

An Enlarged Mesenteric Lymph Node Seen on USG was Linked to Recurrent Abdominal Discomfort and the Fate of These Individuals

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Abstract

Background: Mesenteric lymphadenitis is an inflammation of lymph nodes. The lymph nodes that become inflamed are in a membrane that attaches the intestine to the lower right region of the abdominal wall. These lymph nodes are among the hundreds that help your body fight disease. They trap and destroy microscopic "invaders" like viruses or bacteria. Mesenteric lymphadenitis causes abdominal pain. Mesenteric lymphadenitis is commonly reported in children with acute, chronic or recurrent abdominal pain and no evidence of other pathologies.

Aim: The purpose of this study was to find out the association of USG finding of enlarged mesenteric lymph nodes with causation of recurrent abdominal pain and outcome of these patients on follow up.

Methods: A prospective, single centre study was conducted in the Upgraded Department of Pediatrics, Patna Medical college and Hospital, Patna, Bihar, India. Cases included children of age group 5–15 years with CAP who were subjected to abdominal ultrasonography during the study period. Controls included children in whom abdominal sonography was performed for reasons other than abdominal pain. Descriptive statistics were used for the analysis of baseline characteristics of the study group. For the variables following normal distribution curve, mean and standard deviation were computed. The presence of enlarged nodes, their location, size and other significant findings were recorded. Detailed history, physical examination, relevant investigations and USG abdomen was done in all patients.

Results: In the present study there were 41 (56.16%) children aged from 5 to 10 years and 32 (43.84%) children aged from 10-15 years in the case group. There were 47 (61.04%) children aged from 5 to 10 years and 30 (38.96%) children aged from 10-15 years in the control group. Higher frequency of CAP was observed in the younger age group. Most common symptom was Vomiting (27.40%), followed by pallor (23.29%), Abdominal tenderness (16.44%), constipation (12.33%), fever (10.96%) and hepatomegaly (9.59%).

Conclusions: Mesenteric lymphadenopathy, with lymph nodes more than 5mm on their short axis, is a significant finding in children presenting with chronic abdominal pain.

Keywords: Mesenteric Lymphadenopathy, Children, Abdominal Pain.

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Introduction

Recurrent abdominal pain (RAP) in children is defined as the presence of at least three episodes of abdominal pain severe enough to affect their activities over a period longer than three months [1, 2]. Abdominal pain is the most common among chronic pains in younger children and the second most common chronic symptom after headache in older children and adolescents [3].

Mesenteric lymphadenitis is defined as three or more lymph nodes that are each 5 mm or greater in the short axis. In the absence of other abnormalities, enlarged mesenteric lymph nodes have been attributed to primary mesenteric lymphadenitis [4].

In developed countries, chronic abdominal pain (CAP) is a complaint of 10–12% school children [5]. However, an organic cause is found only in 5-10% of children with CAP [6].

Mesenteric lymph node enlargement has been associated with infection of the gastrointestinal or upper respiratory tract by a large number of the viral, bacterial, mycobacterial, and parasitic organism. Enlarged mesenteric lymph node is a nonspecific finding seen in association with the variety of medical and surgical disorders in pediatric patients having abdominal pain. As an incidental finding, enlarged mesenteric lymph nodes (MLN) are detected on occasion, especially when USG is performed with graded compression [7,8].

Methodology:

A prospective, single centre study was conducted in the Upgraded Department of Pediatrics, Patna Medical College and Hospital, Patna, Bihar, India from Jan 2020 to Jan 2021, Children aged 5- 15 years, presenting with Chronic Abdominal Pain (CAP), who were subjected to abdominal ultrasonography, were included as cases.

Children who were subjected to abdominal sonography for reasons other than abdominal pain were included in the control group. Children with known organic causes for CAP (pancreatitis, dysmenorrhoea, abdominal TB, renal calculi etc.) were excluded from cases. Children with known cause for MLN e.g. gastroenteritis, malignancy, abdominal tuberculosis, rheumatic disorders etc. were excluded from cases as well as from controls. The study protocol was approved by the Institutional Ethics Committee.

Data collected from history, physical examination and abdominal ultrasonography were recorded in a proforma designed for the study. The presence of enlarged nodes, their location, size and other significant findings were recorded. Each lymph node was measured in two dimensions (short axis and long axis). A size of more than 5mm in short axis or more than 10mm in the long axis was considered significant. Basic investigations were done according to case merit and the details were included.

