# HELICOBACTER PYLORI INFECTION IN PAEDIATRIC AGE GROUP AND RECURRENT ABDOMINAL PAIN


## ABSTRACT

**Background:** The term 'recurrent abdominal pain' or RAP is defined in terms of duration and frequency of pain. The duration is to be defined as: minimum preceding three months, and over this three-month period, minimum3 episodes of pain having severe intensity causing impairment to perform the daily activities by the affected patients. Over many years, more and more organic causes have been identified because of various advances and better knowledge as well as better investigations tools. The commonest cause of RAP in paediatric age group is found to be H. Pylori infection and it is also treatable.

**Objective:** To find out helicobacter pylori infection frequency in paediatric age group with recurrent abdominal pain

**Study Design:** Cross sectional study


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**Place and Duration of Hospital:** Pediatrics, DHQ teaching hospital Sargodha from 10th June 2018 to 9th December 2018.

**Methodology:** One hundred children with recurrent abdominal pain were selected using non probability consecutive sampling. H. Pylori serology was done and results presented

**Results:** The mean age was 7.28±2.6 years. H. pylori infection was seen in 27%. More patients belonged to middle socio economic status.

**Conclusion:** Recurrent abdominal pain in paediatric age group is caused commonly by H. pylori infection and it is easily treatable if detected in early stages.

**Key words:** Recurrent abdominal pain, H. pylori infection, Serology

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## INTRODUCTION

The definition of Recurrent abdominal pain (RAP) in paediatrics is minimum3 episodes of pain that occur over at least 3 months and causing impairment in child's daily routine activities. Functional (nonorganic) abdominal pain is

mostly considered in such cases, but in 5% to 10% of cases, organic cause is found.[1] All patients in paediatrics who presented with RAP along with fever, vomiting, dysentry, more than three alarm symptoms, or a history of dysuria or pyuria, should be properly evualated.[2]

If on examination, there is weight loss or failure to thrive; jaundice; hepatosplenomegaly, or kidney enlargement; mass palpable in abdomen; or tenderness/ guarding in abdomen, furthur workup is required [3] Investigations may include blood tests like complete blood picture (CBC),acute phase reactants(ESR,CRP), stool tests as fecal occult blood testing, detection of parasitic infection(ova and cystsin stool), Helicobacter pylori antigen detection in stool or urinalysis. Obstruction or constipation is detected by abdominal ultrasonography. [4]

Functional abdominal pain is a clinical diagnosis. One of the major causes in children is Helicobacter pylori infection which is less recognized but a major contributing factor. In Belgium a study carried out and showed a prevalence of 11%.[5] A study carried in Rawalpindi showed prevalence of 38%.[6]

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The rationale of this study is to find out current frequency of H .pylori in local population. Treating the underlying cause will result in better patient care.

## MATERIAL AND METHODS

This study was cross sectional descriptive conducted at Department Of Pediatrics DHQ Teaching Hospital Sargodha from 10$^{th}$ June 2018 to 9$^{th}$ December 2018 and comprised 100 children. Children aged 3 to 12 years of both gender and having history of recurrent abdominal pain were included. Patients with other established cause of recurrent abdominal pain i.e. UTI, IBD, celiac disease, renal stone, appendicitis, anemia (Hb less than 10), diarrhea and using PPI were excluded. Demographic data including age, gender and family income was noted. Children having recurrent abdominal pain underwent H. pylori serology for detection of infection. Analysis of all data was done by using SPSS-20.

Biopsies from 150 patients, in which both the antrum and corpus had been sampled at endoscopy, were randomly chosen for further clinical and pathological analysis. In this group of 150 patients, it was established whether both

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regions were correctly sampled (by analysis of the histology of the gastric mucosa – transitional mucosa was grouped with antral mucosa), and the density of *H pylori* within each region. The electronic patient record system was used to evaluate whether the patients were taking PPIs at the time of endoscopy.

