

## ETIOLOGY AND CLINICAL PROFILE OF MESENTERIC LYMPHADENITIS IN CHILDREN ADMITTED TO A TERTIARY CARE INSTITUTION

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### Abstract

**Background:** Acute mesenteric lymphadenitis is an inflammation of mesenteric lymph nodes commonly seen in children presenting with abdominal pain and it's clinical presentation is often difficult to differentiate from other causes of abdominal pain, particularly in children. Sonography is widely used to diagnose the condition based on the size criteria of short axis diameter being 10mm or more. **Methods:** This prospective observational study was conducted over a period of one year from October 2022 to September 2023 among children admitted to the department of paediatrics, Kanyakumari government medical College, Tamilnadu, India. Out of 187 children who were clinically suspected to have mesenteric lymphadenitis, only 85 were included in the study based on inclusion and exclusion criteria. The clinical profile and etiology of these children were evaluated. **Results:** It was found that female children (51.76%) were affected more than males with peak incidence of age between 6 to 10 years. Abdominal pain (61.17%) was found to be the commonest presentation and gastroenteritis (41.17%) was identified as the most common etiology. In this study 31(36.47%) out of 85 children required antibiotics and the rest of the children were treated with only supportive measures. **Conclusion:** It is important to differentiate mesenteric lymphadenitis from other surgical etiology, so that unwarranted surgical intervention can be avoided and only few cases require antibiotic therapy.

## INTRODUCTION

Acute mesenteric lymphadenitis is an inflammation of mesenteric lymph nodes characterized by diameter more than 10mm in a group of 3 or more.<sup>[1]</sup> It occur in adults but more common in children and adolescents younger than 15 years of age. It is commonly associated with children having chronic abdominal pain, but it's significance is rarely mentioned in literature. The process may be acute or chronic depending on the causative agent, and its clinical presentation is often difficult to differentiate from acute appendicitis, particularly in children. The frequent association of this condition, especially in children with upper respiratory tract infection, has popularized a theory that swallowed pathogen laden sputum may be the primary source of infection. Sonography is widely used in paediatric patients to identify the cause of abdominal pain.<sup>[2]</sup> It is fast, non-invasive and effective method to exclude most causes of abdominal pain that require immediate intervention. The diagnosis of lymph node is based

on the size criteria and its distribution have significance in identifying etiology.

## MATERIALS AND METHODS

The objective of the study was determining the etiology and clinical profile of mesenteric lymphadenitis in children. It is a prospective observational study conducted over a period of one year from October 2022 to September 2023 among children admitted to the department of paediatrics, Kanyakumari government medical College, Tamilnadu, India. All children admitted to the department of pediatrics with suspected mesenteric lymphadenitis fulfilling the inclusion and exclusion criteria during the study period were included in the study. Children of both the gender aged between 1 to 13 years who were Clinically suspected cases of mesenteric lymphadenitis with radiological finding of mesenteric lymph node with short axis diameter being 10mm or more were included in study. Children below the age of 1 year and above 13 years

and Children with mesenteric lymph node short axis diameter less than 10mm were excluded. A total of 187 children who were suspected to have mesenteric lymphadenitis underwent abdominal ultrasonography. Out of 187 children admitted with suspected mesenteric lymphadenitis, only 85 children who met the inclusion criteria and exclusion criteria were included in the study. After taking informed consent from the parents, demographic details, clinical presentation and treatment details were recorded in a predesigned proforma.

All the children included in this study were evaluated based on the history, clinical examination, urine and blood examination. Additional investigations were done on case to case basis. All the children were treated with appropriate measures, discharged and followed up on regular visits.

## RESULTS

Our study showed female patients (51.76%) were predominantly affected than males (48.24%) [Table 1].

Our study [Table 2] showed children aged between 6 - 10 years (40%) were affected predominantly than patients less than 6 years (31.76%) and children more than 10years (28.24%). Mean age of presentation was 7.5 years.

Our study [Table 3] showed majority of cases presented with abdominal pain (61.17%) as isolated complaint as well as in combination with other symptoms like loose stools, vomiting etc. Few children were also presented with cough, burning micturition, fever and worms in stools.

In this study we found abdominal pain as major complaint and described in terms of duration of

abdominal pain [Table 4]. Majority of the cases presented having more than 2 weeks (56.47%) of abdominal pain and only 14 cases (16.47%) had abdominal pain of less than one week duration.

As shown in [Table 5], out of 85 children 35(41.17%) had gastroenteritis. In this study acute gastroenteritis was found to be the major cause of mesenteric lymphadenitis followed by urinary tract infection, upper respiratory tract infection, acute gastritis and other causes like worm infestation, enteric fever and impetigo. Of the 85 children 4 of the children presented with acute gastroenteritis and upper respiratory tract infection, 2 children had urinary tract infection with worm infestation and one child had impetigo with worm infestation.

