occult blood were taken as the clinical definition of upper GI bleeding. The patients with upper gastrointestinal bleeding but inadequate information on registry were excluded. The distributions of age, gender and ethnic background in the study sample were determined. The relative frequencies of different causes of UGI bleed in people of different ethnic groups were studied. Data

management and statistical work up was performed by using software SPSS 13 version.

Results

A total of 108 cases of upper GI bleeding was identified through review of endoscopic register from January 2007 to October 2009. 18 cases were excluded due to inadequate information on the registry. The remaining 90 cases of upper GI bleeding was studied and analyzed in terms of aetiology of bleeding and demographic profile.

There were 58(64.4%) males and 32 (35.6%) females, and the male-female ratio was 1.8:1. The mean age of the population was 45.32 ±18.47 years.

Among the ethnic groups, Aryan (51%) was the most common group to have upper GI bleeding followed by Newars (27%), Mongolians (18%), Dalits (3%) and others (1%) respectively. Out of 90 cases, 52.2% of upper GI cases was of young age group (15 to 45 age) followed by 33.3% middle age group (46 to 65 age) ; and only 14.4 % elderly group (> 65 age). (Table 1)

With regard to aetiology of bleeding, gastric ulcer 23(25.6%) was the most common attributable cause for the upper GI bleeding followed by oesophageal varices 14(15.6%); acute erosive/haemorrhagic gastropathy 11 (12.2%); duodenal ulcer 9(10%); growth 7(7.8%); vascular lesions 3(3.3%); Mallory-weiss tear 1 (1.1%), and fundal varices 1(1.1%). In 21 (23.3%) of cases no cause for bleeding was identified on endoscopic examination.

Oesophageal varices were most commonly found in Newar 7(29.2%) and Mongolian 3 (18.8%); and growth was found common in Newar 3(12.5%), Aryans 3(6.5%) and Mongolian 1(6.3%). Gastric ulcer and duodenal ulcer were found most common cause of bleeding in Aryans – 17(37%) and 5(10.9%) respectively. (Table 3)

Table 1: Age and Sex composition of the patients

	Male	Female	Total
	No. (%)	No. (%)	No. (%)
15-45	26(44.8)	21 (65.6)	47(52.2)
46-65	21(36.2)	9 (28.1)	30(33.3)
65 and above	11(19.0)	2 (6.3)	13(14.4)

Table 2: Clinical presentation of patients with Upper GI bleeding

Clinical Presentation	No. (%)
Haematemesis	51(56.7)
Melaena	13(14.4)
Recent onset anemia with positive occult blood	20(22.2)
Haematemesis and melaena	6(6.7)
Total	90

Table 3: Relative frequency of causes of upper GI bleeding in different ethnic groups

Aetiology	Aryan	Mangolian	Newar	Dalit	Others	Total
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Gastric ulcer	17(37.0)	2(12.5)	4(16.7)			23(25.6)
Dudenal ulcer	5(10.9)	1(6.3)	2(8.3)	1(33.3)		9(10.0)
Oesophageal varices	3(6.5)	3(18.8)	7(29.2)	1(33.3)		14(15.6)
Fundal varices	1(2.2)					1(1.1)
Growth	3(6.5)	1(6.3)	3(12.5)			7(7.8)
Acute Erosive/ Hemorrhagic gastropathy	4(8.7)	4(25.0)	3(12.5)			11(12.2)
Mallory weiss		1(6.3)				1(1.1)
Vascular	2(4.3)		1(4.2)			3(3.3)
Normal	1(2.2)					1(1.1)
No cause identified	10(21.7)	4(25.0)	4(16.7)	1(33.3)	1(100.0)	20(22.2)
Total	46	16	24	3	1	90

Discussion

Upper gastrointestinal haemorrhage is a prevalent and clinically significant condition with important implications for health care costs worldwide¹¹. In the United Kingdom, the overall incidence of acute upper GI haemorrhage is 103 cases per 100,000 adults per year¹². In the United States it is estimated to be 160 hospital admissions per 100,000 populations, which translates into more than 400,000 per year¹³. However, the incidence rate from most of the developing countries are largely unknown. In Nepal, there are only very few hospital-based published studies which have examined the incidence and clinical profile of upper GI bleeding.

Nepal is a country with inhabitants of a diversely heterogeneous population. It has also a wide range of customs and cultural practices with different life-styles and health-related behaviours which may influence the development of a particular disease and might also predispose to cause of GI bleeding.

Ninety cases of upper GI bleeding were evaluated for the aetiology of upper GI bleeding in relation with different demographic profiles. The males seemed predominantly affected more than females which is consistent with findings in other countries particularly the US and UK. Although upper GI bleeding has been reported to be more common in the elderly population, most of our cases (52.2%) are under 45 years of age. This disparity might be due to an increased number of patients with oesophageal varices (15.6%) as a result of alcoholic liver disease which commonly affects this age group.

The most common cause of upper GI bleeding was found to be peptic ulcer disease among which gastric ulcer was the commonest lesion followed by acute erosions and duodenal ulcer. This finding is not different from

studies in other parts of the world which reports to vary from 19% to as high as 50%^{14,15}. The peptic ulcer has been shown most common in Aryans compared to other ethnic groups. Whereas the oesophageal variceal cause for bleeding is second most common (15%) and appears to affect Newar and Mongolian ethnic groups more.

In one larger study from eastern Nepal by Bhattarai *et al* found a similar pattern of frequency of causes of upper GI bleeding at different ethnic groups; and their mean age of presentation of GI bleeding was 49.6 years. In their study, oesophageal varices was found to be significantly higher in Mongolian origin; and this association was speculated to be due to higher frequency of alcohol consumption in this ethnic population¹⁶. Acute erosive gastropathy and GI growth had been found to be third and fourth causes; and vascular cause for upper GI bleeding is found in 3 cases.

Adam *et al* in a similar study from Islamabad, found oesophageal variceal bleed most common aetiological diagnosis (44%) followed by peptic ulcer disease (19.7%). In 10.9% of cases the endoscopic finding was reported normal¹⁵. In our study, endoscopic examination could not reveal any cause for GI bleeding in as high as 22.2% of cases.

Limitations of our study are small sample size, retrospective descriptive type. The larger prospective study would help to verify or refute the findings in our study results.

In conclusion, upper GI bleeding is a common clinical problem and found commonly at middle age group people. Although peptic ulcer disease is still the most common cause of upper GI bleeding, oesophageal

varices should be considered in certain ethnic groups as the specific management differs from other non-variceal cause of GI bleeding.

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