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# Etiology of Recurrent Abdominal Pain in Preschool Children: A Comparative Study in Dhaka Shishu (Children) Hospital

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**Original Research Article**

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**Abstract:** Recurrent abdominal pain (RAP) affects a significant number of children in each year. It can be defined as experience of at least three (3) episodes pain that enough to affect activities over a period of three months. The purpose of this study was to determine the organic and non-organic cause of RAP in preschool Children during one year period from March-17 to February –18. Eighty preschool children with recurrent abdominal pain (RAP) were investigated. All patients underwent a thorough interview and complete physical examination and an initial sample of blood urine and stool evaluation. Additional studies were performed including abdominal ultrasonography and or radiography and Endoscopy. Organic cause was observed in 30 (37.5%) and non-organic in 50(62.5%). UTI was the commonest organic cause where UTI found in 06 (20%). Either alone or with other parasites followed by Ascariasis 04 (13%) alone. Other cause of organic pain were Giardiasis 5 (16%), Shigellosis 03 (10%), abdominal tuberculosis 1(3%), esophagitis/gastritis 4 (13%), Chronic constipation 04 (13%) and gall stones 1 (3%).Abdominal epilepsy was 3%. School phobia, sibling rivalry, unpleasant relations among parents and nocturnal enuresis were significant factors associated with RAP. Our data shows that among the children with RAP, non-organic causes are more commons 62.5% than organic causes 37.5%. This study shows that till the percentage of non-organic RAP is high in children yet better instrumental support.

**Keywords:** Abdominal pain, organic and nonorganic abdominal pain Giardiasis.

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## INTRODUCTION

Recurrent abdominal pain (RAP) is a common pediatric problem in daily practice and is defined as the presence of at least three episodes of abdominal pain severe enough to affect their activities over a period longer than three months [1]. RAP was first introduced in the pediatric literature by Apley and Naish in the late 1950s. This is usually associated with functional impairment and anxiety in parents and hampers their daily activities. Chronic abdominal pain has been reported to occur in 10-15 % of children [1, 2**]**. The prevalence of RAP in children ranges between 10-20% [1, 3-5]. The incidence of organic and non-organic causes of RAP is variable in different studies **[**6]. Onset of symptom of RAP after age 14 is rare. Onset of symptoms in less than 4 years older often requires a more organic work up. Emotional components like stressful events, sibling rivalry, school phobia, unpleasant parent relations etc. have been attributed as underlying component in non-organic RAP [1, 4-9]. Causes of organic pain like H. Pylori infection, parasitic infestations and cholelitheasis have also been reported. The prevalence of organic and non-organic causes of RAP is variable in different studies [1, 2, 10]. The aim of study was to determine the organic and non-organic causes of RAP. Most of the studies were chiefly conducted on older children (5-12 years), we included younger children (2-6 years) in this study.

### Objectives

### General Objective

- To assess the Etiology of Recurrent Abdominal Pain in Preschool Children in Bangladesh

### Specific objectives

- To identify causes of Recurrent Abdominal Pain in Preschool Children in Bangladesh

- To identify factors related to Recurrent Abdominal Pain in Preschool Children in Bangladesh

## MATERIAL AND METHODS

This is a cross sectional study in Dhaka Shishu (Children) Hospital, Dhaka, Bangladesh during the period from March 2017 to Feb 2018. The aim of this study was to assess the Etiology of Recurrent Abdominal Pain in Preschool Children aged between 4 and 6 years. About 80 preschool children between the ages of 2 to 6 years attending with recurrent pain abdomen in the selected hospital were included in the study. The children were included if they had a primary complains of intermittent abdominal pain of unexplained origin for more than three months duration. The pain was sufficient severity to affect the normal activities like missing school or having a stop doing a routine daily activity during the pain. The term functional or nonfunctional was used when organic etiology could be found. A detailed history and examination of complete hemogram, urine analysis and stool examination for common bacterial pathogens, ova/cysts and occult blood were done in all cases. Special investigations like skiagram chest and abdomen, ultrasonography of abdomen, EEG, serological tests for tuberculosis and upper gastrointestinal endoscopy and barium study had been performed whenever indicated. The children who were having organic cause were treated as per the cause and followed for at least 3 months. RAP was labeled when (a) An organic cause was demonstrated (b) There was clinical and laboratory response to treatment; and (c) There was remission from abdominal pain for at least three months after treatment. The children in whom cause was non-organic RAP (NORAP) a detailed family history was taken and counseling done. All statistical analysis was performed using tactical program using version 13for windows.

