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A Case of Mis-C with Cervical Lymphadenitis and Retropharyngeal Edema

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Abstract

Recent reports of febrile and inflammatory syndromes have emerged in communities with high levels of Coronavirus infection. The syndrome has been referred to as Multisystem Inflammatory Syndrome (MIS-C). Herein, we report a case of a 12- year–old boy with MIS-C, who presented initially with enlarged cervical lymphadenitis and retropharyngeal edema.

Key Words: COVID19, Febrile and inflammatory syndromes, Lymphadenitis, MIS-C, Retropharyngeal edema.

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1- INTRODUCTION

A novel syndrome named MIS-C (Multisystem Inflammatory Syndrome) was described during the COVID-19 pandemic, firstly, in April 2020. MIS-C is a severe inflammatory syndrome in children similar to Kawasaki with multisystem organ involvement including the respiratory system, gastrointestinal, cardiac and mucocutaneous (1). In clinical practice, cervical lymphadenopathy is a common problem in children. COVID-19 is now considered one of the causes of lymphadenitis. Acute lymphadenitis lasts two weeks and is caused by viral or bacterial infections. In chronic lymphadenitis, an opportunistic organism, and a neoplastic process often co-exist (2). Herein, an unusual case of MIS-C manifestations has been reported in a 12-year-old boy who had enlarged lymphadenitis in the cervical chain and retropharyngeal edema. The patient's neck mass improved with corticosteroid.

2- CASE PRESENTATION

A 12-year-old boy was admitted to our hospital after complaining of fever for one week. Dysphagia and six centimeters of mass occurred over the left side of his neck in the following days. On clinical examination, there was erythema and tenderness. He could not turn his head without pain. The patient had no history of cough, respiratory distress, diarrhea, vomiting, weight loss, night sweats, or any recent travel. Past medical history was negative. His medication history was co-amoxiclav and azithromycin. On arrival at the hospital, his vital signs were as follows: blood pressure of 90/60 mmHg, heart rate of 105 /min, temperature of 38.5 Celsius degrees and respiratory rate of 17 /min. Oximetry showed 97% saturation on room air. Initial lab test showed: a white blood cell count of (WBC)15×103 /µl with lymphocyte count of 740/µl, c-reactive protein (CRP) 35 mg/l, hemoglobin(HB) 12 g/dl, platelets 209×103 /µl, erythrocyte sedimentation rate (ESR) 75 mm/hr., aspartate aminotransferase(AST) :47 IU/L, and alanine aminotransferase (ALT): 159 IU/L. CT scan reported multiple lymphadenopathies in the left anterior and posterior chain with maximum a diameter of about 15×. 11 mm (**Fig. 1**). The fluid track with 4 mm depth without rim enhancement is noted in retropharyngeal space in favor of inflammation and edema of retropharyngeal and left para pharyngeal space without abscess formation. Sonography and a spiral computed tomography scan (CT scan) of the neck with contrast were performed. In Ultrasound of the left neck, several enlarged nodes, some of which were hypo echo and lacked hilum, were seen on the left side of the jugular in the conglomerate chain (**Fig. 2**). Since admission, the patient received clindamycin concomitantly with cefotaxime. Four days later, he was still febrile. Due to his deteriorating condition, we even increased the level of antibiotics to meropenem and vancomycin, but this only markedly reduced his toxicity. Due to the continuation of fever, pus was drained through the oropharynx to the hypopharynx, but it could not be expelled. His pharyngeal PCR test was positive for covid-19, so inflammatory lab tests were sent and showed Lactate dehydrogenase (LDH) 412, D-dimer 5280, fibrinogen 640, Creatine Phosphokinase (CPK) 60, Creatine kinase-MB (CK-MB) 21, Ferritin 381. Due to MIS-c concerns, Echocardiography was requested and showed ectasia of the right coronary artery (RCA mid: 2.9). The patient was treated with corticosteroid together with aspirin. His general condition improved with treatment. The fever stopped, and neck swelling reduced and then eliminated. Echocardiography was still ectasia three days later. Finally, the patient was discharged with aspirin and oral prednisolone 1 mg/kg/day. He was good in the follow- up, and the ectasia was also decreasing (RCA mid: 2).