To investigate the sampling pattern when the endoscopy report indicated that only one region was sampled, the histology pattern in 200 consecutive specimens that satisfied that criterion was reviewed.

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**RESULTS**

The mean age was 7.28±2.6 years and mean family income was 16000±3000 rupees. There were 48 % females and 52% males. Regarding socioeconomic status 32% belonged to lower socio economic status and 68% belonged to middle class socioeconomic status (Table 1) In 27% children, cause of recurrent abdominal pain was H. pylori infection (Table 2).

**Table 1: Descriptive statistics of age, (n=100)**

| Variable | No. | % |
|---|---|---|
| Age | 7.28±2.61 | |
| Family income | 16000±3000 | |
| **Gender** | | |
| Male | 52 | 52.0 |
| Female | 48 | 48.0 |
| **Socioeconomic status** | | |
| Low socio-economic status | 32 | 32.0 |
| Middle socio-economic status | 68 | 68.0 |

**Table 2: Frequency of H. pylori infection (n=100)**

| H. Pylori Infection | No. | % |
|---|---|---|
| Yes | 27 | 27.0 |
| No | 73 | 73.0 |

## DISCUSSION

Mostly patient's who present in general paediatric outdoor as well as paediatric gastroenterology sections come with complaint of recurrent abdominal pain. Most of time, symptoms are vague and later on investigations does not show any organic disease. Therapy regimens in such cases vary and are mostly groundless.

Mean age of patients in our study was 7.28±2.6 year with equal male and female distribution. The frequency of H. Pylori was reported to be 27% with recurrent abdominal pain. These results are similar to other international studies and validate the data of our study. Ashorn et al[7] found infection of H. pylori (based on histology and/or culture) in

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22% cases when upper GI endoscopy was performed in 82 children who presented with recurrent abdominal pain. So it was supposed that frequency of organic disease was much higher than non organic or functional, and one cause was H. pylori infection. However, other similar studies showed conflicting evidence, Hyams et al[8] evaluated 127 children presenting with dyspepsia for H. pylori infection and in only 5 pediatric patients, it was found. Even there is not enough evidence that it is cause of pain without evidence of peptic ulcer disease. As another study by Donohue et al[9] including a large number of urban school students showed H. pylori infection (positive serology) in 16.7% but no association was found among patients with history of recurrent abdominal pain and H. pylori positive serology.

In one other study, children who presented with recurrent abdominal pain in the pediatric outdoors at university hospital underwent for *H. pylori* screening. 3 age categories of 4-5, 6-11, and 12-16 years were assigned to children. The study period was divided into 3 time periods: 2004-2007, 2008-2010 and 2011-2014, so that annual variation in prevalence rates of *H. pylori* infection could be studied. In all children of aged 4-16 years, urea breath test

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was performed, with a cut-off value of 4‰ for children having age ≥6 years and 7‰ for children with age <6 years. Study included a total 2,530 children (1,191 boys) with history of recurrent abdominal pain with a mean age of 10.0±3.0 years (range, 4.0-16.9 years). *H. pylori* infection prevalence was 7.4% (187/2,530). The frequency rate of infection in different time period was 8.0% (70/873) in 2004-2007, 7.7% (51/666) in 2008-2010, and 6.7% (66/991) in the 2011-2014. Moreover there was significant difference infrequency of infection rate between children <12 years old and ≥12 years of age ($p$=0.018).[10]

## CONCLUSION

Recurrent abdominal pain is a troublesome complaint of child which impairs his daily life activities and effect education. Every possible effort should be done to find out cause of recurrent abdominal pain. H. pylori infection is one very common cause as evident in our study. So all patients with recurrent abdominal pain should be screened for h. pylori infection and treated promptly if serology is positive.

### Ethical Approval:

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As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

**Consent**

As per international standard, parental written consent has been collected and preserved by the author(s).

**COMPETING INTERESTS DISCLAIMER:**

**Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.**

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