Journal of Surgical Radiology
https://journalsurgrad.com/
ISSN Print 2156-213X| ISSN Online: 2156-4566 Volume: 03 Issue: 03 Open Access

Research Article

Recurrent Abdominal Pain in Children Attending Paediatrics OPD

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Article History
Received: 02.08.2024
Revised: 22.08.2024
Accepted: 29.08.2024
Published: 29.09.2024

Citations:
Ahmedi Ambrin. Recurrent Abdominal Pain in Children Attending Paediatrics OPD. *J Surg Radiol, 03*(03);2024; 1-5.

Abstract: Introduction Recurrent abdominal pain is one of the commonest gastrointestinal complaints in children, affecting approximately 10% of school-aged children and adolescents. There is no consensus with regards to etiology, investigation, and management of this common problem. This article addresses some of the issues related to epidemiology, etiology, management, and prognosis of recurrent abdominal pain. Material and Methods: This is prospective, descriptive and observational study conducted at Tertiary Care Teaching Hospital over a period of 1 year among 90 children with RAP. Patients of age group of 4 to 14 years attending the paediatric OPD of tertiary care teaching hospital was included in the study. Children with age less than 4 years and more than 14 years not meeting the criteria of RAP were excluded from the study. Children with organic causes of RAP have been treated according to corresponding reason. Results: Out of 120 patients of RAP, male predominance (64.1%) was seen and forty-four (40.8%) of the patient population belonged to age group of 4 to 6 years. Organic RAP was found in 88% of patients and RAP due to non- organic causes was found in 10.8% of patients. Conclusion: Recurrent abdominal pain (RAP) in children with careful history and examination, clear explanation and follow-up and a commitment from parent and child to stop the condition limiting normal activities, good results are obtained for children without referral, drugs or extensive testing

Keywords: carbohydrate intolerance, eosinophilic oesophagitis, surgical abdomen.

INTRODUCTION

Recurrent abdominal pain (RAP) in children describes recurring abdominal pain without an organic cause. RAP in children is defined as abdominal pain which occurs at least four times a month over a period of two months or more, which is severe enough to limit a child's activities and which, after appropriate evaluation, cannot be attributed to another medical condition. It presents commonly in general practice and it causes a great deal of school absence and considerable anxiety.

RAP is believed to be a functional gut-brain interaction disorder (FGID) caused by altered feedback mechanisms between the gut and central pain pathways. There are several defined RAP patterns in children, of which pediatric irritable bowel syndrome (IBS) is the most common [1,2]. The original definition of RAP, published in 1958, including both organic and functional pain [3].

The prevalence of RAP affects 10-20% of school- aged children worldwide [4]. 3-8% of children with this pattern of pain have a causative organic pathology (and are excluded from the Rome definition of RAP). RAP occurs most commonly between ages 5 and 14 years. It is uncommon in children under 5 years of age. Boys are more commonly affected than Girls (relative prevalence 1.5). Prevalence in girls has led to suggestions that levels of sex hormones might play a role.

Ovarian hormones can modulate both visceral pain perception and the susceptibility to stress. There is an association between obesity and RAP [5]. There is an association between stress and RAP. Children with RAP are more likely to have experienced events such as deaths of family members, domestic violence, harsh punishment from parents, parental job loss and economic stress, hospitalization, and bullying. Children with a history of cow's milk protein hypersensitivity or abdominal surgery have an increased prevalence of FGIDs years later [6].

The pathophysiology involves dysregulation of visceral nerve pathways, leading to visceral hyperalgesia. Infective, inflammatory or psychological triggers may initiate this sensitization [7,8]. The onset of pediatric IBS frequently follows an episode of acute gastrointestinal inflammation (infectious or non-infectious) [9]. RAP is additionally affected by temperament and by family and school environments (the biopsychosocial model).