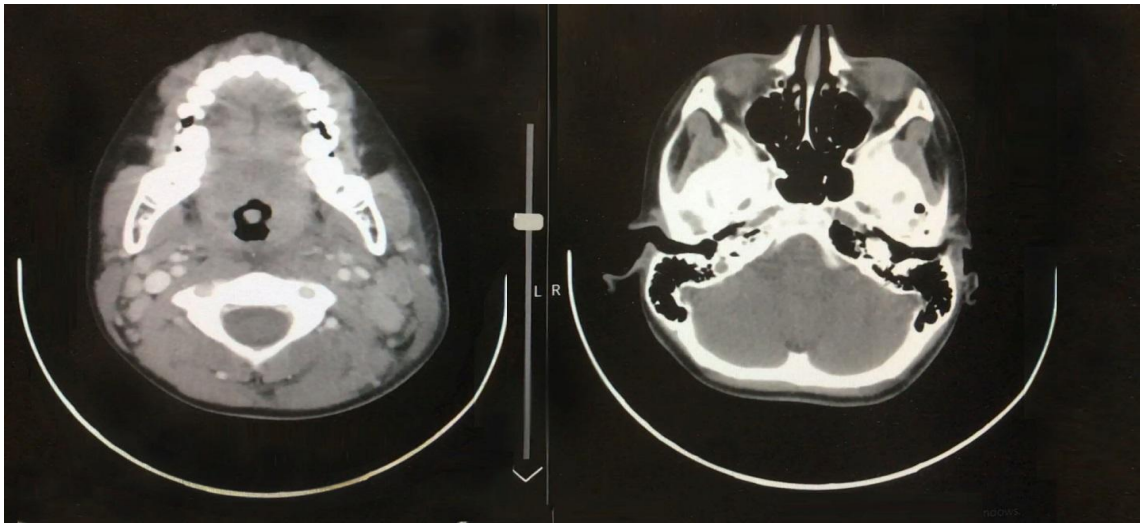

Fig. 1: CT scan shows multiple lymphadenopathies in cervical chain

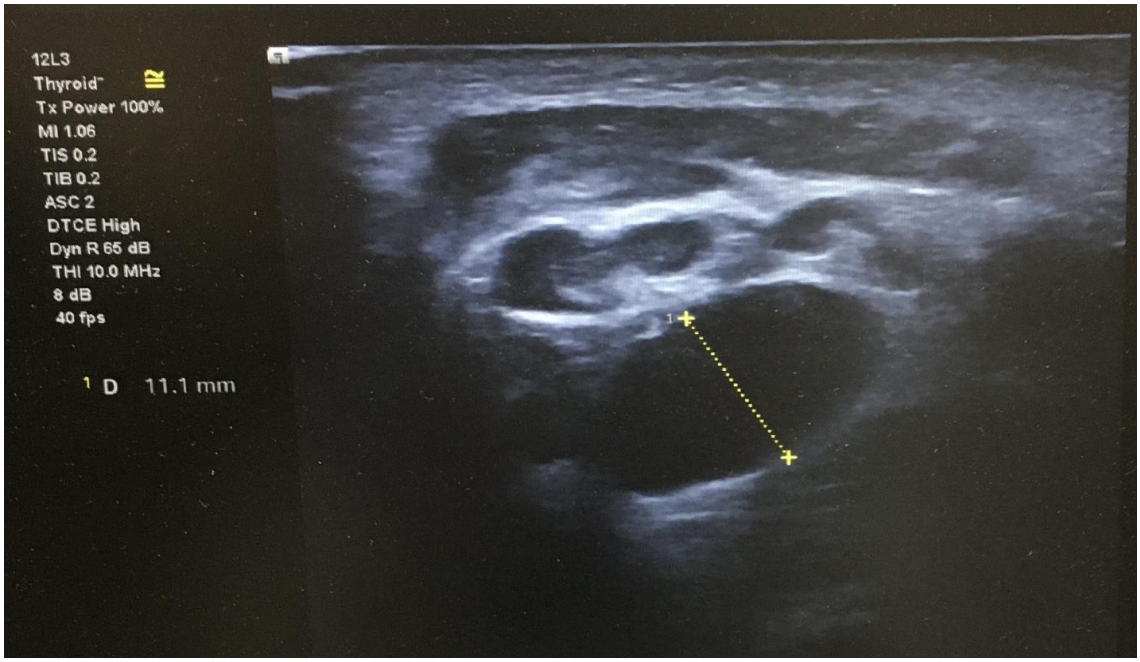

Fig. 2: In ultrasound of the left neck, several enlarged nodes were seen on the left side of the jugular

3- DISCUSSION

In this case, the patient had enlarged cervical lymphadenitis and retropharyngeal edema at the time of initial presentation, but later developed MIS-C. Lymphadenopathy in the cervical chain is common in the pediatric patients and most of them are benign. A large list of causes of cervical lymphadenopathy exists (node enlargement > 1 cm in diameter). Among etiologies, nonspecific benign reasons, occurring at a rate of 67.8%, were the most common. Besides the possibility of involvement of lymph nodes in COVID-19, another cause should be considered in the patients with lymphadenopathy.

Epstein-Barr virus was the next most prevalent (8.86%), malignancy and granulomatous disease accounted for 4.69% and 4.06% of cases, respectively. Non-Hodgkin's lymphoma was the most common cause of malignancy (46.0%), and tuberculosis was the most common granulomatous disease (73. 4%) (2). However, supraclavicular lymphadenopathy can be associated with malignancy. Alani and Rashid reported on a 12-year-old female who was admitted with cough, fever, anosmia and fatigue. The symptoms improved within ten days, but she developed supraclavicular swelling seven days later. The highly possible cause of this cervical lymphadenopathy was COVID-19, because of high IGM, positive real-time PCR and the absence of indicators associated with other reasons of lymphadenopathy (3). As a result of hyperplasia of cells, infiltration of leukocyte, and tissue edema, lymphadenitis occurs. Capillary leak and vasodilation in response to the release of locally cytokines, leads to edema and erythema, and distention of the nodal capsule causes tenderness. COVID-19 can reactivate cervical lymph nodes and local humoral immune response leads to the enlargement of lymph nodes (4). A few months after the onset of the corona pandemic, there were worldwide reports of a syndrome that most affected children, the majority of them needing hospitalization or even intensive care support. This syndrome was named multisystem hyper inflammatory syndrome (MISC). Early diagnosis of MIS-C is crucial, since untreated MIS-C can result in death or organ dysfunction (5). A systematic review and meta-analysis described 16 case reports and series involving 505 children with MISS-C from Jun 3 to Jul 23. Fever was the most common symptoms (100%).Other symptoms in order of prevalence were: gastrointestinal distress (88%), rash (59.2%), conjunctivitis (50%), swollen tongue or lips (55.7%), red or swollen hands or feet (47.5%), and swollen lymph nodes in the neck (42.5%)(6). Another study by Jenkins et al. proposed that the prevalence of retropharyngeal edema was 2.9 % among the 137 patients with a diagnosis of MIS-C. Retropharyngeal edema is an emergent and severe complication of COVID-19 (7). Daube et al. reported retropharyngeal edema in three children suspected of having MIS-C. There was no evidence of bacterial infection. They explained that there is an association between retropharyngeal edema and MIS-C. Although clear evidence of bacterial infection was not found in any of the patients, all three children received broad spectrum antibiotics empirically with coverage of anaerobic. Both cases two and three prescribed outpatient antibiotics before being admitted to hospital. Only if one underwent surgery. The clinical relevance with soft tissue-derived Streptococcus parasanguinis was unclear (8). In the abscess management, early identification is imperative, because abscesses formation in deep neck space can develop potentially and rapidly, and causes life-threatening events (9). What makes our case interesting is that our patient initially presented with only fever and large lymphadenitis without the presence of other symptoms and signs of COVID-19. Although this is an unusual occurrence for COVID-19, since a pharyngeal PCR test was positive and the patient failed to respond appropriately to antibiotics, we considered COVID-19 to be a possible cause of the lymphadenitis. Therefore, echocardiography and inflammatory factors were commissioned for COVID-19. In this case, CT-scan showed the fluid track with 4 mm depth without rim enhancement in retropharyngeal space in favor of inflammation and edema of retropharyngeal and left parapharyngeal space. Although drainage was performed after the antibiotic's initiation, there was no

