

A study on chronicity and treatment response of functional abdominal pain in 5 to 15 years of children, in relation to size and location of primary mesenteric lymphadenitis in a tertiary care centre

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Abstract

Introduction: Functional abdominal pain (FAP) is one of the most common childhood complaints, an intermittent (recurrent abdominal pain or RAP) or continuous in nature, which cannot be explained by any visible or detectable abnormality, after a thorough physical examination and appropriate laboratory testing. It has negative effects on the child's physical and psychological state and interfere their daily activities. The present study aimed to find out the chronicity and treatment response of functional abdominal pain in relation to size and site of location of in primary mesenteric lymphadenitis. **Methodology:** A prospective study was done on 156 patients, aged 5 to 15 years, in the department of paediatric of GVPIC, Visakhapatnam, AP, a tertiary care hospital, from September 2017 to March 2019. Patient's demographic profile, clinical features, physical examination and systemic examination were recorded. All the relevant investigations were done in all the patients. For the purpose of the study, all cases were categorised into four group, according to their site of pain. The presence of enlarged mesenteric lymph nodes, their location, size (transverse and anteroposterior dimensions) and other significant findings were recorded. Mesenteric lymphadenopathy was labeled significant using a short axis diameter of >5 mm in short axis diameter. Final diagnosis was established, and patients were followed in OPD. **Result:** Majority of children presented with abdominal pain, under 5 to 10 years age were female 38(51.35%) and 52 (63.41%) were male under 11 to 15 years. Most common abdominal site of Mesenteric lymph node enlargement was Periumbilical site followed by Right Iliac Fossa. According to the site of pain, Majority of the cases were under group I, 54 (34.61%) and group III, 42 (26.92%). In four groups, all relieved cases had lymph node of size 5mm to 8 mm, except group III 16 (10.25%) cases and all persistent cases, lymph node size more than 8mm, except group II 20 (12.82%). **Conclusion:** Good approach can be obtained to these cases early and follow up regularly to, modify their painful early school life and assure the parents about the benign nature of the disease.

Keywords: FAP (Functional abdominal pain), Recurrent abdominal pain (RAP), Chronic functional abdominal pain (CFAP), Mesenteric lymph node (MLN)

Introduction

Functional abdominal pain (FAP) is abdominal pain that cannot be explained by any visible or detectable abnormality, after a thorough physical examination and appropriate laboratory testing. It is one of the most common childhood and adolescent complaints. It can be intermittent (recurrent abdominal pain or RAP) or continuous. Here the gut is more sensitive to some trigger that normally do not cause significant pain, is due to either nerve signals or chemicals secreted by it. Usually, the pain

is located around the umbilicus; however, the pattern or location of abdominal pain is not always predictable. Mesenteric lymphadenitis is commonly reported in children with functional abdominal pain [1]. Cluster of three or more enlarged mesenteric lymph nodes that are each 5 mm or greater in the short axis, in the absence of other abnormalities is termed as primary mesenteric lymphadenitis [2].

Primary, mesenteric lymphadenitis is a self-limiting inflammatory condition affecting mostly right-sided mesenteric lymph nodes [3,4,5]. The distribution of pain,

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like that of appendicitis, is felt both in the periumbilical region and in the right iliac fossa [6]. Tenderness is maximal in the right iliac fossa but is often present higher up towards the epigastrium. In the current study, our aim is to know, the chronicity and treatment response of functional abdominal pain in relation to size and site of location of in primary mesenteric lymphadenitis.

Materials & Methods

This study was done prospectively, over a period of two years from September 2017 to August 2019, on 156 patients, aged 5 to 15 years, who attended the OPD with abdominal pain in the department of paediatric of GVPMC, Visakhapatnam, AP, a tertiary care hospital, with institutional ethical approval.

Inclusion criteria:

1. Children having at least three episodes of pain that occur over at least three months period and that affect the child's ability to perform normal activities.

Exclusion criteria:

1. Recurrent abdominal pain associated with headache, nausea, vomiting, anorexia, altered bowel movement.

2. Features suggestive of underlying organic pathology like - Involuntary weight loss. Falling off growth centiles. Gastrointestinal blood loss. Significant vomiting. Chronic severe diarrhoea.

Unexplained fever, Abnormal physical signs such as pallor, jaundice, guarding, rebound tenderness, altered bowel sounds, or a palpable mass.

Patient's demographic profile (Name, Age, Sex), clinical features, physical examination and systemic examination were recorded.

Result

In the present study, total 156 patients, aged 5 to 15 years, who attended the OPD with abdominal pain in the department of paediatric of GVPMC, Visakhapatnam, AP, from September 2017 to March 2019 were included.

Table-1: Demographic distribution of study group.

Age (Years)	Sex		Total (n=156%)
	Boys	Girls	
5- 10	36(48.64%)	38(51.35%)	74 (47.43%)
11-15	52(63.41%)	30(36.58%)	82 (52.56%)

Majority of children presented with abdominal pain in the present study group, were female 38 (51.35%) as compared to male 36(48.64%) under 5 to 10 years age. Again, most of the children were male 52 (63.41%) under 11 to 15 years of age group (Table1).

All the relevant investigations like complete blood count, Urine analysis, stool test and ultrasonography of abdomen were evaluated in all the patients.

The presence of enlarged mesenteric lymph nodes, their location, size (transverse and anteroposterior dimensions) and other significant findings were recorded.

