Original Article

Recurrent Abdominal Pain: Aetiology and Management in Nigerian Children

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Abstract

Background: Recurrent abdominal pain (RAP) though a common complaint in children continues to pose management problems to clinicians. The aim of this study was to evaluate the causes and management of children with recurrent abdominal pain referred to a tertiary paediatric surgical center in Nigeria.

Methods: A prospective analysis of children aged 4 to15 years with RAP managed in a paediatric surgical centre over a 4 year-period. Their demographic profile, mode of presentation, investigations and treatment were analyzed.

Results: There were a total of 42 children with RAP seen over the study period. Twenty five (59.5%) were boys while 17 (40.5%) were girls. Their ages ranged from 14-15 years (median 10 years). All had at least three episodes of abdominal pain within the previous three months, severe enough to disturb their normal activity. Management included a detailed history and physical examination, complete blood count, urine and stool examination. Plain abdominal X-ray, upper gastrointestinal series and endoscopy, abdominal ultrasound scan, barium meal, retroviral screening and Mantoux test were also done when indicated. Fourteen children had non-organic cause and 28 had organic causes. Main organic lesions found include helminthiasis, urinary tract infections, mesenteric adenitis, recurrent acute appendicitis and cholecystitis. Children with non-organic causes had counseling and over half were pain free within 6 to10 months of follow-up. Those with identifiable organic causes were treated appropriately.

Conclusion: RAP in children has varied aetiological factors. Most children with RAP referred to our surgical clinic have organic causes. Attention to clinical details and appropriate investigations are necessary to optimize management.

Keywords: Recurrent abdominal pain, aetiology, children.

Introduction

Recurrent Abdominal Pain (RAP) is defined as the occurrence of abdominal pain severe enough to disturb the normal activity of a child and which warrants the seeking of medical attention on three consecutive occasions over a three-month period[1]. RAP is one of the commonest complaints in children especially of school age. Although RAP is a world-wide problem, little has been published on it from developing countries[2].

It has been estimated that about 10-15% of children experience RAP at some point in their lives[1,3]. In most reports the cause of the abdominal pain is functional in over 90% of these children[1,4]. In recent years, an increasing number of organic causes of RAP in children have been reported[5-7]. Our knowledge of organic causes of RAP in children is increasing largely due to improved investigative modalities such as ultrasonography, endoscopy using paediatric fibreoptic endoscopes and 24-hr pH monitoring[4-7].

The paediatricians or non-specialist medical

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practitioners initially evaluate most of these children. Surgeons are usually the last to be consulted. The most challenging tasks for any clinician seeing a child with RAP is the determination of the appropriate investigations to be done and the detection of any important organic disease contributing to the pain while bearing in mind the varied etiology[8].

This prospective study evaluated the aetiology, investigations and treatment outcome of children presenting with RAP to a tertiary paediatric surgical centre in North Central Nigeria.

Patients and Methods

A prospective study was undertaken of children aged 4 to15 years referred to the paediatric surgery outpatient clinic of the Jos University Teaching Hospital over a 4-year period with the diagnosis of RAP. All the children had three or more episodes of abdominal pain within the preceding three or more months severe enough to affect the activity of the child that required medical attention. Children with abdominal pain due to trauma and all those less than four years of age were excluded from the study.

The clinical evaluation involved a detailed medical history and complete physical examination done by the investigators or senior resident in the team. Initial laboratory investigations included complete blood count, erythrocyte sedimentation rate (ESR), urine analysis, stool examination (parasitology, culture and occult blood), abdominal ultrasound scan and plain abdominal X-ray. Upper gastrointestinal endoscopy, sigmoidoscopy, upper gastrointestinal series, retroviral screening and confirmatory tests and Mantoux test were done when indicated. Treatment and outcome were also recorded.

Results

Table 1:
Frequency and duration of symptoms in 42 children with RAP

	Mean	Median	Range	SD
Frequency of attack (d/mon)	7.0	6.5	2-19	3.81
Duration of attacks (min)	52.6	45.0	5-18	37.76
Duration of RAP (mon)	22.3	20.0	5-70	15.23

SD = Standard Deviation, RAP = Recurrent Abdominal Pain

Table 2:
Pain characteristics in 42 children with RAP

Location	No	%
Localized		
Peri-umbilical	21	50
Laterally	8	19
Generalised	6	14
Epigastric	5	12
Suprapubic	2	5
Type of Pain		
Dull	23	55
Continuous/burning	8	19
Colicky	6	14
Mixed	5	12
Accompanying Symptoms		
Nausea	37	88
Vomiting	15	36
Anorexia	12	29
Fever	6	14

There were a total of 42 children with recurrent abdominal pain seen over the study period. Twenty five (59.5%) were boys; 17 (40.5%) were girls. Their ages ranged from 4-15 years (median 10 years). Table I shows details of the frequency and duration of the pain while table II shows the pain characteristics.