discrete abscess. We reported these atypical signs of COVID-19 to help practitioners become more aware of the disease in the future and prevent complications of MIS-c. This case illustrates how huge lymphadenitis can be the initial manifestation of MIS-C; and if we miss diagnosing and promptly treating it, risks for complications of MIS-c will increase. Multisystem Inflammatory Syndrome in Children is increasingly being treated with IVIG, aspirin, and steroids. The patient responded well to steroids and aspirin treatment.

4- CONCLUSION

Despite not being common manifestations of MIS-C, lymphadenitis and retropharyngeal edema can be ruled out as differential diagnoses. This case manifests the importance of considering COVID-19 as a potential diagnosis of huge lymphadenitis or retropharyngeal edema.

5- REFERENCES

1. Son MBF, Friedman MDK, COVID-19: Multisystem inflammatory syndrome in children (MIS-C) clinical features, evaluation, and diagnosis. Up to Date, 2021.

2. Deosthali A, Donches K, DelVecchio M, Aronoff S, Etiologies of Pediatric Cervical Lymphadenopathy: A Systematic Review of 2687 Subjects. Global Pediatric Health, 2019. 6.

3. Al-Ani RM, Rashid RA. Supraclavicular Lymphadenitis Following COVID-19. 2021.

4. Gosche JR, Vick L. Acute, subacute, and chronic cervical lymphadenitis in children. In Seminars in pediatric surgery. 2006. Elsevier.

5. Tolunay O, Çelik Ü, Arslan İ, Orgun A, Demir H, Demir O, Dağdelen EC, Multisystem inflammatory syndrome in children (MIS-C) associated with COVID-19: A case series experience in a tertiary care hospital of Southern Turkey. Journal of Tropical Pediatrics, 2021. 67(2): p. fma050.

6. Tang Y, Li W, Baskota M, Zhou Q, Fu Z, Luo Z, Shi Y, Chen Y, Liu E, Multisystem inflammatory syndrome in children during the coronavirus disease 2019 (COVID-19) pandemic: a systematic review of published case studies. Translational pediatrics, 2021. 10(1): p. 121.

7. Jenkins E, Sherry W, Smith AGC, Rostad BS, Rostad CA, Jones K, Jaggi P, Retropharyngeal Edema and Neck Pain in Multisystem Inflammatory Syndrome in Children (MIS-c). Journal of the Pediatric Infectious Diseases Society, 2021. 10(9): p. 922-925.

8. Daube A, Rickert S, Madan RP, Kahn P, Rispoli J, Dapul H, Multisystem inflammat ory syndrome in children (MIS-C) and retropharyngeal edema: a case series. International Journal of Pediatric Otorhinolaryngology, 2021. 144: p. 110667.

9. Aldemir-Kocabaş B, Kcal MM, Ramoğlu MG, Tutar E, Fitöz S, Çiftçi E, İnce E, Recurrent Kawasaki disease in a child with retropharyngeal involvement: a case report and literature review. Medicine, 2014. 93(29).