MATERIAL AND METHODS

This is prospective, descriptive and observational study conducted at Tertiary Care Teaching Hospital over a period of 1 year among 90 children with RAP attending the paediatric OPD of tertiary care teaching hospital. Inclusion criteria: Patients of age group of 4 to 14 years of either gender study with RAP. Exclusion criteria: Children with age less than 4 years and more than 14 years not meeting the criteria of RAP were excluded from the study. Children with organic causes of RAP have been treated according to corresponding reason. Organic RAP was said to be present when;

- There was an organic cause documented

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- There was both clinical and laboratory improvement with treatment and
- There was sustained clinical remission for at least three months after therapy.

The patients who did not satisfy the above criteria were considered to have Non-organic RAP and were compared with an equal number of age and sexmatched controls that comprised of children attending the Paediatric Outpatient

RESULTS

Department A detailed history and clinical examinations, complete haemogram, urine for routine analysis as well as culture and stool examination were done in all cases. Other investigations like chest X-ray, ultrasonography performed where ever necessary. Statistical Analysis: All the data obtained were presented in percentages using Microsoft excel.

Out of 120 patients of RAP, sex distribution is unequal with male predominance (64.1%). Forty four (40.8%) of the patient population belonged to age group of 4 to 6 years, thirty eight (35%) were in age group of 2 to 4 years and the rest were between 6 to 15 years. Organic RAP was found in 88% of patients and RAP due to non-organic causes were found in (10,8%) of patients.

Table 1: Demography of the patients with RAP

Characteristics	Percentage of cases
Sex	
Male	77
Female	43
Age group (in years)	
2-4	42
4-6	49
6-15	29

Table 2: Etiological factors of RAP.

Organic cause (n = 120)	77
Parasitic infections (n = 100)	
G. Lamblia	65
A. Lumbricoid	23
E. Histolytica	16
E. Vermicularis	12
Urinary tract infection (n = 100)	9
Cholelithiasis (n = 120)	2
Abdominal tuberculosis (n = 120)	2
Non-organic cause (n = 120)	13
History of maladjustment	6
Pica	5
No abnormality	4

Among the organic causes, parasite infestation was most common. Commonest parasite found was G. Lamblia (53.3%) followed by A. Lumbricoid (19.1%), E. Histolytica (13.3%), E. Vermicularis (10%). Other organic causes include urinary tract infection (7.5%), cholelithiasis (1.6%) and abdominal tuberculosis (1.6%). Abnormal hemoglobin (lower) levels were found in 6 cases (6%). In this study 12% of patients were affected with non-organic causes of RAP. Five patients had history of maladjustment either in school or at home. Four patients had got pica. No Abnormality was found in three cases

DISCUSSION

Recurrent Abdominal Pain (RAP), as described in Apley's seminal work, refers to a constellation of symptoms characterized by at least three episodes of abdominal pain, severe enough to interfere with psychosocial functioning, over a period of at least 3 months . Von Baeyer defined chronic abdominal pain by adding criteria of impact on daily functioning, whereas "Pediatric Rome Criteria III" (PRC-III) classified abdominal pain-related Functional Gastrointestinal Disorders (FGIDs) using a symptom based approach .

The worldwide pooled prevalence of functional abdominal pain in children is 13.5% (95% Confidence Interval (CI), 11.8%-15.3%).

We have studied all these factors in a cohort of 79 children who fully satisfied the criteria of RAP. Our study is observational one in which 1 lakh of OPD patients in the age group 5-15 yrs were screened in OPD over one year. 85 children were found to have abdominal pain satisfying the criteria of RAP according to definition by Appley. There was attrition of 6. Of total

79 patients, 44 (55.7%) were males and 35 (44.3%) were females. Similar male predominance was seen in study conducted by Bharat et al., and Lokesh et al., study which was 62.8% and 56.10% respectively but the difference in both the studies was not statistically significant . In our study, 5-10 yrs age group was significantly associated with RAP affecting 58 (73.41%). The mean age was 8 yrs. In the study done by Stordal et al., on 44 children aged 2-15 years, the mean age was 8.3 years whereas in another study done by Menon et al., in 152 children, age range was 2-15 yrs and mean age was 8.9 years. Findings of both the studies are similar to our study. However, different pattern was noted by Madani et al., showing clustering of cases between 8-10 and 15-17 years of age . A systematic review in 2005 found evidence for a bimodal peak in the symptoms of recurrent abdominal pain being more prevalent between 4 and 6 years and preadolescence , compared to a 2015 study reporting a bimodal early peak at 5-7 years and a late peak at 11-14 years . The significance of this secular trend in age at presentation is not well understood.

