

STUDY PROFILE OF RECURRENT ABDOMINAL PAIN IN CHILDREN EXAMINED BY CLINICAL EXAMINATION AND ULTRASONOGRAPHY

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ABSTRACT

BACKGROUND

Abdominal pain is perhaps the most common painful health problem in school-aged children. J Apley, a British paediatrician, studied abdominal pain among children extensively and observed that approximately 10% of school aged children get recurrent episodes of abdominal pain. He named this symptom complex as recurrent abdominal pain (RAP) syndrome and defined it as "at least three episodes of abdominal pain, severe enough to affect their activities over a period longer than three months" Pain localization in younger children is poor, and in a suffering child, physical examination is often limited. Thus, sonographic evaluation of the abdomen is frequently performed in children to investigate the reason for the pain and to exclude other acute abdominal surgical conditions. The main clinical concerns are acute appendicitis, intussusception, and torsion of the ovary. With the routine use of high-frequency transducers, detection of enlarged abdominal lymph nodes (EALNs) is very common. When enlarged nodes are found with no other abnormality detected, the term "mesenteric lymphadenitis" is often used to describe an inflammatory process of abdominal lymph nodes.

The aim of this study was to evaluate the profile of recurrent abdominal pain in children examined by clinical examination and ultrasonography.

MATERIALS AND METHODS

We prospectively studied 100 patients within age range from 1 to 16 years and attending paediatric department at Sri Aurobindo Institute of Medical Sciences and Hospital, Indore, Madhya Pradesh, India from July 2016 to June 2017 presenting with abdominal pain of various aetiological causes subjected to clinical and ultrasonographic examination were included in this study.

RESULTS

Most common area of lymph nodes seen on USG was right lower quadrant of abdomen [80 %]. Maximum numbers (46%) of patients are from 5-8 years age group. More number of boys (54%) is affected as compared with the girls. Maximum (62%) patients had total of 1-5 episodes and next infrequency are patients of multiple episodes, 30% of patients had school loss due to pain abdomen. Periumbilical and right lower quadrant of the abdomen was most commonly affected (35% each).

CONCLUSION

We can conclude that -EALNs are frequently seen children with pain abdomen 5- 8 yrs. with boys more commonly affected than girls. Most patients presented with 1-5 episodes, 30 % of patients had school loss due to pain abdomen. Periumbilical and Right lower quadrant of the abdomen was most commonly affected (35% each).

KEYWORDS

Abdominal Pain, Enlarged Abdominal Lymph Nodes, Ultrasonography, Periumbilical.

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BACKGROUND

Abdominal pain is perhaps the most common painful health problem in school-aged children. J Apley, a British paediatrician, studied abdominal pain among children extensively and observed that approximately 10% of school aged children get recurrent episodes of abdominal pain. He abdominal pain, severe enough to affect their activities over a

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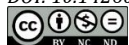
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named this symptom complex as recurrent abdominal pain (RAP) syndrome and defined it as "at least three episodes of period longer than three months".^[1] His findings formed the main guidelines for the practising paediatricians and researchers dealing with this problem. Even though, the term chronic is used when referring to RAP, each episode of pain is distinct and separated by periods of wellbeing. Pain localization in younger children is poor, and in a suffering child, physical examination is often limited. Thus, sonographic evaluation of the abdomen is frequently performed in children to investigate the reason for the pain and to exclude other acute abdominal surgical conditions.^[2]

The prevalence of RAP in children ranges from 10 to 20%. An organic lesion is present in 5 to 10% of children.^[3] RAP has been found to be common in the setting of school phobia, sibling rivalry and a family history of multiple abdominal complaints, psychological problems and disturbed

interpersonal relationships. Recurrent abdominal pain may be manifested as isolated paroxysms of periumbilical pain, as pain in the abdomen, pain with dyspepsia, and abdominal pain with dysfunction of the digestive tract. The incidence of organic and non-organic causes is variable in different studies. Hence proper evaluation is very important for the diagnosis and management of this vexing problem. The Rome III criteria^[4] now categorize abdominal pain into

1. Functional dyspepsia (FD).
2. Functional abdominal pain (FAP) and functional abdominal pain syndrome (FAPS).
3. Irritable bowel syndrome (IBS).
4. Abdominal migraine.

The main clinical concerns are acute appendicitis, intussusception, and torsion of the ovary. With the routine use of high-frequency transducers, detection of enlarged abdominal lymph nodes (EALNs) is very common. When enlarged nodes are found with no other abnormality detected, the term "mesenteric lymphadenitis" is often used to describe an inflammatory process of abdominal lymph nodes.

However, there is some disagreement in the medical literature about the importance of finding EALNs and use of the term "mesenteric adenitis." In the paediatric literature, the term is reserved for specific inflammation of the mesenteric lymph nodes, caused by Yersinia, Staphylococcus, Salmonella, different types of mycobacteria, and viruses.^[5,6,7] In the radiologic literature, the term is mainly applied simply to describe lymph nodes greater than 5 mm in diameter.^[8,9,10]

Objective

To study the profile of recurrent abdominal pain in children examined by clinical examination and ultrasonography

MATERIALS AND METHODS

Study Period

July 2016 to June 2017.

Study Design

Prospective observational study.

Place of Study

Department of paediatrics, SAMC &PGI Indore [M. P.]

Inclusion Criteria

Children between 1- 14 yrs. of age who came Medical College OPD in the department of paediatrics with abdominal pain are included.

