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Original Article

Demographic Profile and Upper Gastrointestinal Endoscopic Findings among Children with Gastrointestinal Symptoms

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Abstract

Background: *Upper endoscopy is an essential, safe and sensitive tool for diagnosing pediatric gastrointestinal issues. In Bangladesh, the practice of pediatric endoscopy remain rudimentary due to lackoftrained pediatricendoscopist. There is limited study on pediatric upper GI endoscopy in our country. The aim of the study was to find out the indications, common endoscopic findings and immediate post procedure complication of UGI endoscopy in children.*

Materials and methods: *This is a retrospective study, the medical records of all patients whose age is under 18 years and who underwent upper GI endoscopy in last 2 years were included.*

Results: *Among the total of 150 children (Age <18 years), the most common indications were recurrent abdominal pain in 95 (63.3%) patients followed by Vomiting 26(17.33%), hematemesis 22(17.67%), dysphagia 4(2.7%), jaundice 3(2%). In almost half of the patients 75 (50%), the endoscopic findings were normal. The most common abnormal endoscopic findings were esophagitis seen in 42(28%) of patients followed by 18(12%) cases of superficial gastritis, duodenal ulcer 5 (3.3%), esophageal varix 4(2.6%), gastric polyp 3 (n=2%), antral gastritis 1(0.7%), biliary ascariasis 1(0.7%), esophageal ulceration 1(0.7%).*

Conclusion: *The commonest indication for Pediatric UGI endoscopy was recurrent abdominal pain and the commonest endoscopic feature was esophagitis. No significant post procedure complication was noted in this study.*

Key words: Child; Complications; Indication; Upper GI endoscopy.

INTRODUCTION

Gastrointestinal diseases are an important healthcare problem world wide, especially in pediatric age group.[1] With the introduction of flexible upper Gastrointestinal (GI) endoscopic procedures in the 1970s and development of more instruments in the 1990s, pediatric endoscopic procedures have now become standard care in the developed countries for the management of GI disorder[2]. It is now considered as an important tool in evaluation and treatment of pediatric GIT diseases. Currently children of all ages can be safely examined with better anesthetic techniques and technological advances in the size and flexibility of specially designed pediatric endoscopes. [3,4,5,6] Despite the high diagnostic yield, upper GI endoscopy is still an under-utilized tool and information regarding its efficacy is scanty in most of the developing countries.[7] This is mainly due to lack of awareness about the role of this important diagnostic modality in children which prevents referrals of these children to a center where this facility is available. On the other hand, factors like lack of trained pediatric gastroenterologists or lack of well-equipped pediatric endoscopic

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suites in resource-limited countries may also play an important role. Therefore, we carried out this hospital-based retrospective study to report the common indications, age and sex variable, common endoscopic findings and post procedural complications of pediatric upper GI endoscopy in our setup to increase awareness amongst pediatricians.

MATHODS AND MATERIALS

The restrospective study was carried out in the Department of Pediatric Gastroenterology, Hepatology & Nutrition, Chattagram Maa O Shishu Hospital Medical College, Chattogram, Bangladesh. The medical records of all patients under the age of 18 years who underwent upper GI endoscopy (Both Inpatient and Outpatient Department) from January 2020 to December 2022 were reviewed retrospectively. All of the pediatric patients (Total 150) on whom upper GI endoscopy was performed during the study period were included in the study. The need for endoscopy was decided by the pediatric gastroenterologist as well as by the general pediatricians. Informed consent was taken from parents/patients for the procedure after careful explanation of procedure details and potential complications. Patients fasted for a minimum of 4 to 6 hours prior to the procedure and all the EGDs were performed using 7.8 Olympus CLV-U40 and CV- 230 with a television set. Mode of anesthesia was decided by performing faculty member depending upon patient's age, level of cooperation and physicians comfort level. Parenteral Pofofol (0.05–0.1 mg/kg IV, maximum single dose of 4 mg) with or without Ketamine (1 mg/kg I/V) was used as sedatives.In most of the cases, endoscopy was done without sedation/anesthesia but under local xylocaine spray or jelly.

Endoscopic findings were documented for each patient and biopsy materials for histopathology were taken. Patients were kept in observation room to see the immediate post procedure complications. Patient's demographic data including age, sex and length of hospital stay were recorded. For descriptive purpose patients were divided into three age groups. Indications for upper GI endoscopy, findings and post endoscopic complications were recorded for each patient.

All data on categorical variables were presented as frequencies and percentages. Data of various indications, endoscopic findings and complications were entered into the SPSS (statistical package for social science) Version 24.0 statistical program and statistical analyses were carried out at 5% level of significance and $p<0.05$ was considered statistically significant

RESULTS

During the study period, a total of 150 patients underwent upper GI endoscopy. Mean age of patients was 12 years with range of 8 months to 18 years. Older children (Aged 11 - 18 years) had highest frequency of upper GI endoscopy, 91 (60.7%), followed by children (6-10 years of age), in which frequency of endoscopy was 47 (31.3%). The frequency of endoscopy in children between 0 - 5 years of age was 12(8%). Male were 86 (57.3%) and female were 64 (42.5%) . The male female ratio was 1.34:1.

