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Original Research Article

Mesenteric lymphadenopathy in children with recurrent abdominal pain

Saransh Sabal*, Lakhan Poswal, Sandip Gediya, Suresh Goyal

Department of Pediatrics, RNT Medical College, Udaipur, Rajasthan, India

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***Correspondence:**
Dr. Saransh Sabal,
E-mail: drsaranshsabal10@gmail.com

ABSTRACT

Background: Enlarged mesenteric lymph nodes (MLN) are frequently seen in children with abdominal pain and in the absence of other disorders, have been attributed to primary mesenteric lymphadenitis. Mesenteric lymphadenitis is commonly reported in children with acute, chronic or recurrent abdominal pain and no evidence of other pathologies. 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: This hospital based prospective study was done on 82 patients aged 5 to 15 years, attending Bal Chikitsalaya, RNT Medical college, Udaipur, fulfilling Apley's criteria of RAP. Detailed history, physical examination, relevant investigations and USG abdomen was done in all patients.
Results: Eighty-two children were enrolled; out of which majority (62.19%) were in age group 5-8 years with mean age 7.9±2.69 years. Mesenteric lymphadenopathy was found in 14 (17.07%) cases. All patients with mesenteric lymphadenopathy 14 (100%) had periumbilical pain and diurnal variation of pain. Follow up of 14 patients who had mesenteric lymphadenopathy showed that in 12 (85.71%) patients, the mesenteric lymphadenopathy resolved on USG despite that pain abdomen persisted in 7 (58.33%).
Conclusions: The presence of mesenteric lymphadenopathy can't be attributed to recurrent abdominal pain.

Keywords: Functional abdominal pain, Mesenteric lymphadenitis, Mesenteric lymphadenopathy, Recurrent abdominal pain

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]

Using a short axis diameter of >8 mm might be a more appropriate definition for mesenteric lymphadenopathy in children. Mesenteric lymphadenitis is commonly reported in children with acute, chronic or recurrent abdominal pain and no evidence of other pathologies.[5]

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.[6,7]

Enlarged mesenteric lymph nodes are also associated with a variety of pathological conditions such as crohn's disease, appendicitis, gastroenteritis, yersinia, cat scratch disease and AIDS. The prevalence and significance of such enlarged MLN has rarely been assessed.[8]

METHODS

This hospital based prospective study was done on 82 patients aged 5 to15 years, attending Bal Chikitsalaya, R.N.T Medical college, Udaipur, during Feb. 2016 to Jan. 2017, fulfilling Apley's criteria of RAP. Patients were classified into three age groups, and each age group was subdivided by gender: group I, 5-8 years (n=51; 33 males, 18 females); group II, 9-12 years (n=25; 10 males, 15 female); and group III, 13-15 years (n=6; 3 male, 3 female). Detailed history, physical examination, relevant investigations and USG abdomen was done in all patients.

Abdominal and pelvic USG was done in all children by using MINDRAY machine with 3-7.5 transducer. Ultrasonography was done under guidance of qualified faculty and by radiologist in department of Radiodiagnosis, R.N.T. medical college, Udaipur. All abnormal findings were noted, especially the presence of enlarged MLN. The patients with positive finding in USG i.e. significant enlargement of mesenteric lymph nodes were followed up to 3 months. Mesenteric lymphadenopathy was labeled significant using a short axis diameter of >8 mm. Data was analyzed using the Statistical Package for Social Sciences (SPSS) version 16.0 software.

RESULTS

Out of total 82 cases enrolled, mesenteric lymphadenopathy was present in 14(17.07%). Ten (71.43%) were male and 4 (28.57%) were female. Enlarged solitary kidney and ovarian hemorrhagic cyst were another USG finding in 1 case each (Table 1).

Table 1: USG findings in patients with RAP.

USG finding	No. of cases		Total	P-value
	Male	Female		
Mesenteric lymphadenopathy (>8 mm shortest diameter)	10	4	14 (17.07%)	0.38
Enlarged solitary kidney	1	0	1 (1.22%)	0.55
Ovarian hemorrhagic cyst	1	0	1 (1.22%)	0.55
Total	12	4	16 (19.51%)	0.68

Table 2: Distribution of cases with mesenteric lymphadenopathy according to age and gender.

