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Original Research Paper

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CLINICAL SPECTRUM, ETIOLOGIC PROFILE, AND MANAGEMENT OUTCOMES OF PEDIATRIC UPPER GASTROINTESTINAL BLEEDING: EXPERIENCE FROM A TERTIARY CARE CENTRE IN SOUTH INDIA

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ABSTRACT

Background And Aim: Pediatric upper gastrointestinal (UGI) bleeding is a medical emergency with differing etiologic patterns compared to adults. This study aimed to describe the clinical spectrum, etiologic profile, and management outcomes of pediatric UGI bleeding at a tertiary-care centre in South India. **Methods:** We conducted a prospective observational study between January 2023 and June 2024 including 90 children (0–18 years) presenting with hematemesis and/or melena. Clinical and laboratory evaluation, abdominal ultrasonography, and endoscopy were performed as indicated. Therapeutic endoscopy (primarily EVL) and standard supportive care (blood transfusion, PPIs, vasoactive agents when required) were applied. Data were analyzed descriptively using SPSS (version 25). **Results:** Mean age was 10.8 ± 3.6 years; 63% were male. Esophageal varices were the predominant cause (49/90; 54.4%), followed by erosive gastritis (14/90; 15.5%), Mallory–Weiss tear (12/90; 13.3%), and peptic ulcer disease (9/90; 10%). Endoscopic therapy was performed in 38 (42.2%) children; 52 (57.8%) received medical management alone. Rebleeding occurred in 6 (6.7%) variceal cases, successfully managed with repeat endoscopic intervention. There were no deaths. **Conclusions:** Esophageal varices remain the leading cause of pediatric UGI bleeding in our setting. Early endoscopic evaluation and timely therapeutic intervention are associated with favorable short-term outcomes. These findings support strengthening pediatric endoscopy services and early referral pathways.

KEYWORDS : Pediatric upper gastrointestinal bleeding, esophageal varices, endoscopy, rebleeding, India

INTRODUCTION

Upper gastrointestinal bleeding (UGIB) in children, while less common than in adults, can rapidly progress to hemodynamic instability and require urgent intervention. Pediatric UGIB differs from adult patterns-variceal bleeding secondary to portal hypertension figures prominently in many developing regions, whereas peptic ulcer disease is more common in adults. Accurate, timely endoscopic diagnosis coupled with appropriate therapeutic techniques improves outcomes, but pediatric-specific data from India are limited. By presenting our prospective experience, we aim to provide contextually relevant evidence to guide clinicians in similar resource settings.

MATERIALS AND METHODS

Study design and population: This prospective observational study was conducted at Gandhi Medical College, Secunderabad between January 2023 and June 2024. Children aged 0–18 years presenting with hematemesis, melena, or both were eligible. We excluded children with bleeding clearly originating from non-upper GI sources or those with incomplete clinical data.

Clinical assessment and definitions: All patients underwent initial stabilization per standard protocols. Hemodynamic instability (shock) was defined as systolic blood pressure below age-specific thresholds with signs of compromised perfusion. Rebleeding was defined as recurrence of clinically significant upper GI hemorrhage (hematemesis and/or melena with hemodynamic compromise or hemoglobin drop >2 g/dL) after initial hemostasis within the same admission.

Investigations and endoscopic procedures: Baseline tests included hemoglobin, liver and renal function tests, coagulation profile, and abdominal ultrasonography. Endoscopy was performed once patients were stabilized, using pediatric endoscopes for younger children and standard scopes for older children. EVL was the preferred modality for esophageal varices; injection sclerosant was used where ligation was not feasible. Medical management included proton pump inhibitors, blood transfusions as needed, and vasoactive agents such as octreotide for variceal bleeds.

Ethics and analysis: Written parental consent was obtained. The Institutional Ethics Committee approved the study. Data were entered into SPSS v25 and analyzed descriptively; continuous variables are presented as mean ± SD and categorical variables as counts and percentages.

RESULTS

Ninety children were enrolled. The mean age was 10.8 ± 3.6 years (range 2–18), with 57 males (63%) and 33 females (37%). Presenting symptoms and vitals varied: the majority had hematemesis with or without melena, and 10 children presented with features of shock requiring immediate resuscitation.

Table 1. Clinical Presentation Of Pediatric UGI Bleeding (n=90)

Presentation	Number (n)	Percentage (%)
Hematemesis only	36	40.0
Melena only	18	20.0
Both hematemesis and melena	27	30.0
Pallor	58	64.4
Shock at presentation	10	11.1

Table 2. Etiologic Distribution Of Pediatric UGI Bleeding (n=90)

Etiology	Number (n)	Percentage (%)
Esophageal varices	49	54.4
Erosive gastritis	14	15.5
Mallory–Weiss tear	12	13.3
Peptic ulcer disease	9	10.0
No cause identified	6	6.6