10% pharyngeal xylocaine spray were used 119 cases (79.33%). Subsequently in 31 cases(20.66%) children IV ketamine & propofol were used before the procedure for sedation. No immediate post procedure complications were noted in any of the patients during the file review. Biopsy obtained 21(14%) cases.

Recurrent abdominal pain 95(63.33%), Vomiting 26(17.33%),Hematemesis 22 (17.67%) was the common indication for the procedure. Figure 1 describes the frequency of various indications for upper GI endoscopy in our study. Other less common indication were jaundice, dysphagia, suspected celiac disease, corrosive injury.

Table I Characteristics of study population (n=150)

Variable	No	Percentage (%)
Age		
1-5 Years	12	8
6-10 years	47	31.3
11-18 years	91	60.7
Sex		
Male	86	57.3
Female	64	42.5

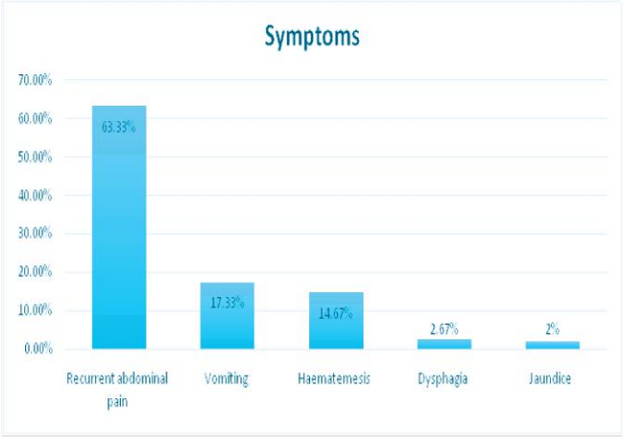

Figure 1 Indications of upper GI Endoscopy (n=150)

In almost half of the patients (50%, n=75), the endoscopic findings were normal. The most common abnormal endoscopic findings were esophagitis seen in 42(28%) of patients followed by 18(12%) cases of superficial gastritis, duodenal ulcer 5 (3.3%), esophageal varix 4(2.6%), gastric polyp 3 (n=2%), antral gastritis 1(0.7%), biliary ascariasis 1(0.7%), esophageal ulceration 1(0.7%) .

Table2:describes the details of endoscopic findings in this study. Gastritis was the most common histopathological finding on biopsy, seen 92% (n=21).

Table II Endoscopic findings of studied children (n=150)

Finding	No	Percentage (%)
Normal	75	50%
Esophagitis	42	28%
Superficial gastritis	18	12%
Duodenal ulcer	5	3.3%
Esophageal varix	4	2.6%
Gastric polyp	3	2%
Antral gastritis	1	0.7%
Biliary ascariasis	1	0.7%
Esophageal ulceration	1	0.7%
Total	150	100

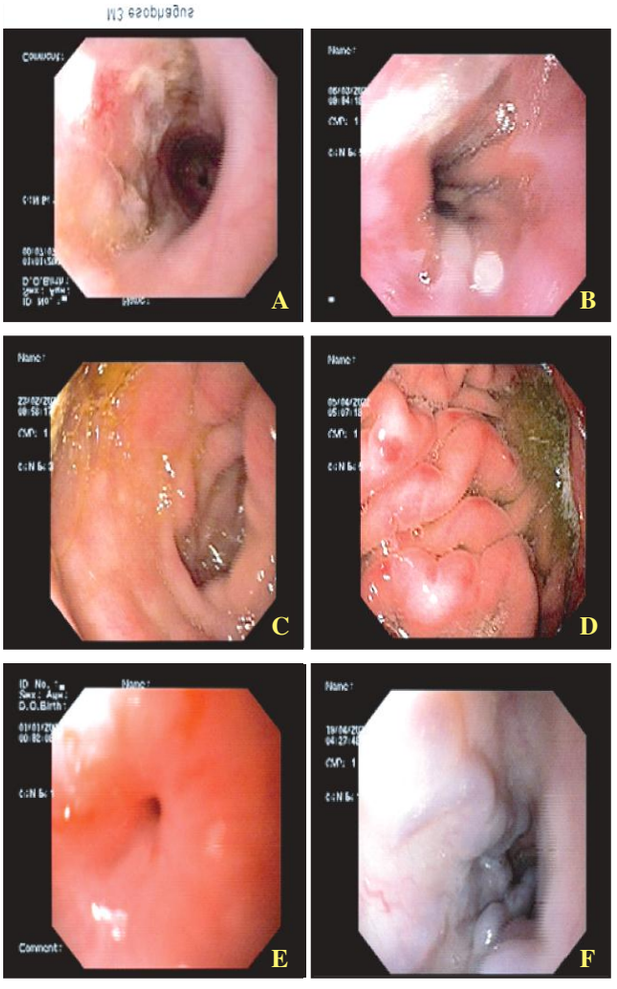

Figure 2 Various endoscopic views: A-Corrosive poisoning (L3 Esophagus.), B-Reflux esophagitis, C-Duodenitis, D-Superficial Gastritis, E-Congenital esophageal stenosis, F-Esophageal varices

No side effects were observed in near 96% of children following endoscopy procedure. A total of 6 (4.0%) patients complained of sore throat,abdominal pain and chest pain. This side effect not affect the overall survival and hospital stay.

