

Role of Upper Gastrointestinal Endoscopy in children of Recurrent Abdominal Pain without a known cause

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Abstract

Background: To study the role of Upper Gastrointestinal Endoscopy in evaluation of recurrent abdominal pain in children without a known cause.

Methods: We have enrolled 150 patients in our study. Out of these 50 patients excluded from study because in these cause of pain abdomen is other than Gastrointestinal. In all Patients we have done complete hemogram with ESR, liver functions tests, complete urine and stool examination and USG abdomen to rule out other causes of pain abdomen. All patients of RAP subjected to Upper Gastrointestinal Endoscopy and two biopsy samples from antral part of stomach were taken, one was sent for histopathological examination and other subjected to Rapid Urease Test media for the diagnosis of H.Pylori infection.

Results: Maximum cases were between 4-10 years age group. On GI Endoscopy was done in 49(49%) had normal finding, while mucosal hyperaemia was seen in 18(18%). On histopathological 50 (50%) patients had normal finding, 19(19%) had superficial gastritis, 10 (10%) had lymphocytic infiltration. 28(28%) cases had RUT positive. Among the causes of RAP, H Pylori gastritis was found in 28(28%) cases, Functional abdominal pain in 22(22%), Celiac disease in 14(14%), Giardiasis in 8(8%),

Conclusion: Pediatric Upper GI Endoscopy is a safe & useful in the diagnosis of RAP. Upper GI Endoscopy should be performed in all children with abdominal pain and alarming signs.

Keywords: Recurrent Pain Abdomen, Upper GI Endoscopy

Introduction

Recurrent abdominal pain (RAP) is a common symptom in children. It occurs in as many as 10% of children. An organic cause is found in few of these patients. However differences in prevalence of organic disease are found depending on the population studied and the criteria used. It may be as low as 5% in the general population and as high as 40% in paediatric

gastroenterology outpatients (1). It occurs most commonly between age 4 and 14 years. Some studies show that its peak incidence at 4-6 years and at 7-12 years. Girls are probably affected more than boys (2). Apley, a Bristol paediatrician, and Naish defined recurrent abdominal pain, as abdominal pain that, waxes and wanes, history of at least three episodes of pain,

episodes occur over a period of three months & pain is severe enough to affect routine day to day activities and no known organic cause (3,4). Lynn S. Walker et al provides the first systematic empirical evidence that RAP, originally defined by Apley, includes children whose symptoms are consistent with the symptom criteria for several FGIDs defined by the Rome criteria (5).

We have planned this study to find out the role of upper gastrointestinal endoscopy in children of recurrent abdominal pain with no definite cause.

Materials and Methods

The study was carried out in the Department of Pediatrics, Umaid Hospital for Women & Children, Dr. S.N. Medical College, Jodhpur after approval from institute's ethics committee. Written informed consent was taken from the parents of children who participated in the study. Patients were enrolled from the outdoor and indoor wards of Umaid Hospital & these patients were subjected to upper GI Endoscopy, with following inclusion and exclusion criteria.

Inclusion criteria: Patients of age group between 4 to 14 years with complaints of recurrent abdominal pain as defined by Apley.

Exclusion criteria: When cause of pain in abdomen is other than GIT, which is confirmed by investigations and patient with acute abdominal pain.

We have enrolled 150 patients in our study. Out of these 50 patients excluded from study because in these cause of pain abdomen is other than Gastrointestinal.

We have taken detailed history from parents or patients on predesigned proforma. Complete general physical and systemic examination was done with special attention to anthropometry of each child. Weight was taken by standard weighing machine graded in kilogram and grams. Height was measured without shoes with the help of wall mounted stadiometer graded in centimeters. We have also done the

complete hemogram with ESR, liver functions tests, complete urine and stool examination and USG abdomen to rule out other causes of pain abdomen. All patients of RAP subjected to Upper Gastrointestinal Endoscopy and two biopsy samples from antral part of stomach were taken, one was sent for histopathological examination and other subjected to Rapid Urease Test media for the diagnosis of H.Pylori infection. Endoscopy was done under sedation which was given by the anesthetic and informed consent was obtained before the procedure.

