

Endoscopic Evaluation of Children Presenting With Abdominal Pain

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Abstract

It is a cross sectional type of observational study to see the prevalence and pattern of peptic ulcer diseases among the children presenting with abdominal pain. Upper gastrointestinal video endoscope followed by Campylobacter like organism (CLO) test and histopathology were the diagnostic tools. Relevant socio-economic history was also noted for comparison with similar studies.

Total 80 children participated in this study. Mean age was 12 + 1.13 years. Male, female ratio (approx.) 2:1. About Monthly parental income of study group 35% (28) parents earn <5000 Tk. 45% (36) earn 5000-10000 Taka and 20% (16) earn more than 10000 taka per month.

Video endoscopy of upper gastrointestinal tract showed 20% (16) children showed features of peptic ulcer diseases. Ascariasis and biliary ascariasis where 37.5% and 2.5% respectively. Nothing abnormality among 40% children. Histopathology showed: Duodenitis 31.25% (5), duodenal ulcer 25% (4) and duodenal erosion 12.5% (2). Superficial gastritis was also 12.5% (2) gastric erosion and gastric ulcer was 6.25% (1). Campylobacter like organism (CLO) test was done. 87.5% (14) peptic ulcer case showed positive Campylobacter like organism (CLO) test. Data was managed manually and presented with tables and charts. A discussion is made with updated literature review.

Introduction

During the past decade it has been estimated that Peptic ulcer disease has affected more than 4 million people in the united state annually¹. For much of the last century, the pathogenesis of this disease was believed to due to a number of predisposing factors. The most important of which was the hypersecretion of gastric acid. The development of pediatric flexible fiberoptic endoscopes that allowed the Gastroenterologyogist to obtain gastric biopsies and identification of the micro organism Helicobacter pylori

have changed our understanding of gastric and duodenal ulcer in children.

Peptic ulcer disease in common world wide the overall life time prevalence is about 12% for men 9% for women¹ The lifetime risk of PUD is about 10% at any given time 2% of the general population of us has symptomatic PUD.

A peptic ulcer can be classified as either primary es associated with H-pylori infection.

Secondary with a variety of factory Including excess acid production, stress, use of medication NSAID aid the presence of other underlying conditions.

Primary Peptic ulcer disease characteristically occur in children older then 10 years. Commonly occur in the duodenum are associated with H. pylori Peptic ulcer disease and may result in chronic and recurrent Symptom.

Secondary ulcers are usually gastric in location and occur infant and young children. Secondary ulcers have the potential for higher morbidity and mortality rate.

H. pylori infetion is so common as to seem ubiquitous in many areas of the world. Transmission is (believed to be primary is believed to be primarily person to person and primary route of infection in developing countries through fecal contamination by the fecal oral route.

The pathogens invariably damages the gastric mucosa, resulting in Both structural and Functional abnormalities. It causes histological gastritis and is critical in the pathogenesis of the gastritis associated diseases namely gastric ulcer, duodenal ulcer, gastric adenocarcinoma and primary gastric lymphoma.

The infection clusters in families , especially. those with small children. Exposure to gastric secretions also increases risk of infection² thus gastrointestinal endoscopists ant nurses However in the fact that clinical Peptic ulcer disease does not develop in every person infected by the organism.

The prevalence of H. Pylor infection is more common in developing country in comparison of the developed country.

A study in Bangladesh carried out by sarker PJC-etal in 1997 also showed that infection rate is about 68% in our children starting from the 1-3 months.

In a Seroepidemiological Survey carried out by sherestha D. In 1996 in healthy adult of Bangladesh have shown

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91.4% prevalence of H. Pylori infection

WHO in 1994 has declared the HP as a group -1 carcinogen. Beside these a number of studies had shown that HP may be related to recurrent abdominal pain in children.

In developing country (like Bangladesh) where up to 75% of children acquire the infection by 10 years of age in develop country 10% of the children acquire infection in this age.

80% of adult in developing country can have laboratory evidence of an H pylori infection. In industrialized country the infection is rare in children and only about 40% of adult are infected . Risk of infection is higher for person who live in over crowded or unsanitary condition, low socio economical condition.