## RESULTS

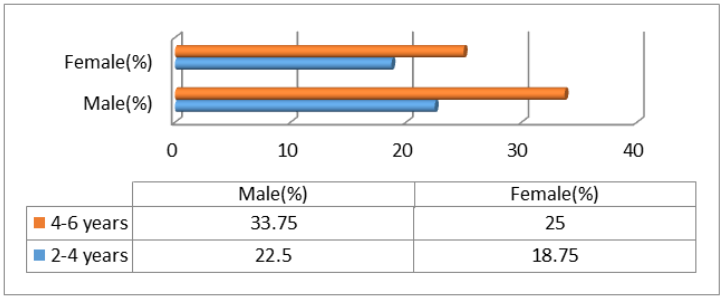


**Fig-1: Distribution of sex and age group of the study participants (n=80)**

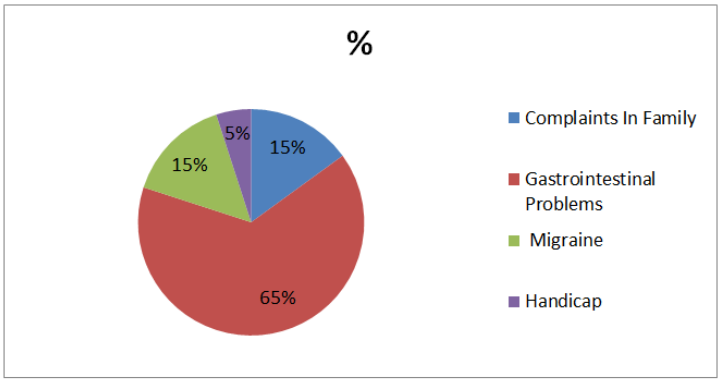


**Fig-2: Distribution of complains of the study participants (n=80)**

**Table-1: Some of Stressful life events in Child and their Family in Patients (n=80)**

| Stress factors | Non Organic N=50 | Organic N=30 |
|---|---|---|
| Financial Problems | 60% | 10% |
| School Phobia | 35% | 12% |
| Death Of Father | 5% | 5% |
| Divorce | 20% | 5% |
| Child Anxiety | 55% | 25% |
| Unpleasant Relations among Parents | 12% | 05% |

**Table-2: Causes of recurrent abdominal pain (RAP) in Pre-school children (n=80)**

| Age | 2-4 years | | 4-6 Years | | Total |
|---|---|---|---|---|---|
| | M | F | M | F | |
| Organic Causes: (30) 37.5% | | | | | |
| Giardiasis (17%) | 2 | 1 | 1 | 1 | 5 |
| Shigellosis (10%) | 1 | 1 | 0 | 1 | 3 |
| Ascariasis (13%) | 0 | 1 | 2 | 1 | 4 |
| UTI (20%) | 1 | 2 | 1 | 2 | 6 |
| Abdomen Tuberculosis (3%) | 0 | 0 | 0 | 1 | 1 |
| Gastritis (13%) | 2 | 1 | 0 | 1 | 4 |
| Chronic Constipation (13%) | 0 | 1 | 2 | 1 | 4 |
| Gall stones (3%) | 0 | 0 | 0 | 1 | 1 |
| Others (HSP Recurrent) (3%) | 0 | 0 | 0 | 1 | 1 |
| Abdominal Epilepsy (3%) | 0 | 0 | 1 | 0 | 1 |
| Sub Total | 6 | 7 | 7 | 10 | 30 |
| Non-Organic Causes: (50) 62.5% | | | | | |
| Sub Total | 12 | 8 | 20 | 10 | 50 |
| Total | 18 | 15 | 27 | 20 | 80 |

Out of 80 children complaining of RAP, there was significant male predominance 46 (57.5%). Thirty-four (42.5%) were in the age 2 to 4 years while rest belonged to 4 to 6 years group as shown in figure 1. The organic cause was found in 30 (37.5%) children and non-organic in 50 (62.5%). The Urinary tract infestation was commonest cause which included 06 (20%), the giardiasis was 5(16.66%). Ascariasis 04 (13.33%) was also a common cause. Other organic causes was gastritis 4(13.33%), chronic constipation 4(13.33%) gall stone 1(3.33%), abdominal TB 1(3.33%) and abdominal epilepsy 1(3.33%). In addition to RAP, there were other features inform of failure to thrive, anorexia and diarrhea off and on and pica. Recurrent urinary tract infection was the cause of RAP in 9 (6.7%) children which were diagnosed by urinalysis and culture. Abdominal tuberculosis was detected in 1 (3.33%) children. There was family history of pulmonary tuberculosis in all cases. ELISA tests and examination of ascetic fluid confirmed the diagnosis. Gallstones were detected in 1 (3.33%) children on ultrasonography who were 6 years old. None of these children had clinical features of chronic hemolytic anemia, liver disease or hyperlipidemia. Non-organic recurrent pain abdomen was seen in 50(62.5%) children. School phobia, sibling rivalry, unpleasant parent relations among parents, divorce and nocturnal enuresis were associated factors. The children were treated symptomatically and followed up to 3 months.