The patients with positive finding in USG i.e. significant enlargement of mesenteric lymph nodes and a slight thickening of the terminal ileum wall and/or caecum were followed up to 3 months.

Mesenteric lymphadenopathy was labelled significant using a short axis diameter of >5 mm in short axis diameter.

Final diagnosis was established, and patients were followed in OPD.

For the purpose of the study

- All cases were categorised into four group, according to their site of pain.
- Cases were taken as Acute or Chronic (>3 month) depending on their period of presentation.
- Cases were accepted as Relieved or Persistent case depending on their Response to treatment.

Statistical Analysis- The data was collected using MS excel sheet and analysed. Summarization of data was presented using basic tables.

Clinical and Categorical variables were presented as frequency and percentage.

Table-2: Distribution of study group according to Chronicity and Treatment Response in relation to site & size of mesenteric Lymphnode.

Functional abdominal pain								
Group(n)	Site of Pain	MLN			Frequency(f)	Duration each episode	Follow-up period (Acute / Chronic)	Relieved / Persistent
		Site	Size	No of Case(n)				
I (54)	Epigastric + Peri-umbilical + Hypogastrium	RIF	5-8mm	32 (20.5%)	1/week	2hr	2m	Relieved
			>8mm	22 (14.10%)	1/week	1dy	4m	Persistent
II (35)	Periumbilical+ RIF	Umbilical	5-8mm	20 (12.82%)	2/week	2dy	6m	Persistent
			>8mm	15 (9.61%)	3/week	18hr	6m	Persistent
III (42)	Periumbilical+ Epigastrium	Periumbilical & Epigastrium	5-8mm	26 (16.66%)	1/week	18hr	3m	Relieved
			>8mm	16 (10.25%)	3/week	2hr	2m	Relieved
IV (25)	Peri-umbilical + RIF + Left Iliac fossa	Umbilical	5-8mm	15 (9.61%)	3/day	2hr	2m	Relieved
			>8mm	10 (6.41%)	3/week	24hr	1yr	Persistent

Most common abdominal site of Mesenteric lymph node enlargement was Periumbilical site followed by Right Iliac Fossa. According to the site of pain, Majority of the cases were under group I, 54 (34.61%) and group III, 42 (26.92%). In four groups, all relieved cases had mesenteric lymph node of size 5mm to 8 mm, except group III 16 (10.25%) cases, where the size was >8mm with prolonged period of. All relieved cases were acute cases with duration of less than 3month. All persistent cases were more than 6-month duration, with mesenteric lymph node of size more than 8mm, except group II 20 (12.82%) cases with prolonged period of pain (each episode 24 to 48 hours) (Table 2).

Discussion

Chronic functional abdominal pain (CFAP) is the ongoing presence of abdominal pain for which there is no known medical explanation [7]. It is quite similar to, but less common than, irritable bowel syndrome (IBS), and many of the same treatments for IBS can also be of benefit to those with CFAP. The fundamental difference between IBS and CFAP is that in CFAP, unlike in IBS, there is no change in bowel habits such as constipation or diarrhoea. Bowel dysfunction is a necessary diagnostic criterion of IBS.

CFAP is characterized by chronic pain, with no physical explanation or findings (no structural, infectious, or mechanical causes can be found). It is theorized that CFAP is a disorder of the nervous system where normal nociceptive nerve impulses are amplified, resulting in pain. This visceral hypersensitivity may be a stand-alone cause of CFAP, or CFAP may result from the same type of brain-gut nervous system disorder that underlies IBS [8]. In the present study, even though girls were more under 5 to 10 years of children, both boys and girls were almost equally affected. Increased prevalence in girls has led to suggestions that levels of sex hormones might play a role in these cases. So also. Ovarian hormones can modulate both visceral pain perception and the

susceptibility to stress [9]. Mesenteric lymphadenitis typically occurs in children, adolescents, and young adults of both sexes, although males might be slightly more frequently affected than females [10,11,12]. In the present study, children under 11 to 15 years of age, boys were significantly higher in number than girls. The low incidence of cases in girls, in this age group in my study, could be explained by the fact that, the female child's nutrition and health may be neglected in our society.

Most common site of pain, in the present study, was periumbilical pain could be due to a number of causes. In several studies, it was found that, the small and large bowel with dysmotility and variations in transit time were documented as common cause of periumbilical pain, [13] Primary or nonspecific mesenteric lymphadenitis has been usually defined as right-sided lymphadenopathy without an identifiable underlying inflammatory cause.

In these patients, there are no further imaging abnormalities, except for a slight thickening of the terminal ileum wall and caecum in a minority of cases, which was found to be the same in the present study [14]. In most cases of mesenteric lymphadenitis, an underlying viral infectious terminal ileitis is thought to be the cause.

Conclusion

By knowing the chronicity and treatment response to FAP, good approach can be obtained to these cases early and will follow up regularly to modify their painful early school life, mental state and the consequences. The present study can assure the parents about the benign nature of the disease

What the study adds to the existing knowledge?

There should be more study on this area of concern required, to approach and to reach a conclusion about how to give a better quality of life to these children.

Author's Contribution

Dr. Sudhanshu Kumar Das: Manuscript writing.

Dr. Monalisa Subudhi: designed the study, performed the analytic calculations and performed the numerical simulations.

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Ethical Approval: This study was approved by the Institutional Ethics Committee

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