Case Report

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Human metapneumovirus pneumonia during the Sars Cov-2 pandemic

Serap Çetiner[1], Ozgur Okuturlar[2], Ozlem Kaplan[3]

[1]Department of Internal Medicine, Private Clinic, Istanbul, Turkey
[2]Department of Internal Medicine, Private Rami Hospital, Istanbul, Turkey
[3]Department of Internal Medicine, Liv Hospital, Istanbul, Turkey

ABSTRACT

Human metapneumovirus (HMPV) is a virus from the paramyxovirus family identified in 2001. It is the second most common cause of lower respiratory tract infection in children after respiratory syncytial virus. In adults, it is mostly seen in the elderly population, immunosuppressive patients or those with a concomitant chronic disease. Human metapnemovirus can cause various clinical pictures ranging from a simple upper respiratory tract infection to bronchiolitis and asthma attack, from severe pneumonia to encephalitis and acute respiratory distress syndrome. In the case of viral infection in adults, especially during the Covid-19 pandemic, clinical and laboratory findings are similar, so it should be kept in mind in the differential diagnosis. This article is presented to draw attention to the inclusion of HMPV in the differential diagnosis of a 65-year-old female patient who applied to the practice with the complaints of high fever, cough, wheezing and headache during the Covid-19 pandemic. It has become important to detect the causative agent with multiple molecular tests and direct antigen tests in terms of differential diagnosis in respiratory tract infections, which are generally seen in adults during the pandemic. After the viral agent is determined with the diagnosis of the causative agent, the infection can be controlled more easily with the right treatment and the unnecessary use of antibiotics can be prevented.

Keywords: Metapneumovirus, Pneumovirus, COVID-19

Human metapneumovirus (HMPV) is a virus from the paramyxovirus family, identified in 2001. Data show that HMPV has been responsible for respiratory infections worldwide for at least 60 years. Seroprevalence studies have shown that the first infection occurs before the age of 5 years and people are re-infected throughout their lives. [1] In a Cohort study conducted in Israel, HPMV antibodies were detected in 80% of 2-months-old infants, and seropositivity was found in only 30% of 13-months-old infants. [2] This explains that the antibodies show maternal transmission and that the seropositivity decreases as the antibodies passed from the mother over time. In children aged 24 months, HPMV antibodies are positive at a rate of 52%, and almost all children are infected when they reach school age. In adults, it is mostly seen in the elderly population, immunosuppressive patients or those with a concomitant chronic disease. HMPV, which has an incubation period of 3-5 days, is held responsible for a wide spectrum of diseases ranging from upper respiratory tract infections, bronchiolitis, asthma attack, severe pneumonia, encephalitis and acute respiratory distress syndrome. HMPV infection

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Address for correspondence: *Serap Çetiner, M.D., 1Department of Internal Medicine, Private Clinic, Istanbul, Turkey. E-mail: ozokuturlar@gmail.com,*

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and COVID-19 are similar in many clinical features, common symptoms and findings include fever, cough, respiratory distress, rhinorrhea, crepitation and rales in respiratory sounds, shortness of breath, pharyngitis, otitis media, and conjunctivitis. [3] Patients with HMPV are found likely to be older women and those with chronic diseases (such as chronic obstructive pulmonary disease and chronic heart failure). Clinical outcomes during COVID-19 pandemic did not show any significant difference between two viruses.

In this article a 65-year-old female patient who applied to practice with complaints of high fever, cough, respiratory distress and headache during the Covid-19 pandemic will be presented. We wanted to emphasize that HMPV can also be as encountered as a factor in patients who have very similar presentation to Covid-19 pneumonia with negative in Covid-19 PCR tests.

CASE

A 65-year-old female patient with complaints of fever, nasal congestion, cough, headache for a week admitted to our clinic. Although oral antibiotic treatment had already been started her complaints did not regress. Vital signs were as follows: axillary body temperature 38.7ºC, respiratory rate 34 / min., oxygen saturation (sO_2) 83%, heart rate 115/min. On physical examination, there were widespread rales in both lungs. The laboratory features were as follows: white blood cell count (WBC) 8540/mm^3, Hemoglobin 13.8g/dL, Hematocrit 42.2%, platelet count 186000/mm3, neutrophil count 4020/mm^3, lymphocyte count 3470/mm^3, and C reactive protein (CRP) 32,8 mg/dL, D-Dimer 0.59mg/L, ferritin 492 ng/mL, serum iron level 86 ug/dl, aspartat aminotransferase 20 U/L, alanin aminotransferase 25,5 U/L, lactate dehhydrogenase 167 IU/L serum albumin level 4,1 g/dl, serum total protein level:7,1 g/dl, serum magnesium level 2,04 mg/dl, serum calcium level 9,98 mg/dl, serum sodium level 144 mmol/L, serum potassium level 5 mmol/L, total cholesterol level 212 mg/dl, low density lipoprotein 108 mg/dl, high density lipoprotein 65 mg/dl, triglyceride 182 mg/dl, serum creatinine level 0,76 mg/dl, blood urea nitrogen 15,5 mg/dl, serum üric acid level 5,11 mg/dl, thyroid stimulan hormon 1,5 uIU/ml, vitamin B12 538,4 pg/ml. On the chest X-ray, there were scattered, multiple, irregularly circumscribed radiopacities that tended to merge with each other in both lung parenchyma, and Thorax CT (computer tomography) was performed thereupon. In Thorax CT, interlobular septal and peribronchovascular interstitial thickenings with patchy ground glass densities-predominantly peripherally located in both lung parenchyma, accompanied by areas of consolidation and tending to merge with each other were detected which were suspicious for atypical viral pneumonia and COVID-19. The patient first performed an outpatient SARS-CoV-2-PCR test. The test came back negative. Meanwhile, the patient was hospitalized due to respiratory distress and persistent fever with the diagnosis of pneumonia. The patient was given 0.5-2 lt/min oxygen support and the SARS-CoV-2-PCR test was performed again. The result came back negative again. Thereupon, HMPV RNA was detected positive by the viral PCR panel taken from nasopharyngeal swab sample. Paracetamol and mucolytic therapy, as well as inhaled and oral corticosteroid therapy were initiated to reduce the patient's symptoms of pain, fever, sputum and cough. The patient's fever and tachypnea were brought under control on the 3rd day

