

CLINICAL SPECTRUM OF UPPER GASTROINTESTINAL BLEEDING IN PEDIATRIC AGE GROUP: AN EXPERIENCE FROM A TERTIARY CARE HOSPITAL OF BANGLADESH

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Abstract

Background: The bleeding occurring proximal to the ligament of the treitz is known as Upper GI bleeding. The patient may present with hematemesis or melena. Upper gastrointestinal bleeding in children can result in complex and perhaps fatal clinical circumstances. It fluctuates significantly depending on changes in the patient's demographics and other diseases.

Methods: This was a cross sectional study conducted at the Department of Paediatrics, Dhaka Medical College Hospital, Dhaka. The study was conducted during the period of Jan'2020 to July 2022. The total number of study patients was 92.

Result: The most extensive prevalence of UGIB is found in children aged 5 to 10 years (71.4%), followed by those aged 1 to 12 years (26.8%). Varices accounted for 67 (72.8%) of the UGIB causes, followed by erosive gastritis (6.5%), stomach ulcers (3.3%), esophagitis (2.2%), and Mallory Weiss tears (1.1%), with 13 (14.1%) of them being judged to be normal. Pallor was the most common presenting symptom, making up 82 (89.1%), then hematemesis 61(66.3%) and melena 30.4%, splenomegaly 55(59.8%), hematemesis plus melena (30.4%), hepatomegaly (28.3%), jaundice (15.6%), and melena (3.3%).

Conclusion: Hematemesis is the most common presenting symptom of upper GI haemorrhage, which is more common in kids between the ages of 5 and 10. Esophageal varices were the most common source of intestinal bleeding.

Keywords: Upper Gastrointestinal Bleeding, Hematemesis, Esophageal Varices.

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Introduction

GI bleeding can be classified as upper or lower based on whether it originates proximal to or far from the ligament of Treitz. The term "upper GI bleeding" (UGIB) refers to bleeding proximal to the Treitz ligament, which is situated at the junction of the duodenum and the jejunum. Hematemesis, the presence of blood in the vomitus, and melena, which is the presence of

altered blood in the faeces, are two possible symptoms.¹ Children with UGIB may experience clinical conditions that are potentially dangerous and life-threatening. With an average fatality rate of 10%, it is one of the most frequent gastrointestinal emergencies.^{2,3} Children are more likely to develop UGIB in the intensive care unit, with rates ranging from 6% to 25%.⁴⁻⁵ The death rate has not changed considerably over

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the past 50 years.^{2,3,6} Despite improvements in the diagnosis and treatment of UGIB. Hematemesis or melena are the two clinical symptoms of UGIB. Hematemesis is the term for the secondary coagulative impact of stomach acid on blood, which causes the vomiting of bright red blood or coffee grounds. Melena is a type of blood-digested feces that is dark and tarry. The majority of UGIB in children is often benign and resolves on its own⁷. When examining a patient, it's essential to remember some of the more frequent differential diagnoses for UGIB, such as ingested blood from epistaxis or maternal blood in newborns, as well as food sources that mimic hematemesis or melena. Depending on changes in the patient population and the prevalence of concomitant diseases, the causes of UGIB considerably differ across the world.⁹ The development of a UGIB in juvenile patients can be caused by various conditions, including portal hypertension from multiple sources, liver abnormalities, bleeding, and coagulation deficiencies.⁹ Numerous mortality risk factors have been discovered through various investigations. Additionally, several risk scores have been created. The Rockall score, created in 1996, is the most used risk scoring system. This score considers the patient's age, systolic blood pressure, heart rate, the existence of other co-morbidities, and endoscopic results to assess the probability of death after UGIB.³ The Glasgow Blatchford Score is another popular grading scheme.³ Early detection of UGIB and immediate care can reduce mortality caused by UGIB. Therefore, using a risk stratification tool to divide patients into low-risk and high-risk groups is necessary for optimal care and can be used to direct treatment and follow-up.³ This study aimed to examine the clinical range of upper gastrointestinal hemorrhage in children.

