

Non-Specific Mesenteric Lymphadenitis and Cervical Lymphadenopathy in Pediatric Age Group – A Correlative Study

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Abstract

Background: The aim of the study is to assess the correlation between non-specific mesenteric lymphadenitis in children with cervical lymphadenopathy. **Subjects and Methods:** Total of 172 cases with Ultrasound features of non-specific mesenteric lymphadenitis reported in Department of Radiology, JSS medical college hospital, Mysore during the period of October 2016 & July 2018 were included in the study and correlated with Ultrasound of the neck. The clinical profile and attributed causes of these cases were correlated and evaluated. **Results:** Out of 172 cases, 60.5% of cases presented with pain abdomen being the most common symptom. Upper respiratory symptoms were noted in 37.2% of cases, diarrhea in 6.4% cases, urinary tract symptoms in 3.5% and fever in 18.6% of cases. Cervical adenopathy was noted in 72 cases (41.9%) of total cases out of which 55 cases had signs of upper respiratory tract infection. **Conclusion:** Ultrasound diagnosis of non specific mesenteric lymphadenitis is important to differentiate it from other causes of pain abdomen. Upper respiratory tract infection is one of the most common causes of non specific mesenteric adenitis and is associated with cervical adenopathy.

Keywords: Non specific mesenteric lymphadenitis, cervical adenopathy, Ultrasound.

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Introduction

Mesenteric adenitis is described as three or more lymph nodes measuring 5mm or greater, present in the right lower quadrant mesentery. Without any detectable cause it is considered primary/ non-specific and if specific cause is detected, then it is considered secondary.^[1]

Non specific mesenteric lymphadenitis is a well documented condition with no clear etiology / pathogenesis. Wilensky and Hahn described the mesenteric lymphatic system and stated that the mesenteric lymph nodes had the same functional relationship to Peyer's patches of the ileum, as the cervical lymph nodes have to the tonsil and adenoidal tissue of the nose and throat.^[2] Mesenteric lymphadenopathy was thought to be due to tuberculosis in the earlier days and with advancements in newer diagnostic methods, other organisms were also found to be etiologically equal or more important.^[3] The association of abdominal pain and upper respiratory tract infections in children was suggested by Brenneman as well as by Goldberg and Nathanson.^[4,5] Mesenteric lymphadenitis is often associated with adenoviral infection and adenovirus is one of the most common cause of tonsillitis.^[6,7] 'Mesenteric lymphadenitis is associated with findings such as swollen cervical lymph nodes' was stated by Rosanna helbling et al.^[8]

This process may be acute or chronic, depending on the causative agent, and it causes a clinical presentation that is often difficult to differentiate from acute appendicitis, particularly in children.^[1,9-12]

Laparoscopy was used to differentiate between appendicitis & non specific mesenteric adenitis till recently. With improvement of Ultrasound technology and technique, the diagnosis of non specific mesenteric adenitis is the forte of Radiologist. Ultrasound is widely used as a screening and diagnostic tool in cases of abdominal pain. It is non-invasive, quick and reliable method to exclude most of the causes of abdominal pain.

The diagnosis of abnormal lymph node mainly depends on size criteria and the short-axis diameter of less than or equal to 4mm is considered normal mesenteric lymph node size.^[13,14] Mesenteric lymph nodes are considered to be enlarged, when the short-axis crosses 8mm.^[15] Location of mesenteric lymph nodes may indicate the nature of underlying disease process.^[16]

In most cases of non specific mesenteric lymphadenitis reported, enlarged nodes were noted in the ileo-caecal region.^[16-18] In cases of acute abdominal pain with enlarged mesenteric lymph nodes and no other pathology detected on Ultrasound, the most probable diagnosis would be non-specific mesenteric adenitis.^[11]