Exclusion Criteria

Children less than 1 yr. and more than 14 yrs. of age.

Patient's demographic profile, clinical features and ultrasonography of abdomen were evaluated. Final diagnosis was established, and patients were followed in OPD. All lymph nodes were evaluated and measured in transverse and anteroposterior dimensions. Lymph nodes of size >5 mm were documented. Other relevant findings such as free fluid and positive probe tenderness were also recorded.

RESULTS

Age Group	Number	Percentage %
1-4	22	22
5-8	46	46
9-12	20	20
13-16	12	12
Total	100	100

Table 1 Age Distribution [n=100]

Table 1 is showing maximum number (46%) of patients are from 5-8 years age group and incidence decrease as the age advance and only 12% are affected after the age of 13 years.

Gender	Number	Percentage %
Boys	54	54
Girls	46	46
Total	100	100

Table 2. Gender Distribution [N=100]

In above table the boys (54%) are affected as compared with the girls.

Episodes	Number	Percentage %
1-5	62	62
6-10	14	14
11-15	04	04
Multiple	20	20
Total	100	100

Table 3. Distribution according to number of episodes. [n=100]

In the Table 3, it can be seen that- maximum (62%) patients had total of 1-5 episodes and next infrequency are patients of multiple episodes.

Duration of Episodes [in minute]	Number	Percentage %
1-10	28	28
11-20	22	22
21-30	24	24
>30	26	26
Total	100	100

Table 4. Distribution of patients according to duration of episodes. [n=100]

School Loss	Number	Percentage
No	70	70
Yes	30	30
Total	100	100

Table 5. Distribution of patients according to school loss. [n=100]

Above table showing 30 % of patients had school loss due to pain abdomen.

Site of Abdomen	Number	Percentage
Periumbilical	35	35
Right upper	10	10
Right lower	35	35
Left upper	11	11
Left lower	09	09

Table 6. Distribution according to site localisation [n=100]

Right lower quadrant of the abdomen and periumbilical region were most commonly distributed site (35+35 = 70 %).

Location of Lymph Node	Number	Percentage %
Right lower quadrant	80	80
Left lower quadrant	12	12
paraumbilical	8	8

Table 7. Showing location of lymph nodes based on ultra-sonography (n=100)

The largest proportion of the nodes was seen in the right lower quadrant, followed by left lower quadrant. A review of the dimensions of the lymph nodes detected shows that the transverse diameter was by and large always greater than the antero-posterior diameter. The maximum transverse diameter values were seen between 10- 14 mm whereas antero-posterior diameter value was seen between 4-8 mm.

DISCUSSION

In western world *Yersinia enterocolitica* is the main causative organism for mesenteric adenitis.^[11] In 1921 Mesenteric adenitis was first reported by Brennemann, also known as Brennemann syndrome. The disease is primarily associated with acute appendicitis, intussusception and lymphoma. In the first decade of life mesenteric adenitis is more common than appendicitis in view of proliferative response of bodily lymphoid tissue. After first decade the condition is relatively uncommon and rarely seen in second decade. In children, simple or nonspecific mesenteric adenitis often viral in origin is the most frequently encountered entity responsible for a large percentage of the cases of „medical bellyache“ seen in routine practice.^[12]

It is observed that same etiological agent which causes swelling of the lymphoid tissue of Peyer's patches can act as etiological factor for mesenteric adenitis induced intussusception in children. Mesenteric nodes can be enlarged because of adenoviral infections, Crohn's disease, appendicitis, gastroenteritis; *Yersinia* infections, AIDS, or it can be due to incidental finding in asymptomatic children.^[2] Clinically the various clinical features suggestive of nonspecific mesenteric adenitis are clean tongue, deep tenderness in right iliac fossa radiating towards the umbilicus, the absence of rigidity and palpable glands.^[13]

In our study, most common affected age group was seen between 5 years to 8 years (46%), and thereafter there was a decrease in incidence. This finding is similar to study by Roshani chanchlani.^[14]

In our study most commonly affected are boys than girls [54%] which also seen in study by Vayner et al.^[15]

Regarding size, number and location of enlarged mesenteric nodes, present study findings correlate with findings of Aired I et al.^[16] Regarding duration of episodes and frequency of episodes there is no published literature available for comparison but from present study, it was concluded from findings that- most patients had symptoms lasting from 1-10 minutes, 30 % of patients suffered school loss due to pain abdomen.

Most commonly affected area of abdomen quadrant is periumbilical and right iliac fossa 70 region in our study [70%] which correlate with study by Chanchlani R et al.^[15]

CONCLUSION

Mesenteric lymphadenitis is a common medical cause of abdominal pain in paediatric patients. It is a common self-

limiting inflammatory process frequently caused by viral pathogen, affecting mesenteric lymph nodes in the abdomen. Mesenteric adenitis has never been proved to be responsible for any mortality nor have any complications been attributed to it. Ultrasonography is the best tool to rapidly differentiate the disease from acute appendicitis and if diagnosed accurately, surgical intervention can be avoided as majority of cases resolve with conservative treatment.

This study was performed to evaluate the importance of detection of EALNs in children with abdominal pain using USG. We can conclude that -EALNs are frequently seen children with pain abdomen 5-8 years with boys more commonly affected than girls. Most patients presented with 1-5 episodes, 30 % of patients had school loss due to pain abdomen. Periumbilical and right lower quadrant of the abdomen was most commonly affected (70%).

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