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The detection of Howell-Jolly body-like inclusions in a case of coronavirus disease-2019 (COVID-19)

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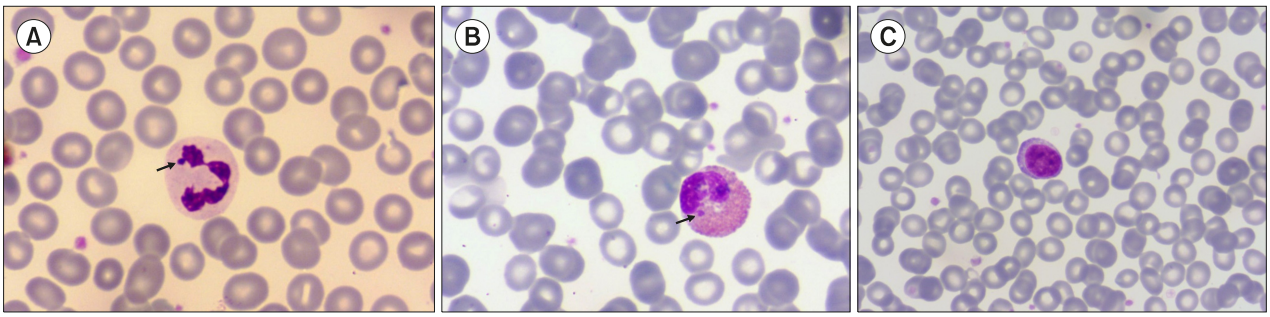

A 29-year-old woman presented to our emergency department with shortness of breath, dry cough, nasal congestion, sore throat, and fever for 3 days before admission. No comorbidities were noted, except for a benign, non-toxic solitary thyroid nodule present for the past 12 years. Clinical assessment, radiological examination, and reverse transcription polymerase chain reaction test confirmed the diagnosis of coronavirus disease (COVID-19) pneumonia. Laboratory examinations revealed a hemoglobin level of 14.0 g/dL, total white cell count of 7.2×10^3/μL, absolute lymphocyte count of 1.96×10^3/μL, and platelet count of 268×10^3/μL. Her peripheral blood film showed Howell–Jolly body-like inclusions in both neutrophils and eosinophils (**A, B**) along with atypical lymphocytes with an eccentric nucleus, deep blue-stained cytoplasm, and visible nucleoli (**C**). She was treated in accordance with symptomatic measures and had a mild course of illness.

COVID-19 is an emerging infectious disease that causes a wide range of hematological abnormalities. However, Howell–Jolly body-like inclusions in the neutrophils of patients with COVID-19 have not been reported previously. Howell–Jolly body-like inclusions in neutrophils were first described by Bain in 1989 as spherical, basophilic inclusions of detached nuclear fragments in neutrophils caused by dysplastic granulopoiesis. Since then, several conditions have been reported to be associated with this occurrence, including human immunodeficiency virus infection and myelodysplastic syndrome and the use of antiviral medications and immunosuppressive and chemotherapeutic drugs. Howell–Jolly body-like inclusions are commonly seen in neutrophils but are occasionally found in monocytes, lymphocytes, and eosinophils. It was not until 2017, when the nuclear origin of this morphological phenomenon was confirmed in a case with Howell–Jolly body-like inclusions in a patient with enterovirus-human rhinovirus pneumonia. Similar to our case, the occurrence of Howell–Jolly body-like inclusions could hypothetically be a response to a certain viral infection. Further studies are required to elucidate whether these morphological findings have pathogenic and prognostic consequences in COVID-19.