Risk factor of the HP infection includes :-

Birth in a developing country, Low social economic status, Over crowded living conditions, Large families, Un sanitary living condition,

Unclean food and water, Presence of infants in the home, Expusure of gastric contents of infected individuals,

Methodology

1. Type of study :

It was observational study, cross sectional type.

2. Period of study :

From July 2003 to January 2005

3. Study place:

Department of Child health,(Banga Bandu Memorial Hospital) University of Science and technology Chittagong.

4. Study population and sample size :

All children (6-15 years) presenting with Abdominal pain.

Purposive sampling Technique and size is 80 (eighty).

5. Study technic :

Endoscope was performed to study group with asceptic precursion. Anesthetic agents were used when needed.

Biopsies were taken, and preserved with formal dehyde solution. One sample preserved for Campylobacter like organism test (CLO test). Another sample preserved for

histopathology.

Ethical Background :

Before performing endoscopy counselling was done with parents and informed them about the clinical suspicion and necessity of endoscopy.

Written consent was taken from parents for endoscopy and anesthesia when needed.

6. In clusion criateria:

- Age : 6 years to 15 years
- Recurrent abdominal pain
- Acute abdominal pain after exclusion of surgical

problem by History, clinical examination and relevant investigation.

7. Exclusion criateria:

- Age : Less than 6 years and more than 15 years.
- Suspected surgical problem excluded by History, clinical examination and relevant investigation.
- Abdominal Pain which was not clinically consistant with peptic ulcer disease.
- No cases consistant with peptic ulcer disease were found under 6 years of age, during the study period.

Data Collection:

Data Collection by investigator himself with presented mixed type questionnaire was used for socio—demographic data under professional endoscopes.

Data presentation and analysis:

after collection datasheet were scrutinized, compiled and presented with different table and chart. A scientific calculator was used for the purpose

Result, Tables and Charts:

A total of 80 children were studied. The age range was 6-15 years. Among them 04 (5%) were <10 years and 76 (95%) were >10 years > (Table-1).

Table: 1 Age Distribution Of Respondents

Age of respondents	No. of Cases (%)
<10 years	04 (5%)
10 years ≥	76 (95%)
Total	80 (100%)

Sex ration of the respondents was 2:1 I.E male 66%, Female 34% 2.5% (02) children was found as drop out from school.

About monthly parental income : 35% (28) parents earn < 5000 Tk. 45% (36) earn 5000-10000 taka and 20% (16) earn more than 10000 taka per month. There was no hard core poor.

Figure-1 shows endoscopic finding of upper gastro-intestinal tract. Nothing abnormality was detected among 40% (32) children presenting abdominal pain. 20% (16) children showed features of peptic ulcer diseases. Remaining 40% (37.5 +2.5) was due to Ascariasis.

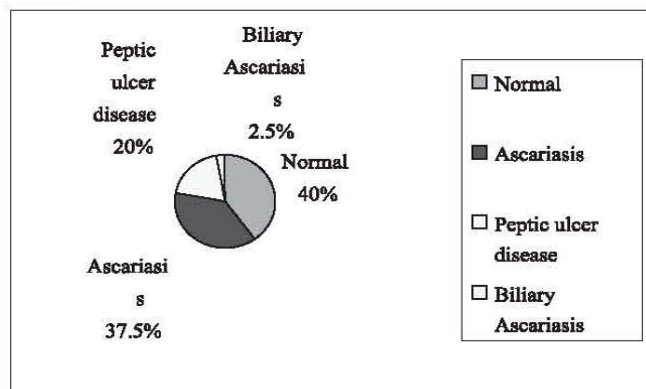


Fig-1 : Pie Chart showing upper gastro-intestinal endoscopic findings among children presenting abdominal pain

