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Original Research Article

Correlation between sonological and clinical profile of mesenteric lymphadenitis among children in a tertiary care hospital of central Kerala

Vinod Joseph[1], Danny Jose Titus[1]*, Aby Dany Varghese[2], Jijo Joseph John[2], Girija Mohan[2], Geethu Mathew[3], Achu Joseph[4], Tom Jojo Punnakudiyil[4]

[1]Department of Radiology, [2]Department of Paediatrics, [3]Department of Community Medicine, [4]MBBS Undergraduate, Believers Church Medical College, Thiruvalla, Kerala, India

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***Correspondence:**
Dr. Danny Jose Titus,
E-mail: drdjtitus@gmail.com

ABSTRACT

Background: For abdominal pain in children, imaging is routinely applied to make a possible diagnosis both in the outpatient and in the emergency department. Though the diagnosis of mesenteric lymphadenitis is made often these days, the significance of the size and number is still ambiguous and most studies consider mesenteric lymphadenitis is defined as three or more lymph nodes that are each 5 mm or greater in the short axis.
Methods: Cross-sectional study was conducted in a tertiary hospital in central Kerala and the study tool included a detailed structured questionnaire.
Results: Our study included 115 children with pain in the abdomen. 69 were found to have mesenteric lymphadenitis. Younger age group, fever as a symptom and acute infective gastroenteritis are statistically significantly associated with mesenteric lymphadenitis.
Conclusions: In our study, acute infective gastroenteritis was the most common cause to be associated with mesenteric lymphadenitis which was. The incidence of mesenteric lymphadenitis was found to be more in children below 5 years.

Keywords: Mesenteric lymphadenitis, Children, Acute gastroenteritis, Pain abdomen

INTRODUCTION

Abdominal pain is a common frequent symptom in paediatrics patients presenting the outpatient department and to the emergency. It is among the most common cause of chronic pains in younger children. The detection of enlarged lymph nodes without any other abnormality is termed mesenteric lymphadenitis.[1]

Brenneman et al pointed out the association of abdominal pain with upper respiratory tract infections in children.[2] Until recently, the diagnosis was most frequently made when laparoscopy was performed to assess presumed appendicitis. At present imaging is routinely applied in the examination of children to make a possible diagnosis both in the outpatient and in the emergency department.[3]

Diagnostic discrimination between acute appendicitis and mesenteric lymphadenitis may require more diagnostic tests more than clinical suspicion. Sonography is a fast, non-invasive and effective method to exclude most causes of abdominal pain that require immediate intervention. The diagnosis of lymph node abnormality usually relies on size criteria.[4] Mesenteric lymph nodes were considered to be enlarged when their short-axis was 5mm or more.[5] In children with acute abdominal pain findings consisting of only enlarged mesenteric lymph nodes, the probable diagnosis would be mesenteric lymphadenitis.[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.[7] Though the diagnosis of mesenteric lymphadenitis is made often these days, the significance of the size and number is still ambiguous and not clearly understood. Most studies consider mesenteric lymphadenitis defined as three or more lymph nodes that are each 5 mm or greater in the short axis.[8]

Objectives

The objectives of our study were to find the proportion of children with mesenteric lymphadenitis presenting to emergency with pain abdomen and to the co-relate clinical profile of the patient with mesenteric lymphadenitis.

METHODS

This was a cross-sectional study conducted in a tertiary care hospital in central Kerala from June 2019- November 2019. Institutional Ethical and Review Board approval was obtained before the study. The inclusion criteria were all children between the age of 1-12 presenting to the outpatient department (OPD)/emergency with pain abdomen and ultrasonographic diagnosis of mesenteric lymphadenitis was based on the criteria of three or more lymph nodes that are each 5 mm or greater in the short axis.[8] Acute pain abdomen was defined as pain abdomen of fewer than 48 hours duration. An institutional questionnaire was developed. Data were collected after obtaining consent and study tools included a detailed structured questionnaire. The questionnaire was divided into three parts which including the socio-demographic details (part A), clinical profile (part B) and investigations (part C). Statistical analysis was done using Epi info software.

RESULTS

Our study included 115 children who presented with pain abdomen and 69 children included in our study. Diffuse pain abdomen rather than specific pain abdomen was the most common presentation in our study. The mean age of our study population was 6.8 years. (Table 1 and 2).