The various symptoms observed in our study were nausea, headache, vomiting, constipation, increased stool frequency, bloating, urinary symptoms and irregular bowel movements. Amongst these nausea and headache were statistically significant for non-organic cause. In the study of childhood functional abdominal pain by Leo et al., headaches and bloating were associated with GPFAP . Somatization and a family history of GI complaints have been found by others to be associated with FAP. Although somatization showed a tendency toward a statistically significant association with GPFAP (p=0.08) they could not fully confirm these findings Periumblical and daytime pain was significantly associated with functional RAP whereas characteristic of pain could not be correlated.

Similarly periumblical pain was shown in significant number of patients by other studies by Devanarayana et al., and Liebman et al., in 1978 on clinical pattern of 119 children with RAP. Most common timing of pain abdomen (72.84%) was morning hours/before going to school (8.64%) patients reported pain during school time, 7 (8.64%) in the evening, 5 (6.18%) after coming from school and 3 (3.70%) at meal time. Similar finding was seen in Lokesh et al., study.

In our study, pallor was most common findings followed by constipation and mesenteric lymphadenopathy. This was consistent with study by Lokesh et al., and Liebman . However, Devanarayana et al., reported associated symptoms in more number of patients which included headache (41.81%), anorexia (30.9%), lethargy (23.6%), weight loss (27.27%), constipation (12.73%), dysuria (18.18%), and joint pain (18.18%). Amongst the various causes of recurrent abdominal pain, 18 (22.78%) were attributed to organic cause and (77.21%) were attributed to nonorganic cause in our study.

As studied by Apley et al., approximately 10% to 15% of children and adolescents had RAP, less than 10% were found to have an organic illness. In a large study of school aged children, an organic cause was found in less than 10% of children with recurrent abdominal pain . In some of the subsequent studies, the percentage of children with organic RAP was found to be higher than initially reported by Apley.

In the study of childhood functional abdominal pain by Leo et al., in 90% of children the GP suspected FAP. Of 265 children with GPFAP, 130 (50.6%) fulfilled FGID criteria

This was similar to our study. All these various studies showed different results. Recent studies found organic abnormalities in 45%–88% [16,28]; however, these studies were performed in specialist care settings and selection of patients and excessive testing may have yielded higher proportions of organic abnormalities.

In our study, amongst the organic causes, there were 3 cases each of mesenteric lymphadenitis and worm infestations and 2 cases each of abdominal tb, constipation and cystitis.

The remaining causes included ovarian cyst, renal calculus, giardiasis, gastritis, liver hemangioma, ovarian cyst and lobar pneumonia with hepatopathy. In study of Lokesh et al., spectrum was constipation (13.4%) abnormal USG findings (19.5%), the most common finding mesenteric lymphadenopathy (>8 mm short diameter) in 14/82 (17.07%) cases followed by ovarian hemorrhagic cyst and enlarged solitary kidney in one, urinary tract infection in 9 (10.98%) and protozoal (entamoeba histolytica) infection in one patient only .

In a similar prospective study conducted by Van der et al., on 93 children aged between 5.5-12 years with recurrent abdominal pain, organic abnormalities were found in 3 cases (3.2%) only duplex kidney, unilateral kidney agenesis, enlarged spleen (9 cm) one case each. In a study by Wewer et al., 8 children's of 120 (7%) revealed causes like gallbladder stone, splenomegaly, and urogenital abnormalities on USG

CONCLUSION

The main aim of management of children with RAP is to teach the child to cope with the pain and to improve the child's quality of life. A multidisciplinary team approach is he most ideal in dealing with this type of complex problem. the most ideal in dealing with this type of complex problem. Medical treatment withGI prokinetic or antispasmodic medications has been proven to be disappointing. Both the child and the parents should be counselled on stress coping strategies and provided with ample reassurance that there is no serious organic disease.

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