Subjects and Methods

All consecutive cases of sonologically diagnosed Non-specific mesenteric adenitis, in the Department of Radiology, JSS medical college hospital, Mysore during the period of October 2016 & July 2018 were included in the study. Proper informed consent was taken from all patients included in the study and ultrasound of neck was performed in the same sitting. Total of 172 cases aged between 3yrs and 18yrs were included in the study. All cases of para-aortic / retro-peritoneal adenopathy as well as known cases of HIV and neoplastic lesions were excluded from the study. Clinical history, signs and symptoms, lab reports and chest X-ray findings were recorded for all the patients included in the study. Three or more mesenteric nodes in the RIF, measuring more than 8mm was considered positive for non-specific mesenteric adenitis. Any station node measuring more than 10mm was considered enlarged for cervical lymphadenopathy.

Results & Discussion

In our study the most common age group affected with Non-specific mesenteric adenitis was 7yrs to 12yrs and the second most commonly involved group was 13yrs to 18yrs.[Table 1]

Table 1: Shows age group affected.

Age	Numbers	Percentage
3-6yrs	25	14.5%
7-12yrs	117	68.0%
13-18yrs	30	17.4%

Out of the 172 cases 110 were males, making up 64% of the cases and 36% of the affected cases were females. [Table 2]

Table 2: Shows the sex distribution of Non-specific mesenteric adenitis.

Sex	Number	Percentage
Female	62	36%
Male	110	64%

The most common presentation was pain abdomen, which was seen in 104 cases making up 60.5% of the total. Second most presenting symptom was upper respiratory tract infection, which was noticed in 64 cases, making up 37.2% of the total number of cases. This was followed by fever, which was present in 18.6% of the cases. Diarrhea and urinary tract infection symptoms were noted 6.4% and 3.5% of the cases, respectively. [Table 3]

Table 3: Shows the most common symptoms associated with mesenteric adenitis.

Symptoms	Numbers	Percentage
Pain abdomen	104	60.5%
Upper respiratory tract infection	64	37.2%
Diarrhea	11	6.4%
Urinary tract infection	6	3.5%
Fever	32	18.6%

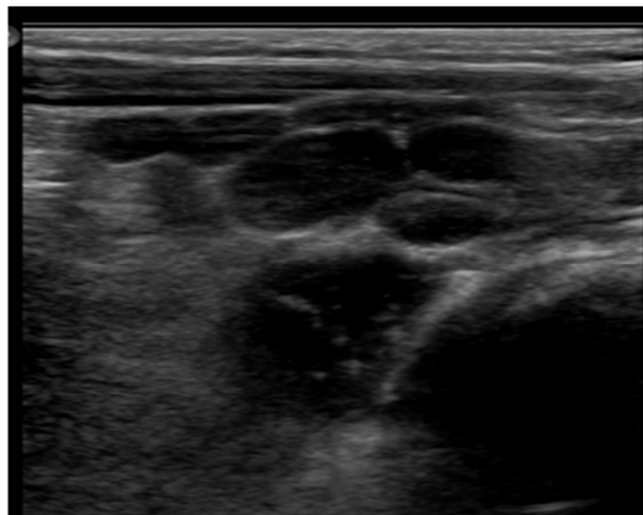


Figure 1: Ultrasound image, shows enlarged lymph nodes in the right iliac fossa.

In our study cervical adenopathy was seen in 72 cases i.e., 41.9% of the total number of cases. No cervical adenopathy was noted in 58.1% of the cases.[Table 4]

Table 4: Shows number and percentage of cases having cervical adenopathy.

Cervical adenopathy	Numbers	Percentage
Yes	72	41.9%
No	100	58.1%

Out of the 72 cases with cervical adenopathy, 55cases had upper respiratory tract infection symptoms while 17 cases had no upper respiratory tract infection symptoms. And 9 cases with upper respiratory tract infection symptoms had no cervical adenopathy.

Table 5: Shows 2x2 table with Confidence interval of 95%.