Results

In our study, maximum cases (75%) were in 4-10 years age group M: F 1.17:1. The major presenting symptom was abdominal pain which was present in all cases followed by diarrhea in 21 (14%), constipation in 11 (7%) and failure to thrive in 15 (10%) cases, short stature & burning micturition was present in 15(10%) cases & 4(2.6%) cases present with hematemesis. (Table no. 1). Giardiasis was present in 5.33% cases and urinary tract infection in 16.67% cases. Abdominal ultrasonography (USG) was done in 150 cases which was normal in 75.33% cases while 15(10%) patients had renal stone and 10(6.66%) patients had distended bowel loops (Table no. 2). 19 patients presenting with RAP also had failure to thrive and anemia. In these patients, serum Tissue Trans-glutaminase levels were done to rule out celiac disease and it was positive in 14 cases.

Gastrointestinal Endoscopy was done in 100 patients who had presented with RAP without a known cause. 49(49%) had normal finding, while mucosal hyperemia was seen in 18(18%), antral nodularity in 12(12%), villous atrophy in 10(10%), esophageal hyperaemia in 7(7)%, erosive gastritis in 3(2%) while gastric ulcer was present in 1(1%) patient. (Table no. 3) On histopathological examination of 100 antral biopsy sample, 50 (50%) patients had normal finding, 19(19%) had superficial

gastritis, 10 (10%) had lymphocytic infiltration and 10(10%) had partial villous atrophy. Chronic superficial gastritis was present in 7(7%) patients, villous blunting in 2(2%) patient and villous scalloping in 1(1%) (Table no. 4). Out of the 100 cases, 28(28%) had RUT positive and the rest were normal.

Table 1: Clinical presentation

Sr. No.	Clinical presentation	Total no. Of cases	
		No.	%
1	Abdominal pain	150	100
2	Diarrhoea	21	14
3	Constipation	11	7
4	Failure to thrive (FTT)	15	10
5	Short stature	15	10
6	Burning Micturition	15	10
7	Hematemesis	4	2.6

Table 2: Abdominal Ultrasonography

Sr. No.	Abdominal USG finding	Total no. of cases	
		No.	%
1	Normal	113	75.33
2	Distended bowel loops	10	6.67
3	Splenomegaly	4	2.67
4	Mesentric Lymphadenopathy	5	3.33
5	Transposition of portal vein	1	0.67
6	Renal stone	15	10
7	PUJ obstruction	2	1.33
	Total	150	100

Among the causes of RAP in our study, H Pylori gastritis was found in 28(28%) cases, Functional abdominal pain in 22(22%), Celiac disease in 14(14%), Giardiasis in 8(8%), Chronic Constipation in 7 (7%), reflux disease in 7(7%), mesenteric lymphadenopathy in 5(5%), gastritis 7 (7%), Gastric ulcer in 1 (1%), and malabsorption syndrome was seen in 1 (1%) case (table no. 5).

Table 3: Gastrointestinal Endoscopy

Sr. No.	GI Endoscopy finding	Total no. of cases	
		No.	%
1.	Normal	49	49
2.	Erosive Gastritis	3	3
3.	Mucosal Hyperemia	18	18
4.	Antral Nodularity	12	12
5.	Esophageal Hyperemia	7	7
6.	Villous Atrophy	10	10
7.	Gastric Ulcer	1	1
	Total	100	100

Table 4: Gastrointestinal Endoscopic Biopsy

Sr. No.	Biopsy finding	Total no. of cases	
		No.	%
1.	Normal	50	50
2.	Superficial Gastritis	19	19
3.	Chronic Sup. Gastritis	7	7
4.	Lymphocytic infiltration	10	10
5.	Partial villous atrophy	10	10
6.	Crypts Hypoplasia	1	1
7.	Villous blunting	2	2
8.	Villous scalloping	1	1
	Total	100	100