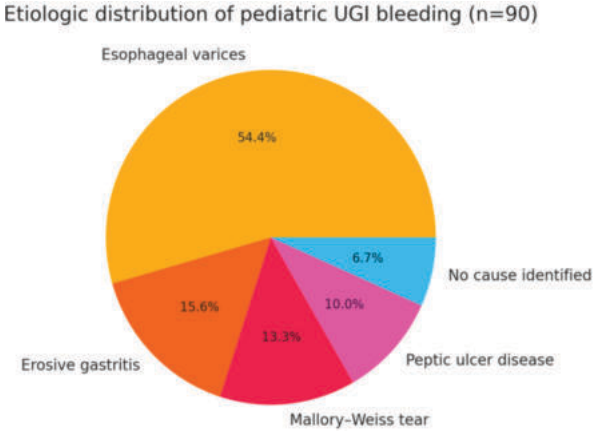

Figure 1. Etiologic distribution of pediatric UGI bleeding (n=90).

Table 3. Management Strategies In Pediatric UGI Bleeding (n=90)

Management	Number (n)	Percentage (%)
Endoscopic intervention (EVL)	38	42.2
Medical management	52	57.8

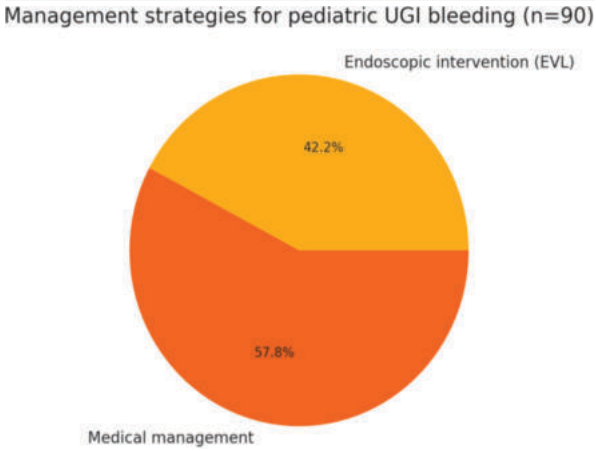

Figure 2. Management strategies for pediatric UGI bleeding (n=90).

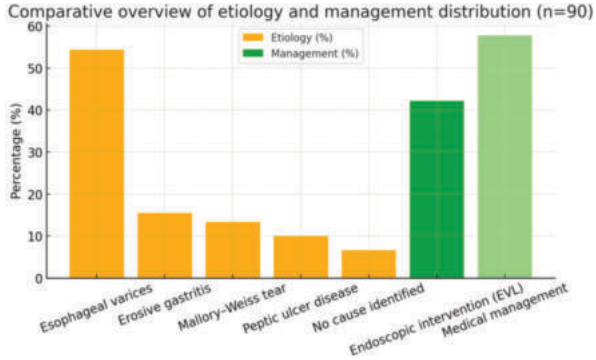

Figure 3. Comparative Overview Of Etiology And Management Distribution (n=90).

Table 4. Clinical Outcomes Of Pediatric UGI Bleeding (n=90)

Outcome	Number (n)	Percentage (%)
Recovered without rebleeding	84	93.3
Rebleeding (variceal)	6	6.7
Mortality	0	0.0

DISCUSSION

Our prospective series of 90 children underscores that esophageal varices account for more than half of pediatric UGI bleeding in our tertiary-care setting. This finding aligns with prior Indian studies attributing significant pediatric bleeding to portal hypertension-related disorders. Conversely, many Western reports note a higher proportion of non-variceal bleeding, reflecting differing epidemiology and risk factors.

Endoscopic therapy, particularly EVL, demonstrated excellent efficacy in achieving hemostasis and controlling rebleeding. Supportive measures including blood transfusion and vasoactive therapy complemented endoscopic treatment in severe cases. The low rebleeding rate (6.7%) and zero mortality in our cohort reflect timely stabilization and ready access to endoscopic services.

Limitations & Future Directions: This study is single-center with limited follow-up; thus, long-term outcomes including variceal recurrence and growth-related implications were not assessed. Future multicentric studies with longer follow-up are needed. Additionally, strengthening pediatric endoscopy capacity and early referral pathways in regional hospitals could improve outcomes further.

CONCLUSION

Esophageal varices are the predominant cause of pediatric UGI bleeding in this cohort. Early endoscopic evaluation and timely therapeutic intervention are associated with favorable short-term outcomes. Expanding pediatric endoscopy capabilities and creating clear referral pathways may reduce morbidity associated with pediatric UGI hemorrhage.

What this study adds:

Prospective data from a South Indian tertiary centre showing variceal predominance in pediatric UGI bleeding (n=90).

Demonstration that endoscopic therapy (EVL) is effective and safe, with low rebleeding rates.

Practical recommendation to strengthen pediatric endoscopy services in regional hospitals.

Acknowledgment

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Author Contributions

All authors contributed equally to study conception, data collection, analysis, and manuscript drafting.

Declarations

Ethical Approval: Approved by Institutional Ethics Committee (number not available).

Funding: None.

Conflict Of Interest: None declared.

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