Objective of the study

The objective of this study was to find out the clinical spectrum of upper gastrointestinal bleeding among children in a tertiary care hospital in Bangladesh.

Materials and methodology

This cross sectional study was conducted at the Department of Paediatrics, Dhaka Medical

College Hospital, Dhaka. The study was conducted from January 2020 to July 2022. The study population for this study was 92.

Inclusion criteria:

- Age Between 1 to 12 years.
- All children presented with hematemesis or both hematemesis and melena.

Exclusion criteria:

- Those who refused to consent to an endoscopy.
- Who need immediate surgical assistance.
- Critically ill children receiving pediatric intensive care.

A paediatrician initially examined each patient. The patient's demographic profiles, co-morbidities, and diagnostic procedures were recorded properly. A blood sample for the complete blood count (CBC), abdominal ultrasound were all administered. Then, a pediatric gastroenterologist in our pediatric gastroenterology department conducted upper gastrointestinal endoscopy on all patients using an Olympus GIF-V70 video endoscope, and the results were documented. The procedure was carried out only after receiving the parents' full informed consent. Five minutes before the endoscopy, patients received intravenously midazolam 0.4 mg/kg as a sedative. After fasting for at least six hours or overnight, an endoscopy was done. Data from the study were statistically analyzed using IBM SPSS, version 20.0. (SPSS Inc., Chicago, IL, USA).

Result:

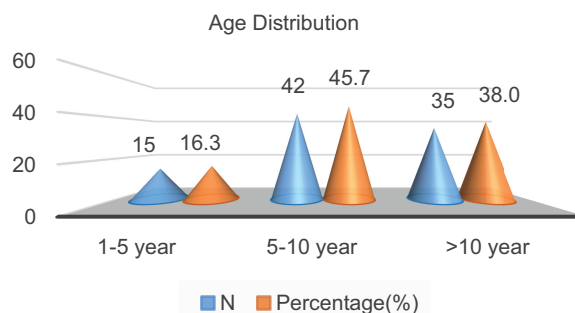


Fig-1: Age distribution of studied cases (n=92)

The most of the cases were in 5 to 10 year age group (45.7%), followed by 10 to 14 year (38.0%) group (Fig.-1).

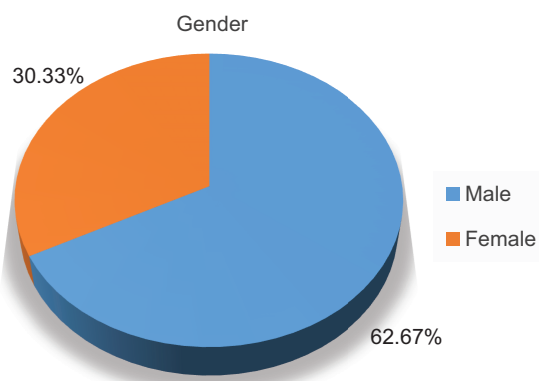


Fig-2: Sex distribution of patients (n-92)

The prevalence of male child 62(67%) was more frequent than that of female child, 38(33%) (Fig.-2).

Table -I

Distribution of study subject according to clinical presentation (N-92)

Clinical presentation	Number/ Percentage	
	(n)	(%)
Pallor	82	(89.1)
Jaundice	15	(16.3)
Hematemesis	61	(66.3)
Melena	03	(3.3)
Hematemesis& Melena	28	(30.4 5)
Hepatomegaly	26	(28.3)
Splenomegaly	55	(59.8)

Pallor was the most prevalent symptom 82(89.1%) among the patients and followed by both hematemesis 61(66.3%), splenomegaly 55(59.8%), hematemesis + melena 28(30.4%), hepatomegaly 26(28.3%), jaundice 15(16.3%) and melena 3(3.3%).