Table 5: Diagnosis of RAP cases

Diagnosis	Total no. of cases	
	No.	%
Functional abdominal Pain	22	22
H Pylori Gastritis	28	28
Coeliac disease	14	14
Giardiasis	8	8
Chronic Constipation	7	7
Reflux disease	7	7
Mesentric Lymphadenopathy	5	5
Gastritis	8	8
Gastric ulcer	1	1
Total	100	100

Discussion

Recurrent abdominal pain is one of the most common symptoms in children worldwide. It is responsible for considerable diagnostic uncertainty; chronicity and increasing parental anxiety often follow the unremitting and disruptive course of the condition. This can make management by paediatricians very difficult, time-consuming and expensive due to morbidity, missed school days and high use of health resources.

The most common age group involved in our study was between 4-10 years, Niyaz et al⁵ in their study of 85 children found similar results. Motamed F et al⁶ in their study on 100 children of RAP found the symptoms in order of frequency as pain abdomen, diarrhoea, constipation and dysuria and their results are comparable to that of our study. Niyaz et al⁵, Ritu gupta et al⁷ and Iqbal A Memon et al⁸ found Giardiasis was the commonest cause of recurrent abdominal pain diagnosed by stool examination while in our study it was only 5.3%. The low yield of giardiasis in our study may be due to the fact that patients who came to us already taken 2 or 3 courses of metronidazole, Tinidazole or ornidazole. In a study done by B K Jain et al⁹ in RAP patients serum anti-TTG levels were positive (more than 8units/mL) in 15 patients, borderline (5-8 units/mL) in one, and negative (<5 units/mL) in 47 cases while in our study we have 14 cases with positive serum anti-TTG levels.

On GI endoscopy to RAP patients Aanpreug et al¹⁰ detected in a 3 year period study detected 48% patients with normal finding similar to that of our study while Yesim et al¹¹ noted 15.6% patients with normal finding, Ashorn et al¹² found endoscopic gastritis 58% cases and Yesim et al¹¹ found it in 84% cases while in our study it was seen only in 2% of cases. Study done by Ashorn et al¹² and Yesim et al¹¹ found duodenal ulcer disease as a cause of RAP in contrast we have found gastric ulcer in one patient as a cause of RAP. In a study done

by Mored NA et al¹³ in 208 cases, endoscopically normal looking mucosa was seen in 67 patients (65.6%), erythematous gastritis in 51 (74%), mosaic appearance in 18 (88%), erosive gastritis in 14 (85%), nodular gastritis in 17 (94%), atrophic gastritis in 12 (75%), and fundal rugae hypertrophies in 5 (80%). Ashorn et al¹² had 21% cases RUT positive, Dandin Archana et al¹⁴ 43%, N. Ukarapol et al¹⁵ 28.9%, and Hosny M et al¹⁶ detected 22% cases Rapid Urease Test positive. These results were similar to our study.

In a study done by Dutta et al¹⁷, functional abdominal pain was seen in 37(74%) out of 50 patients while organic pathology was found in 13(26%) cases while Niyaz et al⁵ found oprganic cause in 70% cases and functional in 15%. Ritu gupta et al⁷ demonstrated organic 90% and non-organic in 10% cases in their study. Giardiasis was the commonest organic cause in both above studies. Our study showed the organic cause in 78% and functional in 22% cases and most common organic cause was H.Pylori gastritis.

To conclude our study demonstrated more evidence of increased prevalence of organic causes of RAP & with the advent of better diagnostic modalities, organic causes of RAP are readily detected. Pediatric Upper GI Endoscopy is a safe & useful in the diagnosis of RAP. Upper GI Endoscopy should be performed in all children with abdominal pain and alarming signs. We suggest there is need of more studies in larger groups to further validate the role of upper GI Endoscopy in RAP children and prevalence of H Pylori in these patients.

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