



DIAGNOSTIC VALUE OF SONOGRAPHY IN MESENTERIC ADENITIS IN PEADATRIC AGE GROUP AND ITS CLINICAL SIGNIFICANCE.

Radio-Diagnosis

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ABSTRACT

Background: Acute abdominal pain is one of the most common yet challenging complaints in children, often presenting as a diagnostic dilemma. Most patients with abdominal pain have self-limited conditions. The most common medical cause is mesenteric lymphadenitis and the most common surgical problem is appendicitis. Mesenteric adenitis is usually viral in origin and has self-limiting course. Our aim was to establish a criteria for diagnosis of mesenteric adenitis in symptomatic patients. **Material and Method;** Cross sectional study performed on 130 patients and 100 controls group case. **Results;** Presence of enlarged lymph nodes of 5-8mm in the shortest diameter were noted in 80% (n=64) of the patients and in 78% (n=78) of control group. Enlarged abdominal lymph nodes of 8-10mm mm were detected in 40% (n=32) of the patients and 48% (n=48) of controls. Nodes larger than 10 mm were detected in 30% (n=24) of the patients and 11% (n=11) in controls. Differences between the groups were statistically significant only for lymph nodes of 10 mm and larger in the shortest diameter ($P < 0.05$). **Conclusion;** The absolute generalization of enlarged mesenteric nodes should only be taken clinically significant in a symptomatic patient with nodes greater than 10 mm in short axis diameter favoring more towards mesenteric lymphadenitis.

KEYWORDS

Mesenteric Adenitis, Abdominal Discomfort, Surgery

INTRODUCTION

Acute abdominal pain is one of the most common yet difficult paediatric complaints, frequently presenting as a diagnostic conundrum. Most patients with abdominal pain have conditions that are self-limiting. [1] The most prevalent medical condition is mesenteric lymphadenitis. [2], and appendicitis is the most common surgical problem. [1,3] Mesenteric adenitis is typically caused by viruses and has a self-limiting course. [4] 1987 was the year that Puylaert et al. first described the sonographic criteria for appendicitis diagnosis. [5] However, mesenteric adenitis is still primarily diagnosed by ruling out other surgical causes of acute abdomen. Therefore, establishing criteria for the diagnosis of mesenteric adenitis will assist physicians in understanding the benign nature of acute abdominal pain and reassuring them of its benign nature. With the routine use of high-frequency transducers, particularly for evaluation of the right lower abdominal quadrant, abdominal lymph node enlargement is frequently detected. When enlarged lymph nodes are observed in the absence of any other abnormality, the term "mesenteric lymphadenitis" is frequently used to describe the inflammatory process of abdominal lymph nodes.

In this study, we compared the abdominal ultrasound findings of patients with mesenteric lymphadenitis who presented with acute abdominal pain to those of asymptomatic children in order to identify useful criteria for the assessment of mesenteric lymphadenitis.

Materials and procedures.

This was a hospital-based cross-sectional study involving 130 consecutive children aged 2 to 15 who underwent abdominal sonography for abdominal pain and were referred from the paediatric hospital and the general surgery department of GMC Srinagar between September 2020 and November 2021.

Inclusion Requirements:

Patients between the ages of 2 and 15 suffering abdominal pain.

Each lymph node was assessed and its transverse and anterior-posterior dimensions were measured. Only lymph nodes with a short axis diameter more than 5 mm were included.

Children aged 2-15 years who underwent abdominal sonography for reasons other than stomach discomfort.

Each lymph node was assessed and its transverse and anterior-posterior dimensions were measured. Only lymph nodes with a short axis diameter more than 5 mm were included.

Exclusion Criteria:

<2 years or >15 years.

Other than mesenteric lymphadenopathy, the previously identified cause of stomach discomfort is not lymphadenopathy.

METHODS:

Abdominal ultrasonography was performed using both a convex and a linear probe on a S8 GE Machine in B mode, with scan settings adjusted to optimise the imaging based on the patient's physique.

Approximately fifty individuals with the ultimate diagnosis of gastroenteritis, acute appendicitis, intussusception, obstruction, or ovarian torsion were eliminated.

The Chi-square test in SPSS-20 was used to conduct statistical analysis on nominal variables.

RESULTS:

A total of 180 patients, 80 cases and 100 controls were taken after proper informed consent. The peak incidence in patients was seen between 5 years to 10 years, and thereafter there was a decrease in incidence with increase in age especially after the age of 12 years as shown in Table 1.

Table 1:- Age distribution of Mesenteric Lymphadenitis

Age	Boys (45 Cases)	Girls(35 Cases)	Boys(60 Controls)	Girls(40 Controls)
3-5 YEARS	8	7	15	9
5-10 YEARS	25	20	35	20
10-15 YEARS	12	8	10	11

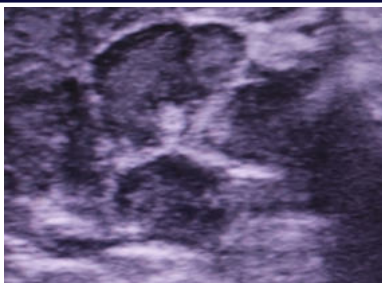


Fig 1.

