

Case Report

Atypical presentations of MERS-CoV infection in immunocompromised hosts



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ABSTRACT

During the 2015 Korean MERS outbreak, we experienced atypical presentations of MERS-CoV infections in three immunocompromised hosts that warranted exceptional management. Case 1 showed delayed symptom development after a four-day asymptomatic period, Case 2 experienced a 20-day incubation period, and Case 3 exhibited persistent viral shedding without clinical deterioration. Recognizing these exceptions is extremely important in the management of MERS-CoV-exposed or -infected patients and for control of potential MERS outbreaks.

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1. Introduction

Middle East respiratory syndrome virus (MERS-CoV), a novel beta coronavirus, is notorious for its high fatality of up to 60% in comorbid patients [1]. After exposure to the virus, MERS-CoV-infected patients typically present with fever and respiratory symptoms within 14-day incubation period, and the diagnosis is confirmed by real-time reverse transcriptase polymerase chain reaction (rRT-PCR) assay of respiratory specimen. Severe patients rapidly develop pneumonia during the first week of illness, and progress to respiratory failure during the second week [1,2]. During

the 2015 Korean MERS outbreak, we experienced atypical presentations of MERS-CoV infections in three immunocompromised hosts, which suggest exceptional management for these hosts should be considered. All three patients were infected from the same super-spreading MERS patient at our emergency department (ED), which has been previously described [3,4]. The clinical courses of the three patients are concisely depicted in Fig. 1 in addition to the case description below.

2. Case reports

2.1. Case 1: delayed symptom development after a four-day asymptomatic period

A 42-year-old female with known myelodysplastic syndrome (MDS) visited our ED with complaint of abdominal pain and

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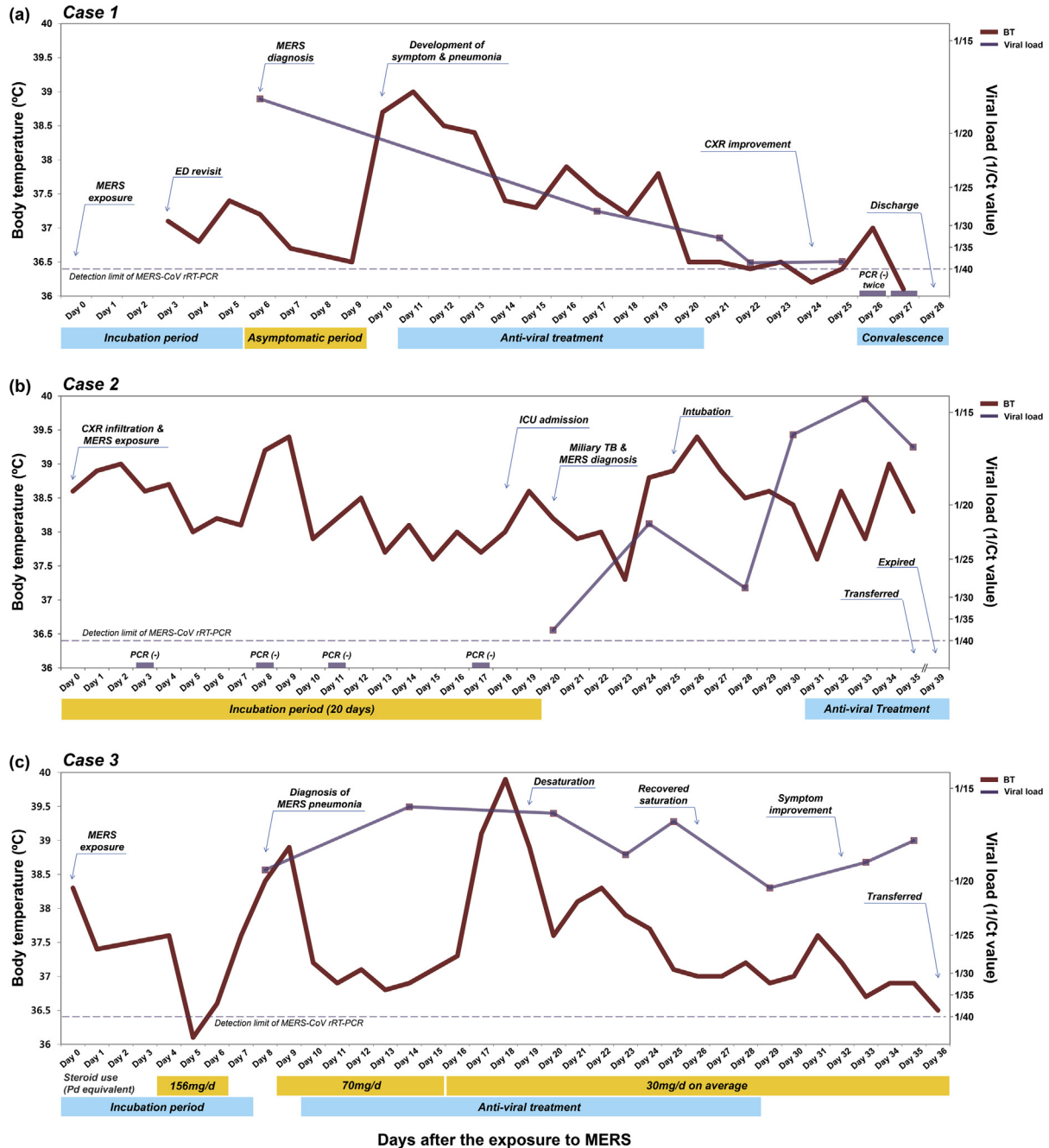