Our study showed 30 children (35.27%) had elevated total leucocyte count, 23 children (27.05%) had positive C-Reactive protein, 16 cases (18.82%) had increases pus cells in the urine, but only 6 children had culture positive urinary tract infection [Table 6]. It was found that majority of mesenteric lymphadenitis were due to viral infection. All the children included in this study were mantoux negative.

Our study [Table 7] showed majority of the cases were treated in the hospital for less than 6 days (56.47%) and only 4(4.71%) patients required more than 10 days of hospitalisation. Mean duration of hospital stay was 5.5 days. Only 12 children (14.12%) required PICU admission with mean PICU stay of 1 day.

In this study 31(36.47%) out of 85 children treated with antibiotics and remaining cases required only supportive measures. None of the children required surgical intervention. All children were discharged to home after completion of treatment.

**Table 1: Gender wise distribution of cases**

S.no.	Gender	Number	Percentage
1	Male	41	48.24%
2	Female	44	51.76%

**Table 2: Age wise distribution of cases**

S.no.	Age	Number	Percentage
1	<6 years	27	31.76%
2	6 - 10 years	34	40.00%
3	> 10 years	24	28.24%

**Table 3: Clinical presentation of cases of mesenteric lymphadenitis.**

S.no.	Presentation	Number	Percentage
1	Abdominal pain(isolated & in combination with other symptoms)	52	61.17%
2	Diarrhea	19	22.35%
3	Vomiting	16	18.82%
4	Respiratory symptoms	14	16.47%
5	Burning micturition	12	14.11%
6	Fever	10	11.76%
7	Worms in stools	8	9.41%

**Table 4: Duration of abdominal pain in children with mesenteric lymphadenitis**

S.NO.	Duration	Number	Percentage
1	< 1 week	14	16.47%
2	1 - 2 weeks	23	27.06%
3	> 2 weeks	48	56.47%

**Table 5: Etiology of mesenteric lymphadenitis.**

S.No.	Causes	Number	Percentage
1	Gastroenteritis	35	41.17%
2	Urinary tract infection	16	18.82%
3	Upper respiratory tract infection	14	16.47%
4	Acute gastritis	10	11.76%
5	Worm infestation	8	9.41%
6	Enteric fever	7	8.23%
7	Impetigo	2	2.35%

**Table 6: Laboratory investigation findings in children with mesenteric lymphadenitis**

S.no.	Laboratory Investigations	Number	Percentage
1	Leucocytosis	30	35.27%
2	Positive CRP	23	27.05%
3	Increased pus cells in urine	16	18.82%
4	Widal positive	7	8.23%
5	Positive urine culture	6	7.05%

**Table 7: Duration of hospital stay.**

S.no.	Duration	Number of cases	Percentage
1	<6 days	48	56.47%
2	6 - 10 days	33	38.82%
3	> 10 days	4	4.71%

## DISCUSSION

Out of 187 children admitted with suspected mesenteric lymphadenitis, only 85 were included in the study after excluding remaining children based on exclusion criteria. Our study has shown that females (51.76%) were affected more than male (48.23%) with peak incidence between 6 to 10 years while study conducted by maheswari K shown that males being affected more than females.<sup>[3,4]</sup> Our study shown 61.17% of children having abdominal pain as primary complaint similar to the study done by sikorska winnieska.<sup>[5]</sup> Study done in India by Roshan chanchalani showed 50% of children with mesenteric lymphadenitis have diarrhea and our study also identified acute gastroenteritis as the most common cause of mesenteric lymphadenitis.<sup>[2,6,7]</sup> Only 35.27% of children having leucocytosis and 27.05% of children tested CRP positive and majority of cases were due to viral etiology and only 36.47% of children treated with antibiotics but study done by J H Lee in korea showed only cases with tuberculosis and typhoid fever required antimicrobiol agents. In mesenteric adenitis, stools may have scanty amounts of blood, but the child will appear well between attacks of pain and does not lose weight. An abdominal ultrasound may show large numbers of enlarged lymph nodes in the mesentery, but a negative ultrasound does not exclude this diagnosis so clinical profile play a key role in diagnosing the condition.<sup>[7,8]</sup> In recent years however, the advances in quality of sonographic images have improved the diagnostic accuracy in acute abdominal pain.<sup>[4]</sup> Reassuring the parents regarding the self-limiting nature of the disease is important. Mesenteric lymphadenitis do not usually require any medical or surgical treatment unless indicated and affected patients recover completely without residuals within 2-4 weeks.<sup>[9]</sup>

## CONCLUSION

As per our study, enlarged mesenteric lymph nodes are common in both the sexes with almost equal distribution, slightly more in females with a peak incidence of 6-10 years. The commonest presentation is abdominal pain of chronic duration. The most common etiology observed in our study is acute gastroenteritis. It is important to differentiate mesenteric lymphadenitis from acute appendicitis, so that unwarranted surgical intervention can be avoided. Only few cases require antibiotic therapy while the rest can be managed with supportive measures.

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