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A CASE OF COVID-19 (CORONA VIRUS DISEASE-19) INFECTION RELATED REACTIVATION OF DORMANT VARICELLA ZOSTER.

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ABSTRACT

SARS-CoV-2 (Severe acute respiratory syndrome corona virus-2) virus infection can cause varied clinical manifestation. Skin complications in covid infection are rare. This is a case of 70-year-old male who was diagnosed with Covid-19 pneumonia developed multiple small non haemorrhagic vesicles on right side of the chest at the level of the nipple (T4 dermatomal involvement) on 6th day of illness. Based on classic dermatomal involvement and positive Tzanck smear of the vesicular fluid confirmed the diagnosis of Herpes Zoster infection. The vesicles were completely healed in 10 days of Covid-19 treatment and Valacyclovir injection. This report highlights a rare case of SARS-CoV-2 related reactivation of Varicella Zoster infection.

KEYWORDS: Corona Virus, Herpes Zoster, Varicella Zoster, Reactivation.

INTRODUCTION

A novel Coronavirus disease 2019 (COVID-19) is caused by an enveloped single stranded RNA virus closely related to SARS virus. SARS-CoV-2 is highly infectious and high potential for human transmission compared to SARS-CoV and Middle East respiratory syndrome corona virus.[1] The COVID-19 infection leading to reactivation of dormant Varicella Zoster (VZ) or primary Covid related skin lesions needs to be established. We report a case of VZ reactivation in patient with Covid-19 infection with severe ARDS.

CASE REPORT

A 70-year-old male came to our hospital ER (Emergency department) with history of fever, cough, breathlessness and loose stools since 3 days. He is a known case of type 2 diabetes mellitus and hypertension on regular medications. On examination he was conscious, with heart rate of 112 beats/min, Blood pressure of 134/56 mm Hg, respiratory rate of 35 breaths/minute and temperature of 101* F. Systemic examination showed bilateral basal crepitation with oxygen saturation of 78% on room air breathing and 92% with 10 litres of oxygen. Other systemic examinations were within normal limit. Routine blood examination showed Haemoglobin of blood of 13.7 gms/dl, total leucocyte count of 10700 cells/cumm, platelets of 2,51,000 cells/cumm, AST 78 U/L and ALT 52 U/L with normal bilirubin levels and Serum Creatinine level of 1./mg/dl. Covid RTPCR was done which was positive. In view of hypoxia and tachypnea he was started on non-invasive ventilation and shifted to Intensive care unit (ICU) for further management. After 6 hours due to worsening hypoxia and breathlessness he was initiated with invasive mechanical ventilation. He was managed with Remdesivir, methyl prednisone, enoxaparin, Vitamin-C, thiamine and other supportive care. On day 3 in ICU (Total 6 days of illness), multiple small non haemorrhagic vesicles were noted on right side of the chest at the level of the nipple (Image-1). Due to characteristic vesicular lesions and typical T4 dermatomal involvement, there was a suspicion of Herpes Zoster. Hence a Tzank smear of the vesicular fluid was sent which confirmed Herpes Zoster infection. He was treated with injection Valacyclovir 1g thrice a day for 7 days along with Calamine and Fucidin ointment (local application). The vesicles were completely healed in 10 days (Image-2). The patient improved over a period of time and discharged hone on 15th day of admission.

DISCUSSION

Corona virus infection was first noticed in mid-December 2019 at seafood market in Wuhan city - China. Initially considered it as zoonotic transmission

but later human to human transmission through respiratory droplets was established.[2] WHO (World Health Organisation) on 11th March 2020 declared COVID-19 infection as a pandemic.[3] Majority of the infected people will be either asymptomatic or have mild disease, 15% can progress to pneumonia and 5% will develop severe ARDS and multi-organ failure.[4]

Varicella zoster is one of the eight herpes viruses which are pathogenic to humans. This virus is highly contagious and spreads through contact and air borne.[5] The infections in children causes diffuse vesicular rash (chicken pox). Our patient also gave history of chicken pox in his childhood. This virus remains dormant in the sensory dorsal root ganglion cells. Herpes Zoster (Shingles) is the reactivation of the Varicella Zoster infection in the past and when the levels of memory T-cells decline.[6] The vesicular rashes are unilateral, painful and limited to affected single dermatome.[7] Patient usually experience itching or stinging sensation and paraesthesia's. Thoracic dermatome involvement is common and sacral is the least. Our patient also had T4 (Thoracic) dermatomal involvement. The incidence of HZ infection increases with age and peak incidence is seen between 60-69 years.[8] The HIV positive patients, elderly, immune-suppressed patients, lymphoma, stress, trauma, radiation and drugs are some of the risk factors for reactivation.[9]

Skin lesions related to COVID-19 are less common. Marzano et al have classified the COVID-19-associated cutaneous manifestations into six main patterns such as urticarial rash, confluent maculopapular rash, papulo-vesicular exanthem, livedo reticularis, purpuric pattern and chilblain like acral pattern.[10] Shors has reported Varicella reactivation in patient with Covid pneumonia[11] and median time from covid-19 diagnosis to herpes zoster detection is around 5.5 days. The Covid infection causes decrease in lymphocytes due to TNF-alpha, IL-6 and Cytokines related lymphocyte apoptosis, damage to thymus and spleen and ACE-2 receptor related direct lymphocyte death.[12] The decrease in CD3+ and CD8+ lymphocyte in Covid infection[13] along with immune dysregulation secondary to inflammatory response, compliment activation and cytokine storm causes hyper inflammatory condition leading to decrease in immune function and prone for Herpes Zoster infection.[14]

Diagnosis of HZ infection is based on Tzanck smear from the vesicles. Polymerase chain reaction (PCR) of the vesicular fluid or blood is the most sensitive and specific test. Skin biopsy, direct immunofluorescence and viral cultures are other diagnostic tests. Classic dermatomal involvement and Tzanck smear is enough to diagnose HZ infection. Antivirals such as Acyclovir, Famciclovir and Valacyclovir are mainstay of treatment. These drugs should be started within 72 hours of rash onset and treated for 7 days. We started Valacyclovir within 24 hours and our patient responded well. Corticosteroids are used in case of acute zoster pain, Ramsay Hunt syndrome and ocular complications. This case report highlights the rare possibility of SARS-CoV-2 related reactivation of Varicella Zoster.

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