Mesenteric lymphadenopathy in COVID-19 infection (Jammu and Kashmir sign) as a presenting sign in adult: case report

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Introduction: Mesenteric lymphadenopathy in an adult with gastrointestinal COVID-19 infection is a very rare. Ultrasonography is helpful in the diagnosis of mesenteric lymphadenopathy in COVID-19 infection.

Presentation of Case: A 33-year-old man presented with recurrent abdominal pain of 5 days duration. Ultrasonography and computed tomography of abdomen documented findings of the diffuse mesenteric lymphadenopathy, mostly on the left upper abdomen followed by right upper abdomen. Real time-polymerase chain reaction for SARS-CoV-2 was found reactive. Patient was managed by the local protocol and had regression of mesenteric lymphadenopathy.

Discussion: This is a first kind of case report where an adult patient having gastrointestinal COVID-19 infection presented with mesenteric lymphadenopathy only and named as the “Jammu and Kashmir sign (JK sign) in COVID-19 infection.”

Conclusion: Mesenteric lymphadenopathy in an adult with COVID-19 infection is very rare. This may be the only presenting sign in gastrointestinal COVID-19 infection.

Keywords: COVID-19, Mesenteric, Lymphadenopathy, RT-PCR, SARS-CoV-2, Gastrointestinal lymphadenopathy

Mesenteric lymphadenopathy is occasionally detected as an incidental finding on the routine ultrasonography of abdomen[1]. The common causes of mesenteric lymphadenopathy are infectious, inflammatory or of the neoplastic origin. A variety of infective conditions may lead to the mesenteric lymphadenopathy. Site, shape, size, number, type, and extent of mesenteric lymphadenopathy found on abdominal imaging helps in reaching the specific diagnosis[2]. On ultrasonography or the computed tomography, the criteria of diagnosis of mesenteric lymphadenopathy is well documented[3]. Mesenteric lymphadenopathy may be the only indicator of an underlying infective focus causing abdominal pain[4]. There are scanty reports of mesenteric lymphadenopathy presenting as an initial manifestation of COVID-19 infection in adult, though mesenteric adenitis occurring in the children diagnosed with COVID-19 infection have been reported[5]. Treatment targeting COVID-19 infection causes regression of mesenteric lymphadenopathy. The work has been reported as per “SCARE Guidelines” 2018 by Agha et al[6].

Case report

A 33-year-old man presented with episodic mild abdominal pain of 5 days duration. There was no history of any respiratory illness, loose motion, fever, arthritis, rash, any drug intake of any autoimmune disease or malignancy. On examination, patient was afebrile. There was no palpable lymphadenopathy at any sites on the body. Systemic examination was normal. Per abdominal examination revealed tenderness on both left and right side of upper abdomen. Laboratory values were normal except for slight neutrophilia. Liver function parameters, serum amylase and C-reactive protein levels were normal. Sputum for acid fast bacilli was negative and the Mantoux test was nonreactive. Nasopharyngeal swab for real time-polymerase chain reaction (RT-PCR) for SARS-CoV-2 was reactive. Both x-ray chest and upright x-ray abdomen were unremarkable. Ultrasound of abdomen showed findings of diffuse mesenteric lymphadenopathy, primarily on the left upper abdomen followed by right upper abdomen. These lymph nodes exhibited oval shape, perinodal stranding with the preserved fatty hilum appearing as an echogenic area at center of node and the largest lymph node was measuring 16 × 7.5 mm (Fig. 1). Chest computed tomography showed insignificant lymphadenopathy with normal lung fields. The findings on computed tomography abdomen, as well as in follow-up, were in line with the ultrasonography of abdomen. Computed tomography revealed findings of diffuse...
mesenteric lymphadenopathy, mainly on the left upper and right upper abdomen with small and large bowel being unremarkable (Fig. 2). Patient was managed conservatively at designated COVID quarantine center as per the local treatment protocol. On nasopharyngeal swab, repeat RT-PCR for SARS-CoV-2 tested negative on 10th day after the first test. On follow-up scans, progressive regression of lymphadenopathy with insignificant nodes recorded after 4 weeks.

Discussion
Mesenteric lymphadenopathy typically occurs in children, adolescents and young adults[3]. Males have slight preponderance over females in the occurrence of mesenteric lymphadenopathy[7]. Primary mesenteric lymphadenopathy is a right-sided lymphadenopathy without any identifiable underlying etiology. In this type, there are no apparent pathologic findings on an imaging. Secondary mesenteric lymphadenopathy occurs after abdominal pathology as in the appendicitis, variety of viral or bacterial gut infections, inflammatory bowel diseases, chronic granulomatous disease, systemic chronic inflammatory diseases and neoplasia[8]. Mesenteric lymphadenopathy may be the only sign of an underlying infectious focus causing abdominal pain, this is considered as an indirect finding in acute abdomen due to the gastrointestinal COVID-19 infection[9,10]. This finding is consistent with present COVID-19 infected case where mesenteric lymphadenopathy lead to abdominal pain and was the only sign present, diagnosed on imaging.

The ultrasonographic criteria for mesenteric lymphadenopathy have been variably defined as the detection of nodes larger than 4 mm in adult or 8 mm in children in the short axis[11,12]. This sonographic definition is in agreement with that of a study based on computed tomography studies in an adult population, where mesenteric lymphadenopathy is defined as 3 or more lymph nodes, each 5 mm or > 5 mm in short axis[13,14]. In the present case, there was documentation of mesenteric lymphadenopathy as per imaging criteria for diagnosis on abdominal ultrasonography and computed tomography. There is a risk of generalized lymphadenopathy of whole body depending on the specific etiology. In this case, there was documentation of only mesenteric lymphadenopathy on abdominal ultrasonography and computed tomography. The size, number and distribution of mesenteric lymph nodes may indicate the exact nature of the underlying etiology[10]. The mesenteric lymphadenopathy may be found at the mesenteric root, along the mesenteric border, or may be diffuse.
Inflammatory changes in the small or large bowel are usually present in areas drained by mesenteric nodes but are not always present. The clinical scenario, RT-PCR confirmed SARS-CoV-2, imaging criteria documented lymphadenopathy of oval shaped lymph nodes primarily in upper abdomen with absent inflammatory changes of intestinal wall confirms mesenteric lymphadenopathy due to gastrointestinal COVID-19 infection.

Conclusion
Mesenteric lymphadenopathy in gastrointestinal COVID-19 infection is rare. This Jammu and Kashmir sign may be sole presenting sign in COVID-19 infection.

Consent statement
Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Ethical approval
The publication of my article is exempt from ethical approval in my institution.

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Author contribution
I.W., H.M.T., N.A., and M.R.: substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data for the work. I.W., W.L., and U.Y.: drafting the work or revising it critically for important intellectual content. I.W., N.A., and N.K.: final approval of the version to be published. I.W., N.K., S.P., and T.J.: agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Conflicts of interest disclosure
The authors declare that they have no financial conflict of interest with regard to the content of this report.

Research registration unique identifying number (UIN)
There was no registration unique identifying number for this case report. The writing of this manuscript did not involve human subjects and does not constitute a clinical trial. Registration in a publicly available database was not required for this review.

Guarantor
Imtiaz Wani is guarantor and accepts full responsibility for the work and the conduct of the study, had access to the data, and controlled the decision to publish.

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