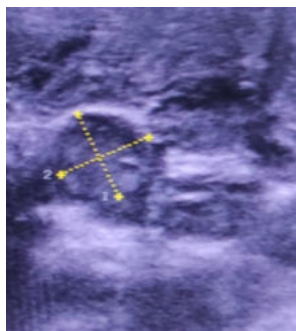


Fig 2

Fig 1 and 2 shows few enlarged lymph nodes in right iliac fossa in a patient admitted with pain abdomen with normal appendix, largest mea 12x10mm.

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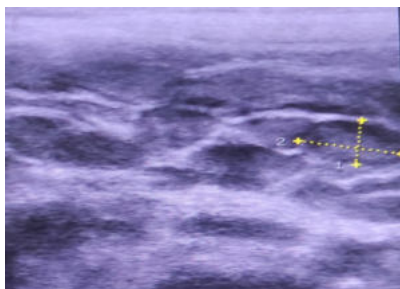


Fig 3

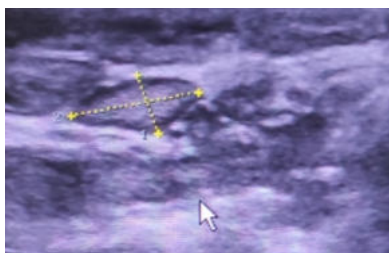


Fig. 3,4 shows a oval mesenteric lymph nodes largest mea.6.1mm in short axis with maintained fatty hilum,in an asymptomatic control .

Presence of enlarged lymph nodes of 5-8 mm and larger in the shortest diameter were noted in 80% (n=64) of the patients and in 78% (n=78) of control group. Enlarged abdominal lymph nodes of 8-10 mm and larger were detected in 40% (n=32) of the patients and 48% (n=48) of controls. Nodes larger than 10 mm were detected in 30% (n=24) of the patients and 11% (n=11) in controls. Differences between the groups were statistically significant only for lymph nodes of 10 mm and larger in the shortest diameter ($P < 0.05$). Multiple enlarged lymph nodes (4 or more) were seen in 60% (n=48) of the patients, and 64% (n=64) of controls not revealing a significant statistical difference ($P > 0.05$). The presence of lymph nodes in right iliac fossa was main site for both patients and controls.

Distribution of lymph nodes on sonography

DISCUSSION

Sonography is often used to diagnose the aetiology of abdominal discomfort and rule out acute abdominal illness in paediatric patients.

It is a rapid, noninvasive, and effective approach for ruling out the majority of causes of abdominal discomfort requiring urgent attention. [6] Clinically, mesenteric lymphadenitis may resemble acute appendicitis, intussusception, ovarian torsion, and other acute abdominal conditions. [7,8,9] A lymph node anomaly is often diagnosed based on size criteria. Some writers regarded lymph nodes with diameters above 10 mm to be pathologically enlarged. Other studies characterised enlarged lymph nodes as having a shortest diameter of 4 mm or higher. However, there is no conventional reference range for the size of mesenteric lymph nodes in asymptomatic children, and the diagnostic criteria for mesenteric lymph node enlargement has been the subject of controversy. [2,7,10] As a further step to rationalise the size criteria of mesenteric lymph node, it has been proposed in some studies to use the maximum short-axis diameter of 8–10 mm as the reference value for primary mesenteric lymphadenitis, as this will reduce the number of false-positive cases that lead to unnecessary treatments. [11,12,13]. In a study conducted by A. Alamdaran MD et al [14], it was determined that in children who present with acute abdominal pain, surgical causes such as appendicitis are not visualised on sonography, and US findings consist of enlarged mesenteric lymph nodes (4mm) and/or mural thickening of the terminal ileum (8mm), particularly in conjunction with upper respiratory tract infection symptoms, the diagnosis is probably mesenteric adenitis-ileitis. In a separate research conducted by Natalia Simanovsky et al., [15] enlarged abdominal lymph nodes with a shortest axis of 10 mm or higher in the context of abdominal discomfort may indicate mesenteric lymphadenitis. Consistent with our findings, the incidence of lymph node enlargement in asymptomatic children rises with age until 10 years of age, and then tends to decline.

Comparable to studies by Sivit et al [2] and Vayner et al [16], greater than 5 mm abdominal lymph node enlargement was observed in more than half of asymptomatic children in our study, whereas greater than 10 mm lymph node enlargement was observed in only 11% of asymptomatic children, a significantly lower prevalence in asymptomatic children. On the basis of these findings, we propose reserving the term mesenteric lymphadenitis for particular lymph node inflammations in clinically acceptable contexts. We discovered a definite trend for lymph node enlargement to rise with age, with a peak frequency at age 10 and a subsequent decline.

In this investigation, paraumbilical and Left iliac fossa lymphadenopathy (A-P diameter > 4 mm) was detected in a subset of patients and controls. Despite this, no statistical significance could be drawn from these data.

CONCLUSION:

The reporting of mesenteric lymph nodes on sonography must take into consideration the patient's clinical situation and lab/radiological results. It should be a case-by-case strategy that takes into consideration all clinical scenarios. Absolute generalisation of enlarged mesenteric lymph nodes should be considered clinically important only in symptomatic patients with lymph nodes more than 10 mm in short axis diameter, and may indicate mesenteric adenitis.

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