	Cervical adenopathy +	Cervical adenopathy -	Total
URTI+	55	9	64
URTI-	17	91	108
Total	72	100	172

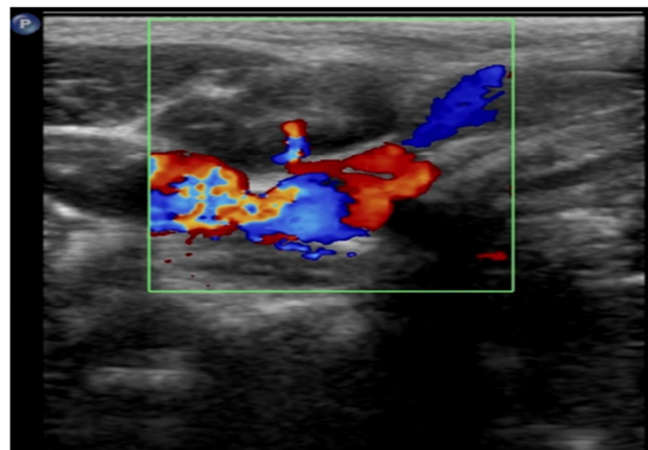


Figure 2: Ultrasound image of neck with color Doppler – shows enlarged cervical nodes anterior to neck vessels.

Discussion

Mesenteric adenitis is common among pediatric age group.^[1,9] The most affected age group in our study was 7-12yrs, which made up 68%. Peak incidence of mesenteric lymphadenitis was around 65% in the age group of 5 - 10 years, according to Maheshwari et al.^[22] According to Gorden et al acute mesenteric lymphadenitis occurs most commonly between 3 to 15 years of age.^[13] Peak incidence according to Sikorska et al is 9 years.^[19]

Males were affected more frequently compared to females, 75.4% and 24.5% respectively, in the study conducted by Maheshwari et al. Similar results were published by Aird I and Sikorska et al also.^[19,20] In our study 64% of the affected children were males, while 36% happened to be females.

Pain abdomen was the commonest symptom in our study, accounting for 60.5% i.e., 104 cases out of 172. Pain abdomen was also the most frequent symptom in the study conducted by Maheshwari et al, accounting for 59.6% of the cases.^[22] Wiersma, et al has reported 13 cases of mesenteric lymphadenitis presenting as acute abdomen.^[15] In the study conducted by Toorenvliet et al, mesenteric adenitis was the second commonest cause of abdominal pain.^[9] Sikorska et al study shows pain abdomen was seen in 49.6% of cases.^[19] According to Shakya et al mesenteric lymphadenitis was the cause of pain abdomen in 5.1% of children.^[21]

In our study upper respiratory tract infection was the second most common presenting symptom affecting 37.2% of the patients i.e., 64 patients. Similarly 36.8% of patients had respiratory tract infection in the study conducted by Maheshwari et al. Fever was the third most common presenting symptom in our study (18.6%) followed by diarrhea (6.4%) and urinary tract symptoms (3.5%). Study by Sikorska et al shows that the most common cause of mesenteric lymphadenitis was acute diarrhea in 15.7% of cases and respiratory tract infection accounted for 14.9% of cases.

Total of 55cases (67.9%) of patients in our study, who presented with upper respiratory tract symptoms, had cervical adenopathy while only 17cases with upper respiratory tract symptoms had no cervical adenopathy. Two by two table in our study shows confidence interval of 95%, suggesting strong association between mesenteric and cervical adenopathy in patients with upper respiratory tract infection.

Conclusion

Non-specific mesenteric adenitis is common in pediatric age group and presents as pain abdomen in most of the cases. Ultrasound is a useful tool in diagnosing mesenteric adenitis and preventing unwanted appendicectomy. Upper respiratory tract infection is second most common symptom

associated with mesenteric adenitis and is associated with cervical adenopathy. Ultrasound screening of neck for cervical nodes in cases of mesenteric adenitis will help the treating physician in identifying the cause and modifying the treatment accordingly.

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