## DISCUSSION

Recurrent abdominal pain (RAP) is common in childhood especially in pre-school children is still a symptom difficult to understand and to find its cause is an exclusive process. Our study was limited to 2 to 6 year's child. In 1909, an English pediatrician wrote "I know of no symptom which can be obscure in its causation than colicky abdominal pain in childhood [11]". Today almost a century later, the provocative fact is that stills words more or less hold true. As suggested by Apley, the dominant view has been recurrent abdominal pain is an expression of physiological maladjustments in response to family or school problems in predisposed children [1]. In addition, the parents of children with RAP have been reported to have pain themselves to model pain behavior for their children. Contrary to this belief, many studies have found organic causes of RAP to be more common. In our study have revealed an organic cause for abdominal pain was identified 37.5% and non-organic cause was 62.5%. This is significant higher than 8% by Apley, and nearly equal to croffie study [1, 12]. This may be due to accessing to utilize new technology methods such as endoscopy, ultrasonography, and barium studies. In spite of that more access to special investigation here, most subjects were in functional group. Similar findings observed in another study [13]. Upper gastrointestinal endoscopy and pathology showed gastritis in 4 patients in which 3 patients were helicobacter pylori positive. H. pylori infection had been reported to be an uncommon cause of RAP in children by some studies [14, 15]**.** Here we can recommend it is a reliable method in diagnosis of organic lesions. Five patients had giardiasis which was managed with metronidazole. Organic causes as gastrointestinal disease and urinary tract disease, though in varying incidences [2-5, 11, 16]. In our study UTI was the commonest cause, while urinary tract infection (20%) abdominal tuberculosis (3.3%), eosphagitis/gastritis (13.3%) and gall stones (3.3%) were other causes. Mavromichalis *et al.* found organic causes viz. esophagitis, arthritis or duodenitis in 93% of the children in their study group. Kumar *et al.* found antral gastritisin 85% of their patients with upper abdominal pain and of these significant numbers of patients responded to H. pylorieradication therapy proving gastritis to be cause of RAP [17]. Bansal *et al.* in their study on children with RAP found 47% children to have organic cause such as giardiasis, UTI, worm

infestation or amebiasis of these children who underwent endoscopy, antral gastritis was found in 52% children. Only 9.7% children had psychogenic cause of RAP in their study 18. In our study also revealed organic cause of RAP in 37.5% children.

Parasitic infection especially UTI was the most important cause in our study and was adequately treated. Many of these children were having anorexia, diarrhea off and off, were also having history of pica. UTI is the most common infection worldwide. However, it is not generally regarded as a cause of severe illness. In a retrospective study, it was found out of 125 patients, 41% presented with the complaints of abdominal pain (9). In our study UTI also common cause of organic abdominal pain accounting alone for 20%.Worm infestation has never been taken seriously as cause of organic pain due to high prevalence even in symptomatic patients (2). Gall stones have been reported to be a cause of RAB in young children (13, 14). Two of our cases had gall stones as cause of RAB. Jaundice, localized abdominal pain or intolerance to fatty food ware not seen in our cases. We also found children with no RAP ware living in different psychosocial environment at school and home as seen in previous studies (1-5, 7-8). In our study, most of the cases were above 4 years. Family history, financial problems, school phobia, Divorce, death of father, unpleasant relations among Parents and child anxiety were associated with NORAB. Contrary to usual belief, organic causes such as UTI remain the commonest cause of RAB in preschool children. Both organic and non-organic factors need to manage simultaneously for proper management of RAB.

**Limitations of the study**

This was a single center study which can't reflect whole of the countries scenarios. In addition, we have a very small sample size that can't fully reduce biasness of the study population.

## CONCLUSION AND RECOMMENDATIONS

In the conclusion, we can say Non- organic causes are more prevalent for recurrent abdominal pain among school going children in Bangladesh than organic causes yet modern instrumental support. We should recommend some other case-control type of study to assess risk factors more accurately.

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