Can we develop oncolytic SARS-CoV-2 to specifically target cancer cells?

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Dear Editor

We read with great interest the article by Ottaiano *et al.* titled "*Unexpected tumor reduction in metastatic colorectal cancer patients during SARS-Cov-2 infection*"[1] reporting a very interesting three colorectal cancer (mCRC) cases experiencing infection by severe acute respiratory syndrome coronavirus 2 (SARS-Cov-2), and all three patients surprisingly showed improvement in mCRC disease burden.

Induction of apoptosis is considered to be one of the promising strategies for the development of new anti-cancer therapies.[2] Infection induced by SARS-CoV-2 is associated with increased rate of apoptosis.[3] Therefore, we propose that infection with low-pathogenic SARS-CoV-2 may lead to efficient and rapid oncolysis, especially with the information that cancer remission was seen in many patients infected with SARS-CoV-2.[4–6] Research is urgently needed to uncover the possibility of using oncolytic SARS-CoV-2 to specifically target cancer cells.

Pasin and colleagues reported a very interesting male patient case of a temporary remission of refractory natural killer (NK)/T-cell lymphoma during COVID-19 infection, and he surprisingly relapsed after COVID-19 resolution.[5] This remission of NK lymphoma was observed during COVID-19 infection, with surprising clinical and laboratory amelioration, suggesting that SARS-CoV-2 may have some oncolytic activity.[5] In a recent study, Challenor and Tucker reported an interesting case of remission of Hodgkin's lymphoma after infection with SARS-CoV-2.[4] They hypothesized that infection with SARS-CoV-2 triggered an anti-tumor immune response. The proposed mechanisms of action could be cross-reactivity of pathogen-specific T-cells with tumor antigens and activation of NK cell through inflammatory cytokines secreted in response to infection.[4] Sollini and colleagues recently reported that a 61-year-old patient had complete remission of follicular lymphoma after SARS-CoV-2 infection, with exclusion of malignancy guided by computed tomography (CT) biopsy performed twice.[6]

Keeping in mind the current cases of cancer remission seen in patients infected with SARS-CoV-2 as well as SARS-CoV-2 apoptotic feature, there is an urgent need to investigate developing of oncolytic SARS-CoV-2 to specifically target cancer cells.

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