Table -2 & Figure-2 Showed Pattern of peptic ulcer diseases shows Duodenitis ranks first 05 (31.25%) Duodenal ulcer second 04 (25%) Duodenal erosion and superficial gastritis secures 3rd position 02 (12.5%) Remaining cases are moderate gastritis, gastric erosion and gastric ulcer. All secure 4th position 01 (6.25%) all peptic ulcer cases were tested for Helcobacter pylori association. 14(87.5%) cases were found positive cloe test (Figure-3)

Table-2 Pattern of Peptic Ulcer Disease Among Children

PEPTIC ULCER DISEASE	No. of Cases (%)
Duodenitis	05 (31.25%)
Duodenal ulcer	04 (25%)
Duodenal erosion	02 (12.5 %)
Superficial gastritis	02 (12.5 %)
Moderate gastritis	01 (06.25 %)
Gastric erosion	01 (06.25 %)
Gastric ulcer	01 (06.25 %)
Total	16 (100%)

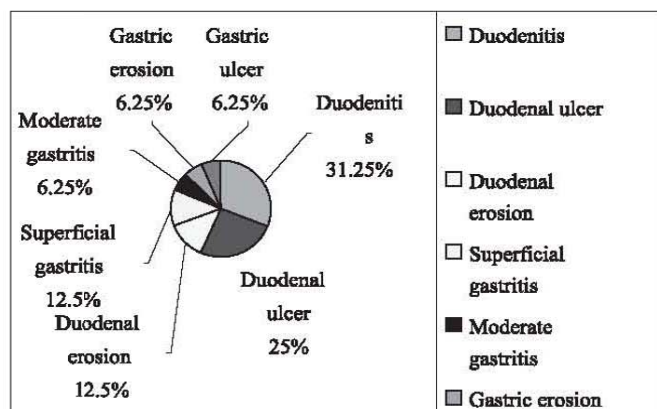


Fig-2 : Pie Chart showing Pattern of peptic ulcer disease among children

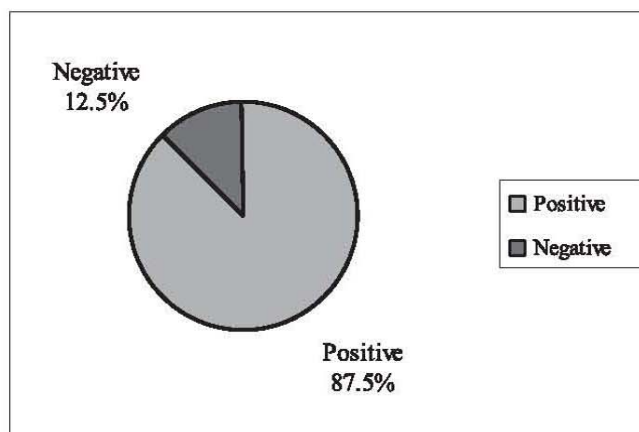


Fig-3 : Pie Chart showing Helicobacter pylori association with childhood peptic ulcer disease

Discussion

This is a cross-sectional type of observational study to see the prevalence and pattern of peptic ulcer diseases among the children presenting with abdominal pain. Upper gastro-intestinal video endoscopy followed by Campylobacter like organism (CLO) test & histopathology were the diagnostic tool. Relevent socio-economic history was also noted for comparison with similar studies.

Total 80 (eighty) children were included in this study, mean age was 12 + 1.13 Male, female ratio 2:1, Literate 97.5% (78) and Illiterate 2.5% (02).

About monthly parental income of study group: 35% (28) parents earn < 5000 Tk. 45% (36) earn 5000-10000 taka and 20% (16) earn more than 10000 taka per month.

Upper Gastro-intestinal video endoscope in 20% (n16) children showed features of peptic ulcer diseases. Ascariasis and biliary ascariasis were 37.5% (n30) and 2.5%(n02) respectively. No abnormality found in 40% (n32) children. The findings of histopathology were duodenitis 31.25% (n05), duodenal ulcer 25% (n4) and duodenal erosion 12.5%(n02). Superficial gastritis 12.5%(n02), moderate gastritis 6.25% (n01), gastric erosion and gastric ulcer were 6.25% (n01). Campylobacter like organism (CLO) test was done in 16 case of peptic ulcer diseases of which 87.5% (n14) peptic ulcer case showed positive Campylobacter like organism (CLO) test. Data was managed manually and presented with tables and charts. A discussion was made with updated literature review.