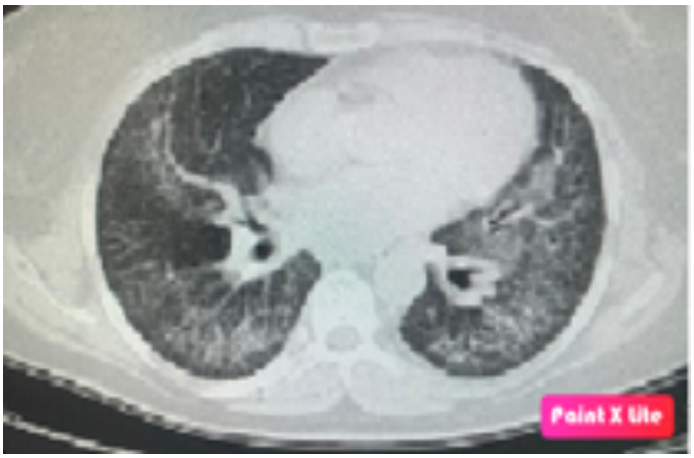

Fig. 1. Chest X Ray

Fig. 2. Thorax CT

of hospitalization. She was discharged home on the 7th day with oral corticosteroid therapy, as her oxygen requirement decreased and her CRP regressed to 6.2 mg/dL.

CONCLUSION

In the Nickbakhsh *et al*. study conducted with 239 samples in the last 4 years, it was observed that HMPV and Covid-19 virus peak overlapped. [4] Since Covid-19 and HPMV virus show similar features both in terms of incidence and clinical findings, their distinction is difficult. Some of the overlapping clinical features are: Cough (COVID-19: 63-69%; HMPV: 82-100%), fever (COVID-19: 80-89%; HMPV: 53-79%), dyspnea (COVID-19: 22-34%; HMPV: 69-98%), expectoration (COVID-19: 28-42%; HMPV: 69%) and some overlapping laboratory indicators are normal leukocyte level and increased CRP levels. [5,6,7,8]

It has been stated that some clinical features may also help distinguish HMPV from COVID-19 infection. Myalgia and fatigue were found to be more common in COVID-19 patients (36-46%), but not in HMPV-infected patients. On the other hand, rhinorrhea (69-85%) and nasal congestion (92-100%) were reported more frequently in HMPV-infected patients than in COVID-19 patients. 9 In our case, there was no myalgia, but she had nasal congestion. Decreased albumin levels (75.8%), lymphopenia (43.1%), elevated D-dimer levels (37.2%) and elevated lactate dehydrogenase levels (28.3-57.0%) have been reported in patients with COVID-19, unlike patients infected with HMPV. [10, 11, 12-15] However, unlike these studies, D-Dimer level was also found to be high in our case.

While female gender, higher age, lower body mass index, suppressed immune system, hematological malignancy or solid organ tumor are factors that increase mortality in HMPV infection; male gender, higher age, high body mass index, leukocytosis, elevated D-Dimer, high LDH levels, hyperglycemia, high-dose corticosteroid usage are found to be high risk factors for mortality in SARS-CoV-2. [16-18] No significant differences were found between thorax CT of HMPV and SARS-COV-2 infection. Ground-glass opacities, consolidations, and bronchial wall thickening are seen in both diseases. [19, 20, 21] However, crazy-paving patterns was not detected in HPMV-associated pneumonias. [22]

In conclusion, the clinical impact of HMPV infection has not changed during the COVID-19 outbreak, with both pathogens being similar in many clinical features. Presence of nasal symptoms, lack of myalgia, elderly patients with low body mass index should bring HMPV to mind.

Despite the negative COVID-19 PCR test results in the SARS-COV2 pandemic, it should not be insisted that the patient has COVID-19 pneumonia and other respiratory disease agents should be quickly screened with very simple antigen tests. This will make a significant contribution to the administration of appropriate antiviral therapy.

Authors' Contribution

Study Conception: ÖK,; Study Design: ÖK, Supervision: ÖO,; Data Collection and/or Processing: SÇ,; Statistical Analysis and/or Data Interpretation: SÇ,; Literature Review: SÇ,; Manuscript Preparation: ÖO and Critical Review: ÖO.

Conflict of interest

No potential conflicts of interest relevant to this article were reported.

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