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## Clinical profile of patients presenting to emergency with upper gastrointestinal bleeding in a tertiary hospital of Nepal

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### Abstract

**Introduction:** Upper gastrointestinal bleeding is an acute emergency condition. It is an important cause for the hospital admission. This study descriptively analyses the clinical profile of upper gastrointestinal bleeding presenting to a tertiary hospital in Nepal.

**Method:** This is a cross-sectional study of patients presenting with upper gastrointestinal bleeding from 01 Oct 2018 to 30 Sep 2019 at Patan Hospital Emergency Department, Patan Academy of Health Sciences, Nepal. Patient's demographics, clinical presentation, duration of illness before presenting to Emergency, vitals, and laboratory parameters were descriptively analyzed. Ethical approval was obtained.

**Result:** There were 121 patients, male 82(67.8%) and female 38(31.4%) aging 14 to 90 years. Fifty-three patients (43.8 %) presented with hematemesis, 38(31.4%) with melena, and 27(22.3%) with both hematemesis and melena. Variceal bleeding was the main cause of upper gastrointestinal bleeding found in 73(60.33%) followed by ulcer bleeding in 48(39.66%).

**Conclusion:** Hematemesis was the most common clinical presentation of upper gastrointestinal bleeding commonly due to esophageal varices in patients presenting to the Emergency Department.

**Keywords:** bleeding, clinical presentation, upper gastrointestinal

## Introduction

Upper gastrointestinal bleeding (UGIB) is defined as bleeding that occurs proximal to the ligament of Treitz.<sup>1</sup> It is a common cause of hospital admission and hospital mortality is 3 to 15 % with mortality rates being higher in hemodynamically unstable patients.<sup>2</sup> The clinical presentation is either passage of fresh blood or coffee-colored vomitus called hematemesis or passage of black tarry stools called melena.<sup>3</sup> Non-variceal bleeding is more common than variceal bleeding and peptic ulcer disease accounts for 50-70%.<sup>4</sup> Incidence of variceal bleeding accounts for less than 10% of all causes of GI bleeding but has a high mortality rate of about 30% during their initial hospitalization.<sup>5</sup> Other causes of UGI bleeding are inflammatory lesions, Mallory Weiss tears, angiodysplasia, and Dieulafoy's lesion.<sup>6</sup>

The incidence of variceal and gastric ulcer bleeding has been varying in various studies published from Southeast Asia.<sup>7,8</sup> and in Nepal.<sup>8-10</sup> The varying results in these geographic regions depending on the different socioeconomic and demographic characteristics of the local population. Therefore, this study is designed to evaluate the clinical profile of upper gastrointestinal bleeding presenting to the Emergency Department of Patan Hospital, Nepal.

## Method

This is a cross-sectional study of patients presenting with UGIB from 01 Oct 2018 to 30 Sep 2019 at the Emergency Department of Patan Hospital, Patan Academy of Health Sciences, Nepal. Patan hospital is a tertiary care hospital where the emergency department sees an average of 40,000 patients in a year. All patients arriving in an emergency with hematemesis, melena, or both hematemesis and melena were included. The data collection form was provided in the Emergency Department and was filled up by the researchers and/or doctors working on the floor who attended to the patient at first

instance. Doctors working in the emergency were oriented about the study and the form. Researchers followed up the cases to find out the endoscopic findings.

We collected information regarding the patient's age, gender, home district/ village, clinical presentation, duration of illness before presenting to Emergency Department, vitals on presentation, lab parameters (hemoglobin, urea, albumin, prothrombin time/international normalized ratio PT/INR) and mental status (normal or altered based on clinical observation). We recorded interventions such as tranexamic acid given or not and blood transfusion given or not to the patient. Based on the data collected, we also calculated the pre-endoscopic Rockall score to stratify the low and high-risk patients presenting to the Emergency Department. This score takes into account parameters like patient's age, presence or absence of shock, and any comorbidities of the patient which are independent predictors of mortality.<sup>11</sup>

The investigations done in these patients were routinely sent in Emergency as part of the standard management and were not influenced by our study. There was no economic burden to patient-related to our study. The information collected was documented in a spreadsheet and analyzed using SPSS. Categorical data were expressed as frequencies and corresponding percentages and the quantitative variables were presented as mean  $\pm$  standard deviation. Since the data was collected from information already recorded in the patient's chart as standard care, consent was waived after ethical approval from the institutional review committee (IRC) of PAHS (drs1810121225).