Results:

A total of 194 children were enrolled in the study, which included 100 children with CAP (cases) and 94 controls. Among the 100 cases with CAP, 27 were excluded whilst 17 subjects were excluded from the control group. Thus, the final study population included 73 cases and 77 controls of the 77 controls, 24 had congenital anomalies and genetic syndromes where abdominal sonography was done to rule out renal/ gastrointestinal malformations, 21 had renal disorders, 19 had hepatic disorders, 5 had pyrexia of unknown origin and 5 had miscellaneous disorders. CAP was almost equal in both sexes with a male: female ratio of 1.17:1. Mean age of the study group was 9.13 ± 3.3 years ranging from 5-15 years.

Table 1: Baseline demographic characteristics of the study group

Variable	Cases (n=73)	Controls (n=77)
Sex		
Male (n=81)	39 (53.42%)	42 (54.54%)
Female (n=69)	34 (46.57%)	35 (45.45%)
Age (years)		
5-10 (n=88)	41 (56.16%)	47 (61.04%)
10-15 (n=62)	32 (43.84%)	30 (38.96%)

In the present study there were 41 (56.16%) children aged from 5 to 10 years and 32 (43.84%) children aged from 10-15 years in the case group. There were 47 (61.04%)

children aged from 5 to 10 years and 30 (38.96%) children aged from 10-15 years in the control group. Higher frequency of CAP was observed in the younger age group.

Table 2: Symptoms and signs in children with chronic abdominal pain (n=73)

Variable	Number (%)
Vomiting	20 (27.40)
Constipation	09 (12.33)
Fever	08 (10.96)
Pallor	17 (23.29)
Abdominal tenderness	12 (16.44)
Hepatomegaly	07 (09.59)

Most common symptom was Vomiting (27.40%), followed by pallor (23.29%), Abdominal tenderness (16.44%), constipation (12.33%), fever (10.96%) and hepatomegaly (9.59%)

Table 3: Division of study group with reference to mesenteric lymph nodes in abdominal ultrasonography

Mesenteric lymph nodes	Cases (n=73) Number (%)	Controls (n=77) Number (%)
Visualised (n=77)	54 (73.97)	23 (29.87)
Not visualised (n=73)	19 (26.03)	54 (70.13)
Significant MLN \geq 5 mm (n=50)	38 (52.05)	12 (15.58)

In 73.97% of cases and 29.87% of controls, MLN were visualized. Out of which, in 38 cases (52.05%) and 12 controls (15.58%), mesenteric lymph nodes were larger than 5 mm in size.

Table 4: Mesenteric lymphadenopathy based on location in ultrasonography of abdomen

Site	Cases (n=38)	Controls (n=12)
Right iliac fossa (RIF)	06	03
Peri-umbilical	10	02
Peri-umbilical + RIF	17	05
Epigastric + Peri-umbilical + RIF + Left iliac fossa (LIF)	03	01
Peri-umbilical + RIF + LIF	02	01

Discussion:

CAP is common among school children and young adolescents with prevalence ranging

from 0.5 to 19% [9-11]. Boey *et al.* reported a prevalence of CAP of 10.2% among Malaysian school children [9, 10]. Two age peaks are often seen: one at 4-6 years and

the other at 7–12 years [11, 12]. Incidence is uncommon in children below 5 years and those above 15 years of age.

Abdominal ultrasonography is an important diagnostic tool performed to rule out an underlying organic abnormality. MLN is the commonest ultrasonographic finding in children with CAP, but its significance is rarely mentioned in the literature. Radiologically, MLN is used to describe the presence of 3 or more lymph nodes of size greater than 5mm in its short axis [13-15]. MLN is called primary, when there is no other ultrasonographically identified abnormality and secondary, when an associated pathology is detected [15]. A short axis of <5mm is considered insignificant [16]. MLN is commonly reported in children with acute abdominal pain and a few researchers have reported the significance of MLN in CAP as well [13-16].

Quillin and Siegel in a review of the color Doppler USG features of appendicitis and other diseases manifesting with acute lower abdominal pain, report that mesenteric lymphadenitis is one of the most common causes of acute abdominal pain in patients with a normal appendix at surgery [17].

Conclusion:

USG is useful in the evaluation of children with recurrent abdominal pain. The benign nature of this finding and the good prognosis can be conveyed to the child and the parents. MLN, with lymph nodes more than 5mm on their short axis, is a significant finding in children presenting with CAP.

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