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Case Report

CT scan does not make a diagnosis of Covid-19: A cautionary case report

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ABSTRACT

Here, we report the clinical case of a 12-year-old girl presenting with flu-like symptoms, cough, anosmia, ageusia, breathing difficulties, and patchy ground glass opacities on TDM chest scan who turned out to be Coronavirus 229E-infected. This case draws attention to the risk of false COVID-19 diagnosis when over-relying on CT scan imaging.

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The diagnosis of SARS-CoV-2 infection is based on the detection of viral RNA by RT-PCR. Yet, in absence of access to this assay or to save time and reagents, some clinicians and protocols rely on chest CT images rather than on molecular biology for diagnosis. Here, we report a case to caution against over-relying on CT scan diagnosis. A 12-year old girl presented to our paediatrics department with exacerbation of febrile asthma. Both parents reported flu-like symptoms for the previous ten days, including fever, cough, anosmia and ageusia, and upper respiratory infections were reported in relatives. The patient reported appearance of rhinorrhoea and a cough three days earlier with asthenia and feeling of oppression without dyspnoea. Symptoms worsened over the following two days, with breathing difficulties and fever. The patient had a history of asthma but reported no recent salbutamol intake.

The patient had fever, with a temperature of 38 °C, heart rate of 128 bpm, oxygen saturation 97% in ambient air, and respiration rate of 22 breaths/min. Biological results showed a normal complete blood count with 5.73×10^9 neutrophils/L, 2.34×10^9 lymphocytes/L, and 313×10^9 platelets/L, normal CRP, and neither electrolyte disorder nor kidney failure. Clinical examination found no mottling, a capillary refill time of <3 s, no cyanosis, discrete chest in-drawing, and diffuse expiratory wheezing.

Low dose TDM chest scan showed unilobar, perihilar patchy ground glass distribution (Figure 1). Whilst the appearance was not typical of Covid-19, which conventionally has bilateral involvement and peripheral distribution, the presentation was evocative of Covid-19 pneumonitis in the pandemic context.

RT-PCR assays of nasopharyngeal samples at admittance and 24 h later were negative for SARS-CoV-2. Multiplex PCR on rhinopharyngeal secretions was positive for Coronavirus 229E.

The patient responded favourably to treatment with 60 mg prednisolone and 5 mg salbutamol in aerosol every two hours, which was progressively spaced out. The fever did not return, although the productive cough remained, and the patient was discharged two days after admittance.

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In this case report, parents' anosmia and ageusia as well as chest scan could have been misleading. Anosmia has been described for coronaviruses different from SARS-CoV-2 (Hwang, 2006). According to Kim et al., scanner screening of patients with suspected COVID-19 in low-prevalence countries has a poor positive prediction value (1%–31%) (Kim et al., 2020). Basing Covid-19 diagnosis strictly on clinical signs and imaging may lead to false positive diagnosis, resulting in inappropriate medical care and errors in contact tracing.

Conflict of interest

The authors declare that they have no conflict of interest.

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Ethical approval

The study was carried out in accordance with the french guidelines and regulations.

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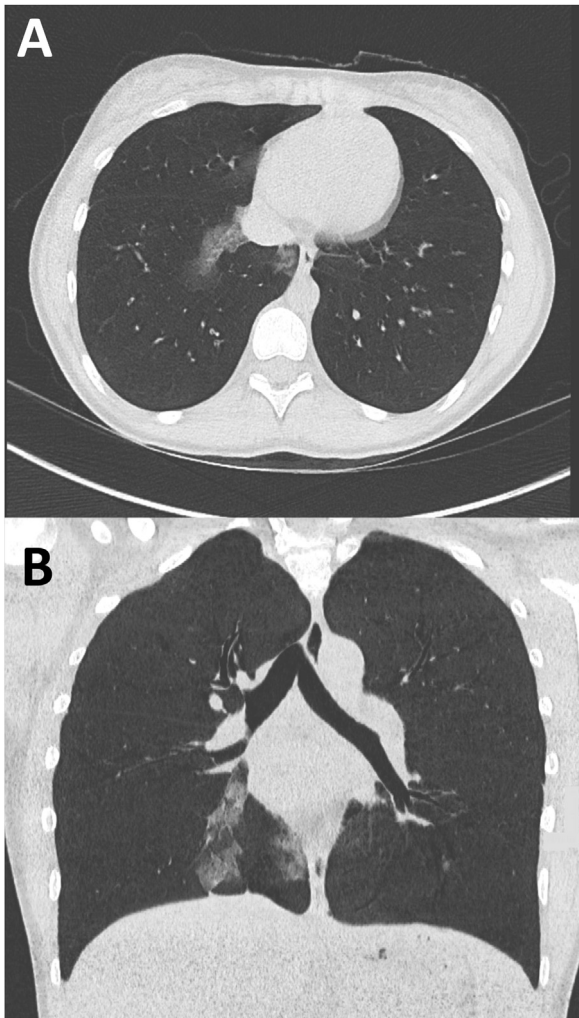

Figure 1. Axial (A) and coronal (B) chest CT scan. The scan shows asymmetric, unilobar, central patchy ground glass compatible with Covid-19 pneumonia.