## Result

The present study comprised 121 patients of UGIB. The age ranged from 14 to 90 y, mean age being  $51.35 \pm 18.56$  y. Eighty-two (67.8%) were male and 39(32.2 %) were female with M:F=2.1:1. Seventy-one patients (58.7%) were

from inside Kathmandu valley and 50(41.3%) were from outside Kathmandu valley. On presentation, 8(6.6%) of patients presented with altered mental status, 19(15.7 %) had systolic blood pressure less than 90 mmHg, (16.5 %) had hemoglobin less than 7gm/dl, and 47(38.84%) had blood urea level >45mg/dl. Ninety-six (79.33 %) had serum albumin <3.5mg/dl and 12(9.9%), table 1.

Patients presented with a mean duration of symptoms of 41.83±43.78 hours. Fifty-three

patients (43.8 %) presented with only hematemesis, 38(31.4 %) presented with melena, and 27(22.3%) presented with both hematemesis and melena, Table 2.

The variceal bleeding was the cause for UGI bleeding in 73(60.33%), followed by ulcer bleeding 48(39.66%). Pre-endoscopic Rockall score was ≤2 in 70(57.85%), table 3. Total 98 patients (81%) received injectable tranexamic acid and 27 patients (22.3%) received a blood transfusion.

**Table 1. Clinical parameters of patients with Upper gastrointestinal bleeding (UGIB) at presentation to the emergency department of Patan Hospital (N=121)**

Parameters	Mean±SD
Duration of symptoms (h)	41.83±43.8
SBP (mmHg)	103.72±21.1
DBP (mmHg)	67.15±16.7
Pulse (rate/m)	96.60±16.2
Hemoglobin (mg/dl)	10.77±3.3
Albumin	2.97±0.7
Urea	45.09±24.9
PT/INR	1.44±0.9

SBP= systolic blood pressure, DBP= diastolic blood pressure, PT/INR= prothrombin time/international normalized ratio

**Table 2. Clinical presentation of patients with UGI bleeding at presentation to the emergency department of Patan Hospital (N=121)**

Presentation	N	%
Hematemesis	53	43.8
Melena	38	31.4
Both hematemesis & melena	27	22.3
Syncope	1	0.8
Syncope with hematemesis & melena	2	1.7

**Table 3. Categorization of the patient with UGIB to the emergency department according to Rockall score (N=121)**

Pre-endoscopic Rockall score	N	%
0	28	23.1
1	22	18.2
2	20	16.5
3	22	18.2
4	10	8.3
5	16	13.2
6	3	2.5

## Discussion

According to this study, upper gastrointestinal bleeding was more common among males and occurred in patients in the fifth decade of life. Variceal bleeding was more common than ulcer bleeding. Most of the patients

presented to emergency with hematemesis only.

In our study, UGIB was common amongst the patients in the fifth (51.35 y) decade of life and comprised of 121 patients ranging from 14 to 90 years. This finding in our study was consistent with different studies in Nepal like

51.6 y and 48.76 y.<sup>8,12</sup> Another study from Nepal which looked into the endoscopic findings in patients with UGIB also showed that the mean age of patients was 49.6 y.<sup>13</sup> The mean age of patients was similar to the results seen in other larger studies which enrolled 1929 patients (mean age 52 y).<sup>14</sup>

Males were more likely to have UGIB compared to females in our study (M:67.8% and F:32.2%; M:F=2.1:1). In various studies done in Nepal, male predominance was reported at 59% - 75%.<sup>8,12,15,16</sup> Various risk factors like smoking and alcohol consumption which are more common in males in Nepal might have some role in contributing to UGIB.

Based on the clinical presentation, a greater number of our patients presented with hematemesis only (43.8%). Hematemesis was the most common presentation in studies from 48%<sup>12</sup> to 100%<sup>17</sup>, which was consistent with our findings. Both hematemesis and melena were present in 71.7%<sup>8</sup> and 51%<sup>16</sup>.

In our study, 19(15.7%) presented with shock (systolic blood pressure SBP<90 mmHg). Similar findings of patients presenting with shock were seen in 21.7%<sup>8</sup>, 14%<sup>12</sup>, 36.7%<sup>17</sup> of UGIBD. Mean arterial blood pressure was low (73.71±10.95)<sup>12</sup> and hypotension was noted in 14.8%<sup>18</sup> of patients at presentation. Patients were anemic in 16.5% in our study but in other studies, it was reported in 31%<sup>19</sup> of patients being severely anemic.