Table-II

Abdominal Ultrasonography and color Doppler findings of the study population (N-92)

Ultra-sonographic Findings	N	Percentage(%)
Normal	31	33.7
Extra-Hepatic portal Venous Obstruction (EHPVO)	35	38.0
Liver Cirrhosis	26	28.3

Extrahepatic portal venous obstruction (EHPVO) was the most frequent finding on abdominal ultrasonography (USG) 35 (38%), followed by liver cirrhosis 26 (28.3%), and 31 (33.7%).

Table-III

Upper GI Endoscopic findings of the study population (N-92)

Endoscopic findings	n	Percentage(%)
Normal	13	14.1
Esophageal Varices	67	72.8
Erosive Gastritis	6	6.5
Gastric Ulcer	3	3.3
Esophagitis	2	2.2
Mallory Weiss Tear	1	1.1

The most common causes of UGIB was Esophageal varices 67(72.8%) followed by erosive gastritis 6(6.5%), gastric ulcer 3(3.3%) and esophagitis 2(2.2%), Mallory Weiss tear 1(1.1%) and 13(14.1%) had normal findings.

Discussion

The study was carried out to comprehend the clinical spectrum of UGIB in children between the age of 1 and 12 year and it was conducted from January 2020 to July 2022 and 92 patients were included. Hematemesis or hematemesis and Melena are two common symptoms of UGIB. Rafeey et al. in their study found that fresh bloody vomiting (hematemesis) was the most common presenting symptom in 73% of patients during their two-year review of 90 children under the age of 16 who had UGIB (November 2001–November 2003)¹¹. Hematemesis was the most frequent presenting symptom in our sample (66.3%), as it was in Cleveland K et al. analysis of 167 endoscopic procedures for upper GI hemorrhage². In this study male children were more prevalent 62(67%), the most frequent age group was 5 and 10 year. According to Okello, the male to female ratio is 1:2.5. He clarified the disparity because female children are less resistant to GI disorders¹². Depending on the child’s age and surroundings, the causes of upper GI bleeding in children may vary. In industrialized western countries, esophagitis, gastritis, varices, and stomach and duodenal

ulcers are the most often mentioned causes; however, variceal hemorrhage is more typical in India². In this study, the most prevalent etiology of upper GI bleeding was esophageal varices 67(72.8%) and followed by erosive gastritis was found in 6(6.5%), gastric ulcer in 3(3.3%), esophagitis in 2(2.2%), Mallory Weiss tear 1(1.1%) (Table-III). Dissimilarity to our study results, a number of other investigations identified peptic ulcer as the maximum prevailing cause of UGIB¹³⁻¹⁶. In another study, esophageal varices were found in 64% of cases, and stomach erosions were the next most prevailing cause like erosive gastritis in 15% and PUD in 10% of patients¹⁷. Majority of the children in this present study had varices bleeding owing to extrahepatic portal venous obstruction 35(38%) (Table-II), which seems to be lower than the prior reported incidence of 98% by Dilawari et al.¹⁸. However, upper GI endoscopy is a harmless and helpful modality of examination in children with hematemesis. It is used to detect the etiology of all patients in our study. Still, Mittal et al. discovered that the reason of bleeding could not be determined in 27.54% of patients in their study¹⁹. Immediate endoscopy is advised for bleeding that needs transfusion or for hemodynamic uncertainty, or endoscopy can be done throughout the first 24 hours of admission in the hospital²⁰. It is stated that the effectiveness of endoscopy for managing UGIB is nearly 90%¹⁴. Furthermore, recurrence endoscopy in children having life-threatening UGIB should be measured within 48 to 72 hours after the initial endoscopy^{20,22,23}.

Conclusion

Hematemesis is the primary presenting sign of upper gastrointestinal bleeding, which is more prevalent in children aged 5 to 10 year. In this study, esophageal varices were the most common endoscopic findings and extrahepatic portal hypertension was the most common cause. Upper GI endoscopy is a safe procedure that can effectively pinpoint the root of upper GI bleeding in children.

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