Age group (years)	Mesenteric lymphadenopathy			P-value
	Male	Female	Total	
5-8	8	1	9 (64.29%)	0.32
9-12	2	3	5 (35.71%)	0.21
13-15	0	0	0	
Total	10	4	14 (100%)	

Majority 9 (64.29%) of patients with mesenteric lymphadenopathy were in age group 5-8 years followed by 5 (35.71%) in age group 9-12 years and none of patients in age group 13-15 years (Table 2).

All cases with mesenteric lymphadenopathy presented with periumbilical pain and pain abdomen during day time only present in 2 (14.28%) patients, whereas 1 case had hepatomegaly and splenomegaly as associated clinical findings (Table 3).

Table 3: Associated clinical findings in patients with mesenteric lymphadenopathy.

Clinical findings	Cases (n=14)
Anemia	2 (14.28%)
Hepatomegaly	1 (7.14%)
Splenomegaly	1 (7.14%)

Co-trimoxazole was given to 10 patients who had isolated mesenteric lymphadenopathy and in 4 patients with associated UTI antibiotics were given according to urine culture and sensitivity. Follow up of these patients showed that in 12 (85.71%) patients, the mesenteric lymphadenopathy resolved on USG despite that pain abdomen persisted in 7 (58.33%) whereas, in 5 (41.67%)

pain abdomen subsided. In 2 patients in whom mesenteric lymphadenopathy persisted following treatment, 1 patient persisted to have pain abdomen whereas in 1 pain subsided (Table 4).

Table 4: Response to treatment in patients with mesenteric lymphadenopathy on follow up.

Mesenteric lymphadenopathy on follow up USG (n=14)	Pain abdomen on follow up
Resolve =12 (85.71%)	Persist=7 (58.33%)
	Subside=5 (41.67%)
Persist=2 (14.29%)	Persist=1 (50%)
	Subside=1 (50%)

P value >0.05

DISCUSSION

Mesenteric lymphadenopathy was found in 14(17.07%) patients out of which majority (64.29%) were in age group 5-8 years with male predominance. In a similar study, conducted by Vayner et al, enlarged mesenteric lymph nodes were found in 61.4% of the patients with RAP, males were 44.83%. Majority (45.69%) of children were in age group 5-8 years followed by 37.06% and 17.24% in age group 9-13 years and 14-18 years respectively.[7] Compared to their study, the percentage of children with enlarged mesenteric lymph nodes is low in our study probably because the criteria to label significant mesenteric lymphadenopathy was short-axis diameter >8 mm in our study whereas it was 4 mm or more in their study. In a study by Van der meer et al, on 93 children aged between 5.5 -12 years with recurrent abdominal pain.[9] In 3 cases (3.2%) organic abnormalities were found [duplex kidney, unilateral kidney agenesis, enlarged spleen (9 cm) one case each]. In three patients, residual post void urine was found.

Yip et al, found disease in only 5 of 598 children (1%) with the typical features of RAP, compared with 5 of 46 children (11%) with atypical features.[10] Wewer et al, in evaluating their experience with routine abdominal US in children with RAP, found a sonographic abnormality in 8 of 120 children, but the abnormalities found could explain the pain in only 2 or 3 of them.[11] Shanon et al have reported a similar experience following their study of 65 children with RAP.[12] Although an abnormality was detected in 12 children, in no case could the abdominal pain be attributed to the abnormal finding.

On follow up, in most (85.71%) patients the mesenteric lymphadenopathy resolved on USG, but pain abdomen still persisted in over half of these children. This shows that mesenteric lymphadenopathy was perhaps not the cause of their pain abdomen. Similar observation was made by Vayner N et al, on 189 children aged 5-18 years with RAP. On one year follow-up of the 116 children with RAP and mesenteric lymphadenopathy, no overt disease had developed. Repeat USG study was done on 30 children, who had mesenteric lymphadenopathy out which in 8 patients the findings had disappeared and the abdominal pain also resolved; in the other 22 patients, there was still mesenteric lymphadenopathy. The morphology of the lymph nodes did not change in these children, but some lymph nodes had become smaller. The abdominal pain had resolved in 10 of the 22 patients, and had become less bothersome in the other 12.[7] 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. In some cases, Yersinia enterocolitica was found.[13] Puylaert reported mesenteric adenitis on ultrasound in patients, 9 of whom had Yersinia in their stool cultures.[14]

CONCLUSION

We conclude that though mesenteric lymphadenopathy was the commonest USG finding perhaps, it is an incidental finding and clinically irrelevant as a cause of recurrent abdominal pain in school aged children and therefore, its presence should not be taken as the sole cause of recurrent pain abdomen. 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.

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