Peptic ulcer disease may occur at any age. William W.³

Showed peptic ulcer diseases may occur in pediatric age, is more common in 12 to 18 years age group. This data is similar to my study. Kurate W.⁴ showed that male predominates female regarding peptic ulcer disease. My study showed that Male predominate over female, (male and female ratio 2.2:1). The prevalence of Helicobacter

pylori infection is very high in developing country. A Study in Bangladesh conducted by Sarker SA⁵ showed that *Helicobacter pylori* infection rate in infant and family contact in a poor community was about 85%. It has been recognized that *Helicobacter pylori* like enteric infection is mainly acquired during childhood in Bangladesh like other developing countries due to poor socio-economic condition, poor hygiene and over crowding. Sarker SA⁵ showed that infections rate were 82% and 91% in the family contact of the infected and non infected person respectively. Graham DY⁶, in 1991 a study from Hyderabad has showed *Helicobacter pylori* infection increases with age and the prevalence reached 84% by 20 years of age. Gill HH⁷ showed in a study from Bombay in 1994 the prevalence of anti *Helicobacter pylori* antibody was 22%, 56% and 87% in 0-4 years, 5-9 years and 10-19 years age group respectively. Dore SP⁸ from Bangalore study had detected *Helicobacter pylori* infections in 82% of 50 children age 6-18 years by 13c urea breath test. A cross sectional study in Ethiopian children by Lindkvist P⁹, showed that 80% of the children were infected with *Helicobacter pylori*. A study was carried out by Antone R¹⁰, on children of Texas among 797 children from age 6 months to 18 years, moderate to high socio-economic condition over all sero prevalence was 12.2%. In infant it was 8.3% and adolescence it was 17.9%. Lindkvist P⁹, found in developed countries overall prevalence rate was about 10%. From above discussion it is clear that *Helicobacter pylori* infection causes mostly primary peptic ulcer disease, and involved the population of the developing countries like Bangladesh due to poor socio-economic, and unhygienic condition and over crowding living style. These study are similar to my study where *Helicobacter Pylori* infection peptic ulcer diseases 87.5%, and the parental income of peptic ulcer disease patients were less than 5000 Taka. Conceptually it is useful to categorize peptic ulcer disease in to primary and secondary. Primary peptic ulcer usually chronic and more often involve the duodenum and almost always associated with *Helicobacter pylori*. Whereas secondary peptic ulcer are more often gastric origin and associated with presence of systemic underlying disease and also *Helicobacter pylori* associated. Macarthur C¹¹ showed that the severity and depth of *Helicobacter pylori* gastritis and duodenitis are variable, but in general inflammation is most intense in the duodenum and antrum followed by cardia and least in the body of stomach. About pattern of peptic ulcer diseases Ahmed¹² showed duodenal and gastric ulcer ratio 5:1. El Mouzan and Abdullah showed 5:113. It is consistent with my study where duodenal and gastric ulcer ratio 4:1. PK Roy¹⁴, showed that the major difference between peptic ulcer disease in children and adult lies in the prevalence and presentation. A study conducted by Moazan and Abdullah¹³ showed that 5% of Saudi children who had attended hospital with abdominal pain were suffering from peptic ulcer diseases. My study

shows 20%. The difference between studies is significant ($Z = 3.28, P < 0.014$). Probable causes of difference are: (1) Sample size (52 verses 80), (2) Dissimilar socio-economic condition and life style (Bangladesh verses Saudi Arabia). A study conducted by PK Roy¹⁴ in Bangladesh showed that rate of peptic ulcer diseases 20% among children presented with upper abdominal pain. It is similar to my study.

Conclusion

Peptic ulcer diseases are not uncommon among children in Bangladesh. So it should be considered as one of the important causes of abdominal pain. Due attention should be given to the problem and the knowledge should be disseminated. However a country wide study is hereby advocated before national action plan development.

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