Fig. 1. Clinical courses of MERS-CoV infection in three immunocompromised hosts with atypical presentation. (a) Case 1: A 42-year-old female with MDS showed delayed symptom onset after a four-day asymptomatic period. (b) Case 2: A 49-year-old female, who had received an auto-PBSCT for recurrent DLBCL experienced a long incubation period of 20 days. (c) Case 3: A 34-year-old male with PTCL exhibited persistent viral shedding without clinical deterioration while using corticosteroid to control lymphoma and hemolytic anemia. Abbreviations: MERS-CoV, Middle East respiratory syndrome coronavirus; MDS, myelodysplastic syndrome; auto-PBSCT, autologous peripheral blood stem cell transplantation; DLBCL, diffuse large B-cell lymphoma; PTCL, peripheral T-cell lymphoma; rRT-PCR, real-time reverse transcriptase polymerase chain reaction; CXR, chest X-ray; BT, body temperature; Ct, threshold cycle; ICU, intensive care unit; TB, tuberculosis; Pd, prednisolone.

menorrhagia on May 26, 2015. She had anemia (hemoglobin 7.3 g/dL), thrombocytopenia (platelet count 21,000/ μ L), and lymphopenia (absolute lymphocyte count 470/ μ L) at the ED visit. She was discharged from the ED on the next day after supportive care including red blood cell and platelet transfusion. She visited the ED again with the same symptoms on June 1, and was admitted to an isolation room because she had stayed with the MERS patient at a 223.9 m²-sized room of ED for 23 h on May 29 [3]. Although she did not have any MERS-related symptoms, she was screened for MERS-

CoV infection by sputum rRT-PCR on June 4 [5]; the result was positive with a cycle threshold (Ct) value of 17.8. She remained in an asymptomatic status for four more days and received only supportive care and close monitoring. On June 8, she suddenly developed fever, myalgia, cough, and diarrhea, and her chest X-ray (CXR) showed pneumonic infiltration in left upper lobe (Fig. 2-a). On the next day, she was treated with a combination antiviral regimen of ribavirin, lopinavir/ritonavir, and interferon alpha 2a, as the follow-up CXR demonstrated aggravated infiltrates (Fig. 2-b). After 10 days

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