DISCUSSION

Upper GI endoscopy is one of the most quick and cost effective diagnostic procedure for a wide variety of gastrointestinal disorders in children, it was done when other investigations are not conclusive. Not only for the diagnosis and follow up of upper GI problems, therapeutically also this procedure has great potential in children[8]. In the present series the positive diagnostic yield was 77 out of 150 cases (51.33%). Mishra et al demonstrated the usefulness of the procedure with a yield of positive findings in as many as 41.8% cases and Mittal 29.3% cases.[7] Thereafter in the present series intravenous ketamine and propofol were used in 16 children, only xylocaine spray in 126 children and no sedation in 8 children with satisfactory results. Apart from the bitter taste of pharyngeal xylocaine spray these techniques were well tolerated by the children.

In the present study, older children aged >10 years had highest frequency of upper GI endoscopy with 60.7%. Same phenomena were observed in Mazumder et al. (40%) from Bangladesh, Khan et al. (40%) from Pakistan, Wani et al. (66.2%) from India, Kumo et al. (80.2%) from Nigeria, Isa et al[16] (35.8%) from Bahrain and Altamimi et al (35.8%) from Jordan.[9-14] Less fear and much more gastrointestinal diseases in older children probably the possible causes. The Male female ratio was 1.34:1. Other studies gender ratio were same from different countries.[9,11,12-14] No gender differences regarding incidence of pediatric gastrointestinal diseases may be the possible cause. No sedation were required in 133 (88.7%) children. Another study from Bangladesh, Mazumder et al. (66%) and Wani et al (30.4%) from India did upper GI endoscopy without sedation in the older children.[9,11] Appropriate counseling and good co-operation of older children probably the possible etiology. Intravenous Profofol plus ketamine were required in only 10.7% sensitive children. In 14.8% patients, Wani et al. using general anesthesia like developed countries.[11] Due to unavailability of anesthetic support and inadequate number of experienced pediatric anesthesiologist, conscious sedation is the key for developing countries.

In the present study, the most common indications were recurrent abdominal pain in 63.33% patients followed by vomiting (17.3%). Recent studies from Nigeria (47.7%), Bahrain (40.9%) and Jordan (45.1%) also observed the commonest indication was abdominal pain.[12-14] 14.7% children presented with hematemesis. Recent trend of Spicy diet, frequent use of nonsteroidal anti-inflammatory drugs as a pain reliever and smoking habits among adolescents may be the possible etiology of pain abdomen now a days. In the literature from most of the developing countries, recurrent abdominal pain has been reported to be the commonest indication of upper GI endoscopy ranging from 8% to 43%.[15-16]Different studies from different geographic areas have shown different indications but the overall pattern is almost similar.[11]

Almost one third of the children (49.3%) who underwent upper GI endoscopy in our study had normal endoscopic findings compared with studies performed in Ghana (41.1%), Pakistan (46%) and Kathmandu (66%).[17,10,15] The abnormal endoscopic findings were found in 50.7% patients. The most prevalent findings in our survey were Esophagitis (28%) . The rate of esophagitis was in the range of the two previously reported studies in the Middle East (31.2%-82%).[16] However, our finding was in favor of the lower range. Our second common endoscopic finding were Gastritis (17%), similar finding were reported in African studies in which gastritis (25.8%) and Altamimi et al. (22.1%) from Jordan Our rate of prevalence for duodenal ulcer is 3.3% similar to Scandinavian study (3.7%) but different from studies in Uganda (14.8%) and Kathmandu (13%).[7,14,7,15] Other findings were DU scar (1.3%) , Esophageal varix (2.7%) , Gastric polyp (2%) cases. On the other side, esophageal varices was the commonest one in Mazumder et al. (40%) from Bangladesh and Wani et al. (23%) from India.[9,7] Our finding Esophageal varix only 2.7% as because most of the cases referred to capital city.Different studies from different geographic areas have shown different indications & findings but the overall pattern is almost similar.[17]

Adverse events were observed in 6.8% cases, which was similar to Wani et al (7.3%) from India.[11] In the present study, 5 (3.3%) patients complained of sore throat which was similar to Indian (3.64%) and Nigerian (1.2%).[8,12]

CONCLUSION

Pediatric upper endoscopy is a valuable diagnostic tool. Older children are associated with a higher chance of abnormal endoscopic findings. Recurrent abdominal pain is the most common indication for upper endoscopy and is associated with a higher chance of abnormal endoscopy. The commonest endoscopic finding was esophagitis . No significant post procedure complication was noted in the study.

DISCLOSURE

All the authors declared no competing interest.

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