The most common etiology of UGIB was variceal bleeding (60.33%) followed by ulcer bleed (39.66%) in our study. Other studies also attributed variceal bleeding as the most common etiology of UGIB in 47.5%<sup>8</sup> and 40%<sup>16</sup>. The increased incidence of variceal bleeding in our center could be because of an increased number of patients referred from other health facilities for further management. Another reason for increased variceal bleeding could be a decline in the occurrence of duodenal ulcers in the past 20 years.<sup>14</sup> Ulcer bleeding was more common in other studies, in 35.5%<sup>12</sup>, 37%<sup>18</sup>, 40.05%<sup>15</sup>, and 43%<sup>9</sup>. In our study, 6.6% of patients presented

with altered mental status. A similar finding of altered sensorium at presentation was seen in 7.12%.<sup>18</sup> But a lower incidence of altered sensorium in 2% at presentation was found in another study.<sup>17</sup>

In our study, 22.3% of patients received a blood transfusion. A higher percentage of blood transfusion in 77%<sup>8</sup>, 69.5%<sup>18</sup>, and 51.92%<sup>19</sup> have been reported in other studies.

Though our study showed that Tranexamic acid was administered to 81% of patients with UGIB, the HALT-IT trial has shown that tranexamic acid did not reduce death from gastrointestinal bleeding but was associated with an increased risk of venous thromboembolic events and seizures.<sup>20</sup> Systematic reviews with meta-analysis concluded that there was moderate-quality evidence that tranexamic acid is superior to placebo for reducing mortality in patients with UGIB.<sup>21</sup> Another systematic review found that tranexamic acid had some beneficial effect in terms of decreasing the risk of re-bleeding and decreasing the need for surgery but there wasn't statistically significant effect on mortality or need of blood transfusion or risk of thromboembolic events.<sup>22</sup> According to the available evidence, tranexamic acid is an effective medication for patients with upper gastrointestinal bleeding and early administration of tranexamic acid may be worth be recommended for the treatment of UGIB in the Emergency Department.<sup>23</sup>

In an emergency, it is helpful for clinicians to use risk stratification tools to triage patients who need endoscopy in a suitable time frame and patients who are a low risk that can be followed up on an outpatient basis. There are various risk stratifying scoring systems, and we chose pre-endoscopy Rockall score in our study to stratify the patients into low or high risk for mortality because it could be easily calculated in the Emergency Department and we did not have to wait for the endoscopy. In our study, we found that based on the pre-endoscopic score, 57.85% of patients could be discharged and managed on an outpatient

basis. Other studies also found that pre endoscopic Rockall score was superior to the Glasgow Blatchford score in predicting the need for intervention and mortality.<sup>24</sup> However, some studies found that pre-endoscopic Rockall score was inferior to Glasgow Blatchford score in predicting the need for intervention and outcome of the patient.<sup>25-27</sup> When comparing various pre-endoscopic risk scoring systems like admission Rockall score, AIMS 65, and Glasgow Blatchford, an international multicenter prospective study found that the Glasgow Blatchford score has accuracy at predicting the need for hospital-based intervention or death. Other scoring systems had low predictive accuracy for other specific outcomes like endoscopic treatment and mortality, therefore these scores had limited clinical utility in the management of high-risk patients.<sup>28</sup> Routine use of the scoring system by medical staff in the emergency could save lives, alert about the severity of patient's condition and help to decide between urgent endoscopy and delayed endoscopy. It could also help to predict low-risk patients who can be discharged early and followed up on an outpatient basis.<sup>29</sup> Despite various scoring systems, clinical acumen, and judgment of emergency doctors based on evaluation of patients at the emergency is of paramount significance.

This was a single-center study; therefore, metacentric studies would help to refute or verify our results and compare them with the national data. Moreover, we included patients who came to the emergency so, the majority of low-risk patients presenting to the outpatient department were by default excluded from the study.

## Conclusion

In our study, the upper gastrointestinal bleed was seen mostly in the fifth decade of life with male predominance. The patient

presented to the emergency on average at 41.83 h of symptoms and hematemesis was the most common presenting symptom. Endoscopic findings revealed that variceal bleeding was the main cause of bleeding.

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## Conflict of Interest

None

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None

## Author Contribution

Concept, design, planning: ALL; Literature review: SA, SR; Data collection/analysis: SA, SR; Draft manuscript: ALL; Revision of draft: ALL; Final manuscript: ALL; Accountability of the work: ALL

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