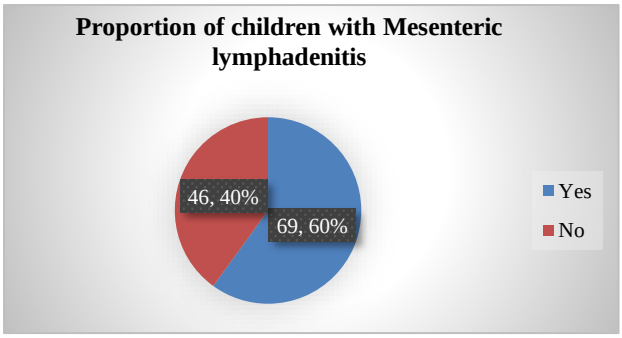

Figure 1: Proportion of children with mesenteric lymphadenitis.

Table 1: Distribution of population age, gender and presentation (n=115).

Parameter	Number	Percentage
Age (in years)		
1-5	41	35.7
6-10	59	51.3
10-12	15	13.0
Total	115	100
Sex		
Male	66	57
Female	49	43
Total	115	100
Presentation		
Acute	103	89.5
Chronic	12	10.5
Total	115	100

Table 2: Distribution of population having mesenteric lymphadenitis based on age, gender and presentation (n=69).

Parameter	Number	Percentage
Age (in years)		
1-5	29	42
6-10	34	49.3
10-12	6	8.7
Total	69	100
Sex		
Male	43	62.3
Female	26	37.7
Total	69	100
Presentation		
Acute	63	91.3
Chronic	6	8.7
Total	69	100

The younger age group was found to have 3.6 times more chances of having significant mesenteric lymphadenopathy (Table 2). Among those who had mesenteric lymphadenitis, the majority site was found to be periumbilical in 59% (41, n=69). Among the children who presented with acute pain abdomen, we found 4% (5, n=115) diagnosed as acute appendicitis radiologically. The basic inflammatory markers were found to be elevated in our study (Table 3).

A history of constipation was found in 4.3% (3, n=69) in children with mesenteric lymphadenitis. An association of fever with mesenteric lymphadenitis was studied and was found to be significant with an odds ratio of 2.5 (95% confidence interval limits: 1-6.3).

In our study children who had acute gastroenteritis has 5.6 times more chances of having mesenteric lymphadenitis compared to the other group (Table 4).

Table 3: Distribution of population based on basic blood investigations.

Investigation (elevated)	With mesenteric lymphadenitis (n=69) %	Without mesenteric lymphadenitis (n=46) %
Total count	17 (24.6)	8 (17.4)
C reactive protein	12 (17.4)	5 (10.8)
ESR	7 (10.1)	3 (6.5)

Table 4: Association of acute infective diarrhoea with mesenteric lymphadenitis.

Acute infective diarrhoea	Mesenteric lymphadenitis		Odds ratio (95%CI)
	Yes	**No**	
Yes	14	2	5.6 (1.2-26)
No	55	44	

DISCUSSION

As in studies done by Vinoo et al and Maheswari et al, we also found that children less than 5 years has of being diagnosed with mesenteric lymphadenitis when presenting with pain abdomen.[1,7] Murthy et al and Sabal et al considered that infective/inflammatory aetiology for mesenteric lymphadenitis. In our study we found that children who had presented with fever along with pain abdomen had a higher incidence of having mesenteric lymphadenitis which is probably suggestive that an infective/inflammatory pathology as a cause for mesenteric lymphadenopathy and this corresponding to previous studies where they found upper respiratory infection as a common cause for the enlarged mesenteric lymph nodes.[7-9] In our study we also found the basic inflammatory markers to be elevated in children with mesenteric lymphadenitis which is suggestive of the same (Table 3).

A study by Murthy et al correlated ultrasound features of non-specific mesenteric lymphadenitis with ultrasound of the neck. The clinical profile and attributed causes of these cases were correlated and evaluated and found that only 6.4% of cases associated with diarrhoea which is lower than in our study.[9] Maheshwari et al included children who were clinically suspected to have mesenteric lymphadenitis in which found the commonest cause of mesenteric lymphadenitis was found to be respiratory tract infection in 36.8% of patients followed by diarrhoea.[7] Unlike the previous studies mentioned above where they found upper respiratory infection as a possible cause of mesenteric lymph node enlargement, our study found acute infective gastroenteritis as the most common aetiology.

Sabal et al did a hospital-based prospective study was done on 82 patients aged 5 to 15 years which patients with mesenteric lymphadenopathy 14 (100%) had periumbilical pain and diurnal variation of pain.[9] In our study we found that diffuse abdominal pain was the common presentation. Our study showed the sonographically peri-umbilicus area to be the site of mesenteric lymphadenitis but these are not significant statistically probably due to small sample size.

The sample size was inadequate to make meaningful associations across the groups to study the factors associated with mesenteric lymphadenitis.

CONCLUSION

In our study, acute infective gastroenteritis was the most common cause to be associated with mesenteric lymphadenitis. The incidence of mesenteric lymphadenitis was found to be more in children below 5 years.

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