The physical examination revealed chronic osteomyelitis of the left tibia in one child with sickle

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Table 3:
Causes of recurrent abdominal pain in 42 children

Cause	No	%
Non-organic	14	23
Organic	28	77
Helminthiasis	5	12
Mesenteric adenitis	4	10
Dyspepsia/PUD	3	7
Appendiceal colic	3	7
Urinary tract infection	3	7
Acalculous cholecystitis	2	5
Calculous cholecystitis	2	5
Intestinal Malrotation	2	5
Intestinal Tuberculosis	2	5
SS disease with omental abscess	1	2
HIV infection	1	2

cell anaemia, generalized muscle wasting in the child who was HIV positive and abdominal tenderness in three children. The blood count showed anaemia in three (PCV <30%) and eosinophilia in five other children that had helminthiasis. One child with abdominal TB had elevated ESR. The urine grew Escherichia coli in one child and Streptococcus in two other children that had urinary tract infection. Strongyloides stercolaris was isolated from the stools of two children and Giardia lamblia from the stools of three other children.

The child with abdominal tuberculosus had a significant Mantoux test (20mm after 48 hrs). The abdominal ultrasound scan showed calculous cholecystitis in 2 children and a thickened gallbladder in two others. Plain abdominal X-ray showed gas shadow to the right of the midline and paucity of gas on the left in one child. This same child had an upper GI series that showed the duodenojejunal junction to the right of the midline confirming midgut malrotation. Upper GI endoscopy done in three children did not reveal any abnormality. The sigmoidoscopy done in one child was normal. After investigation there were no identifiable organic causes of pain in 14 (33.3%) children.

In four children a diagnosis of mesenteric adenitis was made at laparotomy. The other various organic causes found in the remaining 28 children are shown in table III. The 14 children with non-organic RAP had psychiatric evaluation, one requested for a change of school while one other child got better after her father joined the family. The children with dyspepsia did well on anti-ulcer therapy. Children with helminthiasis (3 with Giardiasis and 2 with Strongyloides stercoralis infestation) responded to metronidazole and mebendazole therapy respectively. Children with surgical conditions had operations as indicated; 4 had cholecystectomy, 3 had appendectomy, 2 had Ladd's procedure while 4 other children were found to have mesenteric adenitis at emergency laparotomy. Eight children with non-organic RAP were pain free at follow up. The remaining children were lost to follow up.

Discussion

Recurrent abdominal pain in children is usually due to non-organic lesions[1-3]. In this report, organic findings were found in 28 (66%) of the children while only 34% had non organic causes. This is at variance with some reports[1-3], though comparable to other reports[4-7]. One report from rural India found organic causes in over 80% of children[7]. In another report from Norway, about 45% of the symptoms of RAP in children 2-15 years of age could be explained by organic causes though the authors acknowledged that their patients were highly selective and could not have been a true incidence of organic causes of recurrent abdominal pain in their locality[5]. The high incidence of organic findings in children with recurrent abdominal pain

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in this report could be partly explained by the fact that all the patients were referred to us by our paediatrician colleagues who had tried medical treatment without success. Hence the selection of patients in this report may have yielded a greater proportion of organic lesions. Besides, with the recent advent of better diagnostic modalities, organic causes of RAP are more readily detected.

The prevalence of recurrent abdominal pain is not known in our environment, and so we do not know what proportion is referred to the paediatrician or to the surgeons for specialist consultation. In Malaysia, Boey and Goy reported an incidence of 10% of RAP amongst 1488 children aged 9-15 years[2]. The true incidence of organic causes of recurrent abdominal pain in children could be determined by a population based study and in collaboration with our paediatrician colleagues.

In this report parasitic infestations were the commonest organic cause of RAP in our environment. In three patients, Giardia lamblia was isolated from the stool while in two other children Strongyloides stercoralis was isolated. Giardiasis can present with chronic diarrhea, failure to thrive and anorexia[7,9]. Patients with Giardiasis responded to metronidazole while the children with Strongyloidiasis responded to mebendazole.

Four children had gallbladder related causes of abdominal pain. Two had calculous while two other children were treated for acalculous cholecystitis. With the advent of better diagnostic facilities, more organic causes of RAP are being diagnosed. We had earlier reported on our experience with acalculous cholecystitis as a cause of chronic abdominal pain in children[10].

Other organic causes of RAP in children in this series included urinary tract infections, abdominal tuberculosis and dyspepsia which have been reported by others[5-7]. One of the patients was HIV sero-positive. Her parents could not afford the treatment so she was discharged. The children with non-organic lesions had counseling and eight were pain free within 6-10 months of follow up. One child got better when her father rejoined the family from another town where he was working.

The causes of recurrent abdominal pain in our environment are varied. Most of the children referred to us with recurrent abdominal pain have organic lesions. A meticulous history, careful examination and detailed investigation would help unravel the diagnosis in the majority of cases.

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